Appendix A: Mailing and Distribution List

PG&E Line 406 and Line 407 Pipeline Project EIR
Agency and Interested Party Mailing List

First Name	Last name	Department/Title	Firm/Agency
Elizabeth B.	Hearey		Atkinson, Andelson, Loya, Ruud & Romo
			Caldwell Flores Winters, Inc.
Dennis J.	O'Bryant	Division of Land Resources Protection	California Department of Conservation
O'Connell	Jack	Superintendent	California Department of Education
Dan	Gifford		California Department of Fish & Game
Scott	Flint		California Department of Fish & Game
Sandy	Morey		California Department of Fish & Game
Chuck	Armor		California Department of Fish & Game
		Office of Historic Preservation	California Department of Parks and Recreation
Brian	Lewis	Engineering Geology	California Department of Toxic Substances Control
		District 3	California Department of Transportation
		Floodway Protection Section	California Department of Water Resources
			California Public Utilities Commission
Sam	Brandon		California Reclamation Board
Craig	Deason	Asst. Superintendent, Facilities	Center Unified School District
Darrell	Aokai		
Morse	Mark	Environmental Coordinator / Community Development	City of Roseville
Combs	Bill	Vice Chairperson	Cortina Band of Indians
Patterson	Elaine	Chairperson	Cortina Band of Indians
			Coyote Ridge Elementary School
			Darrell Aokai
Rudolph	Rosen	Western Region	Ducks Unlimited
Curtiss	Bill	Executive Director	Earth Justice Legal Defense Fund
Faircloth	Ernest	Cultural Preservation	El Dorado Miwok Tribe

First Name	Last name	Department/Title	Firm/Agency
Scambler	Jeri	Chairperson	El Dorado Miwok Tribe
Reynolds	Ren		Enterprise Rancheria of Maidu Indians
Watson	Frank	Vice Chairperson	Enterprise Rancheria of Maidu Indians
			Environmental Defense Fund
			Esparto Chamber of Commerce
Ventura	Gutierrez	National Coordinator	Farmworker Network for Economic & Environmental Justice
			Feather River Air Quality Management District
Lamare	Judith	President	Friends of the Swainson's Hawk
Martin B.	Steiner		Hefner, Stark & Marois, LLP
Joe	Heindrick		Heindricks and Heindricks Property
Roger	Doris		Hershey Land Company
Blue Elliston	Billie	Cultural Committee Chair	Ione Band of Miwok Indians
Chris	Ochoa		Klein Farms
			Lauppe 98 RV
		c/o Ken Giberson, Mackay and Somps	Lennar
Tony	Martin		Microp
Kirk C.	Rogers	Bureau of Reclamation	Mid Pacific Regional
			Mother Lode Chapter Sierra Club
Jeff	Stewart		National Marine Fisheries Service
			Native American Heritage Commission
Roberts	John	Executive Director	Natomas Basin Conservancy
			Natural Resources Defense Council
Pam	Brochman		Odysseus Farms
		Department of Transportation	Office of Pipeline Safety
			Placer County Agricultural Commissioner
			Placer County Air Pollution Control District
			Placer County Clerk's Office

First Name	Last name	Department/Title	Firm/Agency
Peg	Rein		Placer County Community Development Resource Agency
Sarah K.	Gillmore	Engineering and Surveying	Placer County Community Development Resource Agency
Andrew	Gaber	Transportation	Placer County Department of Public Works
Jim	Bachman		Placer County Farm Bureau
Andrew	Darrow		Placer County Flood Control and Water Conservation District
Matt	Shawver	Facilities Planning	Placer County Office of Education
Garbolino-Mojica	Gayle	Superintendent	Placer County Office of Education
Brian	Martin		Placer County Water Agency
		c/o Michael Smith, Mackay and Somps	Placer Vineyards
Bryan	Bertacchi		Rabback Energy
Paul	Devereux		Reclamation District 1000
Max	Sakato		Reclamation District 1500
Jim	Nolan		Reclamation District 1600
Kyle	Lang		Reclamation District 1600
Kyle	Lang		Reclamation District 1600
			Reclamation District 2035
Robert	Nakken		Reclamation District 730
Janice	Hurnblad		Reclamation District 787
Daniel	Ramos		Reclamation District 827
Virginia	Moran	Central Valley Region	Regional Water Quality Control Board
Mark	Manoff		Rio Linda/Elverta Community Council
			Rio Ramaza Marina
Mark	Morse		Roseville Community Development Department
Richard S.	Chavez		RSC Engineering, Inc.
Flores	Kesner	Cultural Resources Specialist	Rumsey Indian Rancheria of Wintun
			Sacramento Area Council of Governments
			Sacramento County Agricultural Commissioner
			Sacramento County Clerk's Office

First Name	Last name	Department/Title	Firm/Agency
			Sacramento County Engineering Department
			Sacramento County Environmental Review & Assessment
Ken	Oneto		Sacramento County Farm Bureau
Gordon	David W	Superintendent	Sacramento County Office of Education
Robert	Sherry		Sacramento County Planning & Community Development
			Sacramento Department of Transportation
			Sacramento Metropolitan Air Quality Management District
Kwong	David	Planning Manager	Sacramento Planning Department
Matt	Boyer		Sacramento Transportation & Air Quality Collaborative
Fonseca	Nicholas	Chairperson	Shingle Springs Band of Miwok Indians
Murray	Jeff	Cultural Resources Manager	Shingle Springs Band of Miwok Indians
Ruben	Grijalva		State Fire Marshall
Kerfoot	Robert		Strawberry Valley Rancheria
Larry	Combs		Sutter County Administrator
			Sutter County Agricultural Commissioner
			Sutter County Clerk's Office
Doug	Libby	Principal Planner	Sutter County Community Services Department
Danielle	Coleman		Sutter County Farm Bureau
Jeff	Holland	Superintendent	Sutter County Superintendent of Schools
		c/o Ken Giberson, Mackay and Somps	Sutter Pointe
Suehead	Christopher	Cultural Representative	Todd Valley Miwok-Maidu Cultural Foundation
			Transmission Agency of Northern California
			Twila Thompson
Erin	Hess		U.S. Army Corps of Engineers

First Name	Last name	Department/Title	Firm/Agency
Heidi R.	Miller	Realty Officer/Western Area Power Administration	U.S. Department of Energy
Holly	Herod		U.S. Fish and Wildlife Service
Kenneth	Sanchez		U.S. Fish and Wildlife Service
Jon	Devish		Union Pacific Railroad
Tavares	Jessica	Chairperson	United Auburn Indian Community of the Auburn Maidu and Miwok
Arturo	Rodriguez		United Farm Workers of America, AFL-CIO
Phil	Hogan		USDA Natural Resources Conservation Service
			Vera Gorman
Brian	Monaghan		Wildlands, Inc.
Jeff	Mathews		Wildlands, Inc.
			Woodland Community Development Department
Cottingim	Jacki L	Superintendent	Woodland Unified School District
			Yolo Branch Library
			Yolo County Agriculture Department
Duane	Chamberlain	Supervisor, Fifth District	Yolo County Board of Supervisors
Sharon	Jensen		Yolo County Board of Supervisors
			Yolo County Clerk's Office
Denise	Sagara		Yolo County Farm Bureau
Joe	Martinez	President	Yolo County Farm Bureau
			Yolo County Planning, Resources and Public Works
Ayala	Jorge	Superintendent	Yolo County Office of Education
Mathew R.	Jones		Yolo-Solano Air Quality Management District
Bonnie	Lopez		
Christine	Bennett		
Daniels	Leland		
Doug	Wirth		
Enos	Rose		
Fulton	Stevens		
George M.	Carpenter, Jr.	Attorney at Law	
Gorman	Carol		

First Name	Last name	Department/Title	Firm/Agency
Herb	Pollock		
Howard	Lopes		
Jim	Bennett		
John	Stone		
Pete	Lopez		
Lucile	Lopez		
Lynnel	Pollock		
Michael	Valentine		
Patricia	Williams		
Paul	Smith		
RD	Williams		
Richard	Leonard		
Laura	Leonard		
Robert B.	Wirth, Jr.		
Chuck	Jensen		
Treva	Valentine		
Tom	Horgan		
William L.	Dibble		
Yonemura	Randy		

PG&E Line 406 and Line 407 Pipeline Project EIR
Project EIR Property Owner Mailing List

A & B Farms
Abele, Agnes H.
AKT Lincoln
American HM MTG SVCS INC.
American Tower Management
Andrews, Scott C and Jacquelynn D.

Aoki, Darrell R.
Aoki, George and Sakaye
Atkinson, Thomas S. II
Atkinson, Thomas Trust
Auburn & Vanmaren LLC
Aujla Mandeep Et Al
AWR Partnership
B & W 60
Baker, Scott J.
Barringer, Donald and Carol Jane
Bartels, Donald L. and Lynda J.
Barth, Robert and J Family Trust
Base Line 82 Plus
Baseline & Watt LLC
Baseline A and B Holding LLC
Baybrook Limited Partnership
Beard, Douglas & Diane Trust
Bellevue Button Factory
Bennett, James
Benoit, Donald B H and June E
Blair, Leslie SUCC/Schaupp, Robert SUCC
Borromeo, Charles and Lucila
Bot, Martian
Bowler, Brent and Catina
Bracken, Roger D. and Cindy R.
Brennan, Robert D and Anna M
Brewer Road Partners
Brill, Clinton W. II and Rosanne M.
Brooks, Elton O. and Patricia A.
Brown, Joan D.
Cabral, Eduardo S. and Dorie V. E.
Cache Creek Ranch Co.
Callejo, William F.
Carmical, Kenneth R.
Caruthers, Marilyn
Chun, Hun Young Kil/Young Chul
Co, Y. William J. and Carol Jean
Consulo Trustee
Cordova, Thomas M.
Cornacchiolli, Fred P. Jr.
Cortez, Emily
Corwin, Dolores L/RT
County of Sacramento
Coy, William James and Carol Jean
Cramer, Jack Louis
Cull, Michael B and Patricia
D F Properties
Davis Clark Trust
Dejarnett, A. B
Denny, Gary L. and Janet M. Denny
Construction
Department of Water Resources
Deveau, Don E.
Dibble, Mervin L. and Dorothy
Doyle, Carmen
Durst, Melvin A.
Edsall Family Ranch
Elh Sutter Propoperties Family LP
Elkhorn Properties
Fernandez, E. L. Family Ltd Partners
Fernandez, Elvera L.
First Northern Bank of Dixon
Fischer, James B and Susan R.
Fisher Family
Fisher Family Trust
Fortenberry, David S. and Renay
Four D Farms LLC
Galaxidas, Constantino
Garcia, Rex
Garfield, Leslie
Gibble, Bill
Gimenez, Joseph E. and Dawn K.
Gorman, Bernie C. Sr. and Vera
Gray, Donly
Gray, Donly Clifford Sr. Estate
Gray, Donly Sr (Estate of) Gray Bros
Gray, Phillip
Grube, Ann E.
Hamilton, Loren
Hand, Donald William
Hand, Nathaniel
Harless, Williard Lee and Kathleen M.
Hatanaka, David W. and Candice J.
Hatch, Michael D and Nancy E.
Hayes, David D.
Hayes, Janet Mast
Hayes, Thomas E.
Heidrick & Heidrick Property LP
Henning, Golden A.
Hensley, Carmon and Helen J.
Henson & Associates
Hernandez, Salvador H. and Gloria
Hershey Land Co. Row Crop
Hiatt, Gayle M.
Highfill, Stephani

Hilda M. Rodegerdt Administrative Trust
Hintz, Lyle A. and Virginia L.
Hobday, Pricilla C.
Holzmeister, Paul and Sandra
Horgan, Harold J. and Cristen L.
Horgan, Michael J. and Susan E.
Horgan, Thomas G.
Horgan, Vernon J. and Florence
Hudson, Thomas N.
Hungary Hollow Partners
IL Centro LLC
J K Vineyards LLC
Javida, N Sam J
Jensen, Charles R. and Sharon G.
Johal, Kuldip S and Balbir K
Jolly Trust
Jolly, Jack L./Jolly Family
Jones, Jenny and Londell
K Hovnanian Forecast Homes Inc
Kasbergen, Jack and Ellie M.
Kelly, Patrick H. and Lydia B.
Kerr, Lorraine R.
Klein Farms Inc.
Klingbeil, Ernest R. and D. J.
Knaggs Farming Company LP Layton Knaggs Estate
Knight, Carol A
Knight, Delbert L
Kobrya, Yuriy and Anna
Koontz, Wallis/Koontz Trust
Lacross, Kenneth
Lang Family #1 LTD Partnership
Larane Investments INC.
Laugenour, Stephen
Laughlin, Pat L.
Lauppe '98 RV

Lennar Winncrest LLC
Leonard, Richard E. and Laura M.
Lewandowski ,Gerald and Stephanie
Lopez ,Everardo and Lucille
Lopez, Howard L. and Bonnie A.
LWP INC
Mackey, Stephen & Valorie
Mast, Edward
Mast, Edward, J. F.
Mast, Jack D.
Mcclain, Cecil and Daisy M.
McGinnis, Michael and Deborah
McIssac, Timothy T. and Pia R.

Mckenzie Farms
Mckenzie, Barry C. et al.

McKim, Collen
Mclemore, Douglas A. and Lucy T.
Mello, Raymond
Microp Limited A Corp
Mikayelyan, Hovsep
Minatre, Gerald N.
Miramontes, Rudolph J and Kathy
Mouarang Norepaul et al
Natomas Basin Conservancy Corp.
Neichen, N. V.
Occupant (24)
Ochoa, Dennis and Susan
Ochoa, Stanley and Cynthia
Oconnel, Jean P Trust et al
Odysseus Farms
Oganisyan, Mareta
Oliver, William J. and Shirley A.
Operhall, Annette C.
Pacific American Exchange Corp.
Pahlavanian, Ali
Pardini, Richard A./ LT
Payne Family Partnership
Placer
Plancarte, Maria
Pollock, Herbert E.

Previte, Jack
Pritchetti, Loren
Prouty, James W. and Mildred A. Prouty
Rand, Hamilton P.
Reintsma, Kathleen
Reynen and Bardis Vacaville PTP
Riego Road Properties
Roberts, Louis T. and Deonn W.
Rodegerdt, Bruce and Diana
Rodegerdt, Bruce and Diana (Hilda M. Rodegerdt Administrative Trust)
Rodegerdt, Hilda M. Administrative Trust
Rominger, Harvey L.
Rominger, Peter, et al
Ross Pat, Princeton Natural Gas
Rotteveel Orchards
Sacramento County
Sacramento Municipal Utility District
Sacramento River Ranch LLC
Sanders, Allen M. and Linda S.
Schlotz, Jeanne Lederer
Schneider, Carl J and Judith
Seamans, Harold Lee and Betty J.
Shelley, Menvil R. Family Trust/ Etalwarren A. Shelley
Sills, Alice M.
Sills, James V.

Sills, Rev. Family
Sing, Parminder
Smith, Luther C. and Bertha A.
Smith, Paul L.
SMUD
Snyder, Stuart A. and Elizabeth N.
Sopwith Farms
Sorensen, Richard A.
South Sutter LLC
Spangler, Dan F.
Spangler, Family Trust et al,
Spangler, Robert N. and Doris P.
Stephens, Mary Louise
Stephens, William Fulton Jr,/Fulton Stephens Ranch
Stevens, George Jr.
Stevens, Glenn Harold and Joanne H
Stevens, Marlene
Stone, Elizabeth M. and John F.
Stone John F. Trust et al
Story, Isabel Durst
Sugarland Farms
Swanston 505 LLC
Switzler, Jeffrey and Kelley
Tanaka, Richard A.
Teeters, James D. and Kathleen R,
Tenhunfeld Partnership
Tevelde David Family Trust
The Natomas Basin Conserv. Corp.
Thompson, Derek G and Ronald H.
Tsakpoulos, Kyriakos
Valentine, Michael R and Treva A.
Veach, Mary
Vestal, Edward/Eileen Family Trust et al.
Vierra, George A. and Christine J.
Vincent, Raymond L. and Geraldine
Vine, Jason
Vo, David and Kimberly
Webb, Jeff and Karen
Welles, Christopher S.
Wetzstein, Eberhard
Wilborn, J. D. and Viola
Wilhelm, David A. and Noreen E.
Williams, Eric E. and Erika C.
Williams, Gary L.
Williams, Richard D and Patricia A.
Winn, Wilda N.
Wirth, Robert
Wirth, Vesta E. and Douglas D.
Yolo County Flood Control and Water Conservation District
Sills, Rev. Family

Appendix B: Notice of Preparation (NOP), Comment Letters, Meeting Transcripts, and Location of Responses

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

PAUL D. THAYER, *Executive Officer*
(916) 574-1800 FAX (916) 574-1810
California Relay Service From TDD Phone **1-800-735-2922**
from Voice Phone **1-800-735-2929**

Contact Phone: **(916) 574-1897**
Contact FAX: **(916) 574-1885**

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT AND NOTICE OF PUBLIC SCOPING MEETING

CSLC EIR No.: 740
Project: PG&E Line 406 and Line 407 Natural Gas Pipeline
CSLC Ref Files: W30169-4, W26210; R19806
SCH#: 2007062091

Date: June 19, 2007

To: Interested Parties

Project: Pacific Gas and Electric Company (PG&E) proposes to construct a 30-inch diameter natural gas pipeline (Lines 406 and 407) and a new distribution feeder main from Esparta in Yolo County east to west Roseville in Placer County. The proposed pipeline would provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system in the Sacramento Valley Region and would deliver natural gas directly to an area of anticipated growth.

Applicant: Pacific Gas and Electric
2730 Gateway Oaks Drive
Sacramento, California 95812

Location: The proposed pipeline is approximately 40 miles long spanning four counties: Yolo, Sutter Sacramento, and Placer (see Figure 1 in Attachment 1 for an overview of the project). Line 406 would begin at PG&E's existing Lines 400 and 401 in Yolo County at the foot of the Coast Range and extend east to PG&E's existing Line 172A near the town of Yolo. Line 407 would extend from PG&E's existing Line 172A where the proposed Line 406 terminates, east to PG&E's existing Line 123 near the City of Roseville. The proposed Distribution Feeder Main (DFM) would extend from the new Line 207 south and parallel Powerline Road to the Sacramento Metro Air Park development in Sacramento County.

The project area consists of flat to rolling topography. The natural vegetation and hydrology of much of the project area has been significantly modified for agricultural use. West of the Sacramento River, agriculture is the dominant land use with orchards, row crops, and irrigated pasture covering a majority of the land.

In the western portion of the project, in Yolo County, where Line 406 would be constructed, small intermittent creeks and irrigation ditches and canals make up a majority of the water features. The geographic area commonly known as Dunnigan Hills, located in the Line 406 segment, consists mainly of rolling open rangeland.

Line 407 would cross numerous irrigation canals and ditches as well as the Sacramento River. In the easternmost project area, Line 407 would cross two small intermittent creeks, Curry Creek, and the Natomas East Main Drainage Canal (Steelhead Creek). Line 407 would also cross numerous irrigation canals and ditches that feed rice production within the Natomas Basin. New residential and commercial developments are planned in the eastern portion of the Line 407 project area, within Placer, Sutter, and Sacramento counties. This area is currently made up of a mix of rice fields and nonnative annual grasslands with inclusive seasonal and vernal pool wetlands.

Project Description:

The Project being proposed by PG&E would provide greater capacity and service reliability to the existing natural gas transmission and distribution pipeline system in the Sacramento Valley Region and would deliver natural gas directly to an area of anticipated growth. The project would further reinforce the reliability of the region's natural gas system by providing a second, larger-diameter connection point between Lines 400 and 401 and existing pipelines serving several larger metropolitan areas in the region.

A detailed project description, location, and potential environmental effects are presented in Attachment 1.

Purpose of Public Scoping Process:

The California State Lands Commission (CSLC) will be the Lead Agency under the California Environmental Quality Act (CEQA), and will prepare an Environmental Impact Report (EIR) for this project.

The purpose of this Notice of Preparation / Notice of Public Scoping Meeting is to obtain agency and the public's views as to the scope and content of the environmental information and analysis, including the significant environmental issues, reasonable range of alternatives, and mitigation measures that should be included in the draft EIR. Applicable agencies will need to use the EIR when considering related permits or other approvals for the Project.

Due to the time limits mandated by State law, written comments must be sent by **Wednesday, July 18, 2007.** Please send your comments at the earliest possible date to:

Crystal Spurr, Staff Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
FAX: (916) 574-2274 E-mail: spurrc@slc.ca.gov

NOTE: You are encouraged to submit electronic copies of your comments in Microsoft Word format. If comments are faxed or sent by e-mail, please also mail a copy to ensure that a clean copy is received by this office.

Pursuant to Section 15083, Title 14, California Code of Regulations, the CSLC will also conduct two public scoping meetings for the proposed Project to receive oral or written testimony at the times and places listed below:

DATE: Monday, July 9, 2007
TIME: Afternoon meeting at 3:00 PM
Evening Meeting at 5:30 PM
LOCATION: Holiday Inn Express
Main Meeting Room
2070 Freeway Drive
Woodland, CA 95776
(530) 662-7750

DATE: Tuesday, July 10, 2007
TIME: Afternoon meeting at 3:00 PM
Evening meeting at 5:30 PM
LOCATION: Roseville Downtown Library
Oak Room
225 Taylor Street
Roseville, CA 95678
(916) 774-5221

If you have any questions or would like a copy of this Notice and Attachment 1, please contact Crystal Spurr at the above address, by phone (916) 574-0748, or e-mail at spurrc@slc.ca.gov. Copies of this Notice will also be available at the public scoping meetings and on the CSLC web page: www.slc.ca.gov (under "Project Updates").

Signature: Crystal Spurr
Crystal Spurr
Staff Environmental Scientist

Date: June 19, 2007

ATTACHMENT 1

PROJECT DESCRIPTION
PG&E Line 406 and Line 407 Pipeline Project

1. PROJECT DESCRIPTION

Pacific Gas and Electric Company (PG&E) is planning to construct the Line 406 and Line 407 Pipeline Project (Project) in California's Central Valley in Yolo, Sutter, Sacramento, and Placer counties. This natural gas pipeline project involves a new 30-inch transmission pipeline that would be approximately 40 miles long (identified as Line 406 and Line 407), and a new Distribution Feeder Main (DFM).

According to PG&E, the existing transmission system in the Sacramento Valley region no longer has sufficient capacity to provide reliable natural gas service to existing customers or to extend service to planned development in the area. Without this project, customer reliability would be at risk and unplanned core customer outages could occur as early as 2009. This region is projected to continue experiencing a significant amount of ongoing residential and commercial development over the next 25 years, and would require a substantial amount of new local natural gas transmission pipeline capacity to meet the resulting customer load growth.

The Project would increase service reliability, add another major connection between the local transmission system and PG&E's backbone natural gas transmission system, and provide increased connectivity to re-route natural gas within the system. The vast majority of the natural gas that is delivered to customers in the Sacramento Valley region comes from Canada via PG&E's major north-south backbone system, Lines 400 and 401. Currently, most of this natural gas is delivered from lines 400 and 401 to the local transmission system at one connection point, the Buckeye Pressure Limiting Station. The Project would add a new major connection point to Lines 400 and 401, the Capay Metering Station, located approximately 15 miles south of the Buckeye Pressure Limiting Station. From this connection point, the Project would construct a large-diameter transmission pipeline across the valley, essentially bisecting the existing circle and delivering natural gas directly to an area of anticipated growth. Because the Project would also connect to Line 172 and Line 123, it would further reinforce the reliability of the region's natural gas system by providing a second large-diameter connection point between Lines 400 and 401 and existing pipelines serving several larger metropolitan areas in the Sacramento region.

1.1 Project Location

PG&E's proposed project area spans four counties from the foot of the Coast Range to the city of Roseville. The project area ranges in elevation from approximately 15 to 255 feet, and consists of flat to rolling hill topography. The natural vegetation and hydrology of much of the project area has been significantly modified for agricultural use. West of the Sacramento River, in the Line 406 and Line 407 project areas, agriculture dominates land use, with orchards, row crops, and irrigated pasture covering a majority of the land.

Line 406 would begin at PG&E's existing Lines 400 and 401 in Yolo County at the foot of the Coast Range and extend east to PG&E's existing Line 172A near the town of Yolo.

In the western portion of the project, in Yolo County, where Line 406 would be constructed, small intermittent creeks and irrigation ditches and canals make up a majority of the water features. The Dunnigan Hills area, located in the Line 406 segment, is largely open rangeland.

Line 407 would extend from PG&E's existing Line 172A near the town of Yolo and extend east to PG&E's existing Line 123 near the city of Roseville.

Line 407 would cross numerous irrigation canals and ditches and the Sacramento River. In the easternmost project area, Line 407 would cross two small intermittent creeks, Curry Creek, and the Natomas East Main Drainage Canal (Steelhead Creek). Line 407 would also cross numerous irrigation canals and ditches that irrigate rice production within the Natomas Basin. New residential and commercial developments are planned in the eastern portion of the Line 407 project area, within Placer, Sutter, and Sacramento counties. This area is currently made up of a mix of rice fields and nonnative annual grasslands with inclusive seasonal and vernal pool wetlands.

The new DFM would extend from the new Line 207 south paralleling Powerline Road to the Sacramento Metro Air Park development in Sacramento County.

1.2 Project Objectives

PG&E has identified the following objectives for the Line 406 and Line 407 Pipeline Project:

• Provide greater capacity and service reliability to the existing natural gas transmission and distribution pipeline system while minimizing costs to PG&E's customers .

• Extend natural gas service to planned residential and commercial developments in Placer, Sutter, and Sacramento counties.

• Install project facilities in a safe, efficient, environmentally sensitive, and cost-effective manner.

• Locate the pipeline to minimize the potential of environmental impacts resulting from damage by outside sources.

1.3 Pipeline Routes and Components

Detailed descriptions of the four segments of the Line 406 and Line 407 Pipeline Project are outlined below (see Figure 1). These descriptions are provided sequentially from west to east, although this is not the order in which they would be constructed.

Line 406 would be constructed in 2009. Line 407 (separated into Line 407 East and Line 407 West), and the Powerline Road DFM segments would be constructed as dictated by the added load on the transmission system. Current projections are that Line 407 East and the Powerline Road DFM would be required in 2010. However, the pipelines may be installed prior to road improvements associated with developments along Baseline and Riego Roads. Line 407 West is projected to be required in 2012 but may be required earlier depending upon load growth in the area.

1.3.1 Line 406

Line 406 would consist of approximately 14 miles of 30-inch-diameter natural gas transmission pipeline operating at a maximum allowable operating pressure of 975 pounds per square inch gauge (psig), and transporting up to 475,000,000 cubic feet of natural gas per day between existing Lines 400 and 401 and existing Line 172A in Yolo County. From Lines 400 and 401, the Line 406 pipeline would extend east across agricultural fields to County Road (CR) 87, where it would turn south to a point just north of the intersection with CR 19. The route would proceed east under CR 87 and cross addititional agricultural fields to Interstate 505 (I-505) to align with CR 17. After crossing under I-505, the route would parallel CR 17. From this point, Line 406 would continue east, paralleling CR 17 to a point at the east end of the Dunnigan Hills, where it would turn north for approximately 2,500 feet. At this point, the route would turn east along farm roads to, and under, Interstate 5 (I-5). On the east side of I-5, Line 406 would continue east to a tie-in point with Line 172A and Line 407 West. The proposed in-service date is October 1, 2009.

1.3.2 Line 407 West

Line 407 West would consist of approximately 13.5 miles of 30-inch-diameter natural gas transmission pipeline operating at 975 psig and transporting up to 180,000,000 cubic feet of natural gas per day between Line 172A and the tie-in with Line 407 East near the intersection of Powerline and Riego roads in Sutter County. Beginning at the tie-in point with Lines 406 and 172A near I-5, Line 407 West would extend east through agricultural fields to CR 98. The route would cross under and parallel CR 98 south to CR 16A. The pipeline would then head east along CR 16A to CR 99B, which it would parallel south to CR 17. At CR 17, the pipeline would turn east and parallel CR 17 to the Knights Landing Ridge Cut. The route would cross under this canal to the east and pass through more agricultural fields before reaching the western levee of the Yolo Bypass. Line 407 West would then cross east through agricultural fields within the Yolo Bypass to an irrigation canal on the eastern side of the Bypass, which it would parallel north to CR 16. The route would parallel CR 16 east through Sacramento River Ranch Conservation Bank lands and walnut orchards to the Sacramento River crossing site near the junction of CR 16 and CR 117. From this point, the pipeline would cross under the Sacramento River for approximately 3,000 feet and would then follow Riego Road in Sutter County past the Huffman East, Huffman West, Vestal, and Atkinson Natomas Basin Habitat Conservation tracts, to the corner of Powerline and Riego roads where it would meet the proposed Powerline Road DFM and Line 407 East.

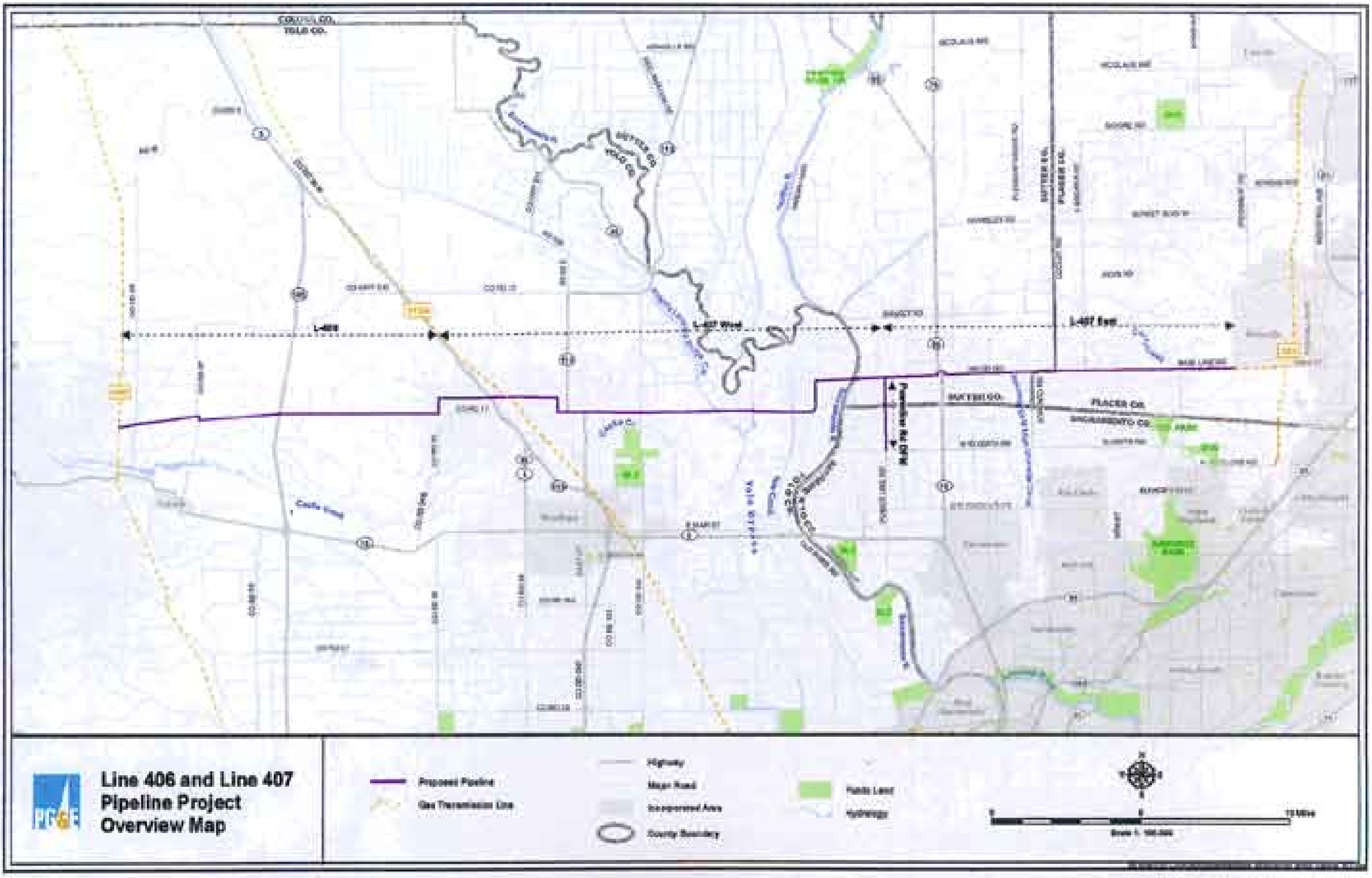
Line 406 and Line 407
Pipeline Project
Overview Map
Proposed Pipeline
Gas Transmission Line
Highway
Major Road
Incorporated Area
County Boundary
Parks Land
Hydrology
L-406
L-407 West
L-407 East
Powerline Rd DFM
SUTTER CO.
PLACER CO.
SACRAMENTO CO.
YOLO CO.
Yolo Bypass

FIGURE 1

1.3.3 Line 407 East

Line 407 East would consist of approximately 12 miles of 30-inch-diameter pipeline operating at 975 psig and transporting up to 180,000,000 cubic feet of natural gas per day between Line 407 West in Sutter County and Line 123 in Placer County. Line 407 East would extend east from the junction of Line 407 West and the Powerline Road DFM along Riego and Baseline roads in Sutter and Placer counties. The route would cross State Route (SR) 70/99, and a number of irrigation canals, including the North Drainage Canal and the Natomas East Main Drainage Canal (Steelhead Creek). Line 407 East would parallel the northern border of the Placer Vineyards Specific Plan area before connecting with Line 123 at the intersection of Baseline and Fiddyment roads.

1.3.4 Powerline Road Distribution Feeder Main (DFM)

The Powerline Road DFM would consist of approximately 2.5 miles of 10-inch-diameter steel pipeline operating at 975 psig and transporting up to 17,000,000 cubic feet of natural gas per day to new developments in north Sacramento County, including the Metro Air Park and North Natomas. This segment would parallel Powerline Road between Riego Road in Sutter County where Lines 407 East and West meet, and West Elverta Road in Sacramento County.

1.3.5 Additional Project Components

The project would include the construction of additional appurtenances necessary for operation of the four line segments. Five fenced, aboveground pressure limiting, pressure regulating, metering, and main line valve stations would be constructed along Line 406 and Line 407 to ensure that proper pressures are maintained in the transmission system and to reduce the pressure of the natural gas before delivering it to the distribution pipeline system. These stations would consist of the following:

- The Capay Metering Station would be constructed at the connection of Lines 400 and 401 and Line 406, and would cover an area of approximately 100 feet by 100 feet.

- The Yolo Junction Pressure Limiting Station would be constructed at the connection of Line 406 and Line 172A near I-5, and would cover an area of approximately 100 feet by 100 feet.

- The Baseline Road Pressure Limiting Station would be constructed at the connection of Line 407 and Line 123 at Baseline Road and Watt Avenue and would be approximately 35 feet by 75 feet in area.

- The Powerline Road Pressure Regulating Station, near the corner of Powerline Road and West Elverta Road along the Powerline Road DFM, would be constructed in an area measuring approximately 35 feet by 75 feet.

- The Powerline Road Main Line Valve would be installed within an area measuring approximately 30 feet by 30 feet at the intersection of Riego and Powerline roads.

Other components necessary to the operation of the pipeline include aboveground line markers and electrolysis test stations.

1.4 Permits and Permitting Agencies

In addition to action by the CSLC, as the CEQA lead agency, the proposed Project may require permits and approvals from reviewing authorities and regulatory agencies that may have oversight over aspects of the proposed project, including but not limited to:

- US Army Corps of Engineers (Corps);
- U.S. Fish and Wildlife Service (USFWS);
- Central Valley Regional Water Quality Control Board (CVRWQCB);
- California Department of Fish and Game (CDFG);
- California Department of Transportation;
- State Reclamation Board;
- Sacramento Metropolitan Air Quality Management District, Yolo Solano Air Quality Management District, Feather River Air Quality Management District and Placer County Air Pollution Control District;
- Placer, Sacramento, Sutter, Yolo Counties;
- Appropriate Reclamation Districts
- Sacramento River Ranch LLC; and
- The Natomas Basin Conservancy.

2. ALTERNATIVES

In accordance with Section 15126.6 of the CEQA Guidelines (California Governor's Office of Planning and Research 2001), an EIR must "describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives." The State CEQA Guidelines also require that a No Project Alternative be evaluated, and that under specific circumstances, an environmentally superior alternative be designated from among the remaining alternatives.

2.1 ALTERNATIVES PROPOSED FOR CONSIDERATION

Alternatives currently proposed by PG&E are described briefly below. Additional alternatives may be included dependent on information received during the public scoping and as a result of the environmental analysis.

2.1.1 Line 406 Central Alternative and Variations

Two variations of the Line 406 central alternative are proposed: Line 406 Central Alternative A and Line 406 Central Alternative B. The western portions of variations A

and B would each follow the same route, by starting at Lines 400 and 401 and following CR 16 to I-505 and then heading north through a grape vineyard to align with CR 15B on the west side of the highway. The route would continue east on CR 15B through the Dunnigan Hills area, then cross Smith Creek until it becomes CR 93. From this juncture, variations A and B (15.5 and 15 miles long, respectively) would follow two different routes.

Variation A would travel northeast along an ephemeral stream to CR 14A, then proceed east on CR 14 across Interstate I-5 to Line 172A. Variation A would then parallel Line 172A south to the tie-in point with Line 172A and Line 407, north of the town of Yolo.

Variation B would continue east from the intersection of CR 15B and CR 93, cross country to Line 172A just south of the town of Dufour. Variation B would then parallel Line 172A south to the tie-in point with Line 172A and Line 407, north of the town of Yolo.

2.1.2 Line 407 Central Alternative (Variation A)

The Line 407 Central Alternative would run east from Line 172A and the terminus of Line 406 through agricultural fields to CR 98. The route would cross under and parallel CR 98 south to CR 16A. The Line 407 Central Alternative would then parallel CR 16A east to CR 99B, which it would parallel south to CR 17. At CR 17, the pipeline would turn east and parallel CR 17 to the Knights Landing Ridge Cut. The route would cross under this canal and cross agricultural fields before reaching the western levee of the Yolo Bypass. Variation A would then head southeast through agricultural fields within the Yolo Bypass to a point on the Sacramento River directly across from West Elverta Road to Powerline Road. The route would head north paralleling Powerline Road to Riego Road and would then parallel Riego Road through the Natomas Basin Conservancy to Steelhead Creek. The route would parallel the northern border of the Placer Vineyards Specific Plan area along Baseline Road (Riego Road becomes Baseline Road in Placer County) until the tie-in with Line 123 at the intersection of Baseline and Fiddyment Roads.

2.1.5 Line 407 Southern Alternative

The Line 407 Southern Alternative would begin at existing Line 172A and the terminus of Line 406. The line would parallel existing Line 172A south to near CR 99 just north of the city of Woodland, and would extend east across row crops to SR 113, where it would parallel CR 18C before reaching CR 102. At CR 102, the route would turn northeast and extend to CR 18B, where it would continue east through agricultural land consisting of mixed row crops and rice fields. The route would cross Cache Creek, three extensions of Knights Landing Ridge Cut, the Tule Canal, and one other smaller canal before reaching walnut orchards near the western side of the Sacramento River crossing.

The route would then parallel West Elverta Road east of the Sacramento River through rice fields, passing the northern edges of the Sacramento International Airport and the new Metro Air Park development area. Proceeding eastward, the route would cross numerous irrigation canals and ditches, as well as the Natomas East Main Drainage

Canal (Steelhead Creek). At the town of Elverta, the route would parallel an existing energy utility corridor northeast through agricultural land and the Placer Vineyards Specific Plan development area toward Baseline Road. Four crossings of small tributaries to Steelhead Creek would be required before the route would reach Baseline Road, which it would parallel east to the tie-in with Line 123.

2.1.6 Systems Alternatives

An additional alternative to the proposed Project would be to install parallel pipelines along existing rights-of-way. PG&E would have to install a total of 63 miles of parallel transmission pipeline to provide sufficient incremental capacity to serve the same amount of customer load growth that the proposed Project could accommodate.

2.1.7 No Project Alternative

Under the No Project Alternative, a natural gas pipeline would not be constructed between existing Lines 400 and 401 in Yolo County and the existing Line 123 in Placer County. PG&E's studies indicate that the natural gas transmission and distribution system may not be able to reliably serve customers and planned development in Yolo, Sacramento, Sutter, and Placer counties by 2009. Additionally, continued growth in the area would put further strain on existing natural gas infrastructure, and could result in emergency restrictions or interruption of services.

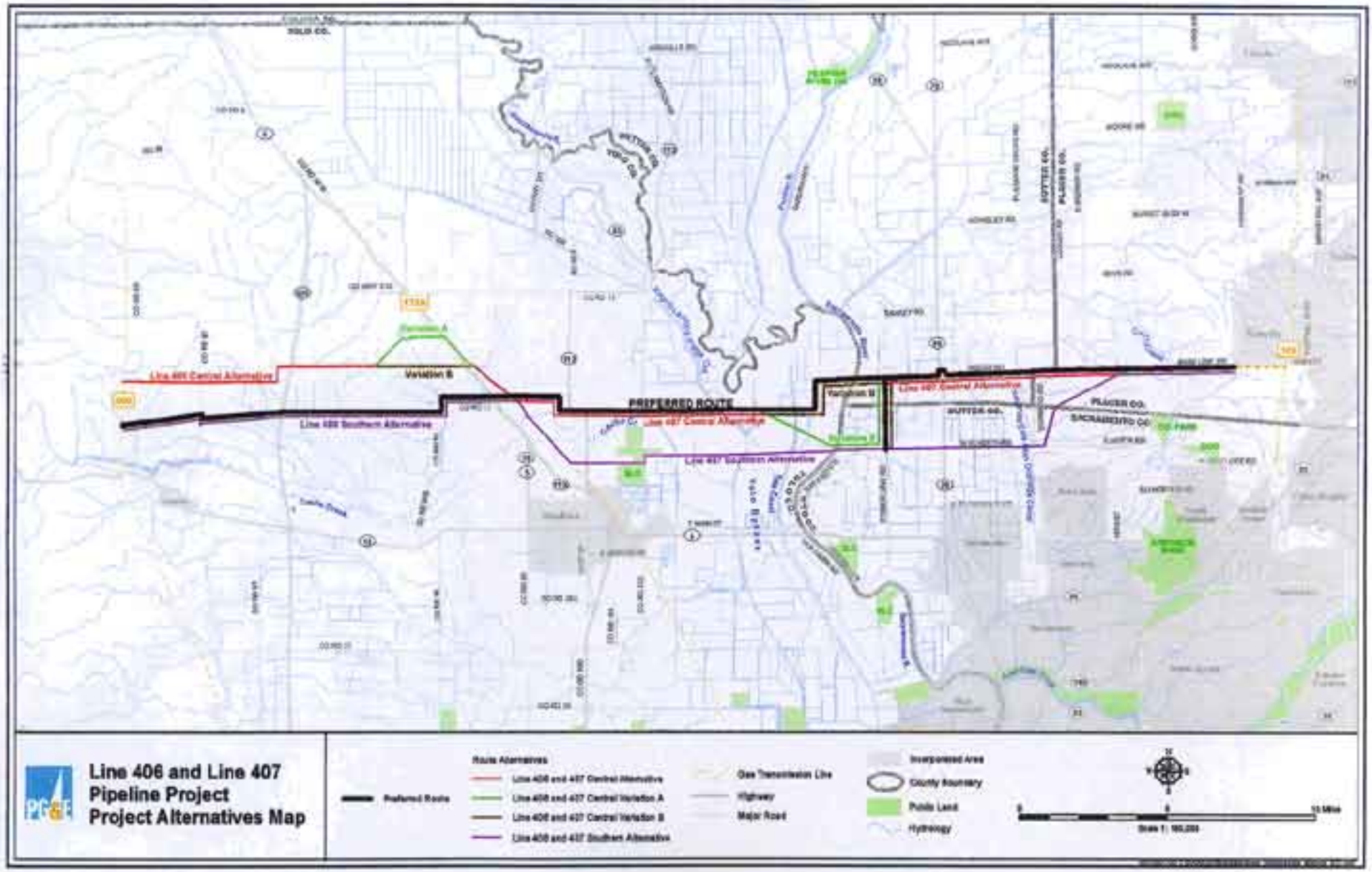
Line 406 and Line 407
Pipeline Project
Project Alternatives Map
Preferred Route
Route Alternatives
Line 406 and 407 Central Alternative
Line 406 and 407 Central Variation A
Line 406 and 407 Central Variation B
Line 406 and 407 Southern Alternative
Gas Transmission Line
Highway
Major Road
Incorporated Area
County Boundary
Public Land
Hydrology
PREFERRED ROUTE
Line 406 Central Alternative
Line 406 Southern Alternative
Line 407 Central Alternative
Line 407 Southern Alternative
Variation A
Variation B
SOLO CO.
SUTTER CO.
PLACER CO.
SACRAMENTO CO.

FIGURE 2

3. SCOPE OF EIR

Pursuant to State CEQA Guidelines section 15060, the CSLC staff conducted a preliminary review of the proposed Project. Based on the potential for significant impacts resulting from the proposed Project, an EIR was deemed necessary. A preliminary listing of issues to be discussed in the EIR is provided below. Additional issues may be identified at the public scoping meeting and in written comments.

Four designations are used when examining the potential for impacts according to CEQA issue areas. These designations are:

Potentially Significant Impact (Class I): Any impact that could be significant, and for which no mitigation has been identified or implemented. If any potentially significant impacts are identified and cannot be mitigated, a Statement of Overriding Considerations is required should the proposed Project be approved.

Less-Than-Significant Impact with Mitigation Incorporated (Class II): Any impact that could be significant, but which requires mitigation to reduce the impact to a less-than-significant level. Impacts in this category are otherwise considered potentially significant impacts, but ones for which mitigation measures have been designed and would be enforced in order to reduce said impacts to below applicable significance thresholds.

Less-Than-Significant Impact (Class III): Any impact would not be considered significant under the CEQA relative to existing standards.

Beneficial Impact (Class IV): The Project would provide an improvement to an issue area in comparison to the baseline information.

The estimations of impact levels used for this Notice of Preparation are based solely on preliminary documents and do not preclude findings of significance that would be made during the preparation of the EIR, including findings that could change the significance of an impact and how it would need to be addressed within the EIR. The following provides potential environmental impacts from the proposed Project using preliminary significance criteria that may be modified for the EIR.

3.1 Potential Environmental Effects

3.1.1 Aesthetics

An adverse impact on aesthetic/visual resources is considered significant and would require mitigation if the proposed Project would:

- Cause inconsistency with adopted visual resource management (VRM) plans or local ordinances. In those areas where no VRM plans exist, impacts would be determined by examining the study area for sensitive viewsheds, areas of high user volumes, and areas of unique visual resources. Sensitive resources would then be examined on a case-by-case basis to determine the level of impact.

Significant visual impacts would be those that dominate the viewshed from sensitive locations and change the character of the landscape both in terms of physical characteristics and land uses;

- Result in a substantial adverse effect on a scenic area or vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic area or highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Project-related activities may temporarily impact the surrounding visual character of the Project area, and ground disturbance would occur within areas that are regularly tilled for agricultural production. However, the topography would be restored following Project completion. Signs marking the pipeline alignment would remain permanent surface features, but would not dominate scenic views within the area. These structures are designed to be seen by the public, but are relatively small in size.

Some construction activities may take place at night and may require the use of high-energy lighting, which can be highly visible at a long distance given nighttime conditions. These practices would be temporary impacts during the construction phase and would not constitute the creation of permanent new sources of visual glare or substantial light.

3.1.2 Agricultural Resources

An adverse impact on agricultural resources is considered significant and would require mitigation if Project construction or operation would:

- Convert prime agricultural land, unique farmland, or farmland of statewide importance to non-agricultural use;
- Conflict with existing land use plans, policies, or regulations for agricultural use or a Williamson Act contract;
- Involve other changes in the existing environment that, due to their location or nature, could result in permanent loss of farmland or conversion of farmland to non-agricultural use; or
- Cause substantial soil erosion or loss of topsoil.

Portions of the project would cross agricultural land that may be under Williamson Act contract. Construction and operation of the proposed Project would be incidental to agricultural production. Restrictions in the permanent easement of the project area would prohibit the planting of trees or vines within a 30-foot-wide strip above the pipeline for protection of the pipe, but other uses would be allowed. The project would result in the loss of a small amount of orchards, where the transmission pipeline would

be located through an existing orchard. Agricultural production could resume following Project construction.

3.1.3 Air Quality

An Air Quality impact is considered significant if it:

- Conflicts with or obstructs implementation of the applicable air quality plan;
- Violates any air quality standard or contribute substantially to an existing or projected air quality violation;
- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Exposes sensitive receptors to substantial pollutant concentrations; or
- Creates objectionable odors affecting a substantial number of people.

Activities associated with construction of the Project would generate emissions of criteria pollutants from the operation of diesel engines and construction equipment. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead. Earth-moving activities proposed by the Project have the potential for significant particulate matter emissions in the form of fugitive dust. The operation of construction equipment would also generate greenhouse gas emissions that are known to contribute to global warming effects. PG&E proposes to include the implementation of Best Management Practices (BMPs) designed to reduce emissions throughout the construction phase.

The primary source of the long term operational impacts of the proposed Project would be from maintenance of the new transmission lines. The maintenance of the improvements would occur on a regular basis to minimize the risk of equipment leaks. PG&E estimates that the maintenance would average daily truck trips totaling 20 miles per day. The transfer of natural gas through the pipeline would not require significant burning of fuel, use of engines, or any other processes that would be likely to produce criteria pollutants. However, the potential risk of accidental release of fuel and or release of natural gas during initial and/or continual operation of Line 406 and 407 exists.

3.1.4 Biological Resources

An adverse impact on biological resources is considered significant and would require mitigation as specified below.

General
A Biological Resource impact is considered significant if:

- There is a potential for any part of the population of a special status species (such as State or Federally Endangered species) to be directly affected or indirectly harmed through the disturbance or loss of its habitat;

- A net loss occurs in the functional habitat value of a sensitive biological habitat, or any Area of Special Biological Significance;

- There is a potential for the movement or migration of fish or wildlife to be impeded; or

- A substantial loss occurs in the population or habitat of any native fish, wildlife, or vegetation or if there is an overall loss of biological diversity, with substantial defined as any change that could be detected over natural variability.

Wetlands
An adverse impact on wetlands is considered significant and would require mitigation if Project construction or operation activities would:

- Fill or alter a wetland or vernal pool, resulting in a long-term change in its hydrology or soils, or the composition of vegetation of a unique, rare, or special concern wetland community;

- Remove or significantly prune overstory tree species in a manner that would affect wetland functions related to bank stabilization, stream temperature, or habitat; or

- Cause short- or long-term violations of Federal or State water quality standards for streams that lead to wetlands, measured as in-stream elevated turbidity readings or decreased dissolved oxygen (DO) levels.

Vegetation
An adverse impact on vegetation is considered significant and would require mitigation if Project construction or operation activities would:

- Disturb a substantial portion of the vegetation type within a local region to the point where natural or enhanced regeneration could not restore vegetation to its pre-construction condition within 3 to 5 years;
- Result in the long-term (more than 5 years) reduction or alteration of unique, rare, or special concern vegetation types, riparian vegetation, or natural communities;

- Introduce new, or lead to the expanded range of existing, invasive noxious weed species or soil pests, so that they interfere with crop production or successful revegetation of natural communities;
- Create substantial barriers for dispersal of native plant species; or
- Result in a spill or leak that would contaminate the soil to the extent of eradicating the existing vegetation, inhibiting revegetation, or migrating to other areas and affecting soil and water ecology via erosion and sedimentation.

Wildlife and Aquatic Resources

An adverse impact on wildlife and aquatic resources is considered significant and would require additional mitigation if Project construction or operation would:

- Change the diversity or substantially alter the numbers of a local population of any wildlife or aquatic species, or interfere with the survival, growth, or reproduction of affected wildlife and fish populations;
- Substantially interfere with the movement or range of migratory birds and other wildlife, or the movement, range, or spawning of any resident or anadromous fish;
- Result in a substantial long-term loss of existing wildlife or aquatic habitat;
- Cause substantial deterioration of existing fish habitat;
- Introduce new, invasive wildlife or aquatic species to an area; or
- Create a potential health hazard or involve the use, production, or disposal of materials in a manner that would be expected to pose a hazard to wildlife or fish populations in the project area.

Threatened, Endangered, and Special-Status Species

An adverse impact on federally or State-listed species or species proposed for listing is considered significant and would require mitigation if Project construction or operation activities would:

- Reduce the abundance of sensitive species, including species under the protection of the Migratory Bird Treaty Act, that occur within the Project area;
- Result in the loss or alteration of existing or proposed critical habitat for one or more listed species;
- Cause a temporary loss or alteration of habitat important for one or more listed species that could result in avoidance by a listed species, or that could cause increased mortality or lowered reproductive success of the species;
- Result in direct or indirect impacts on candidate or sensitive species populations, or their habitat, that would contribute to or result in the Federal or State listing of the species (e.g., substantially reducing species numbers or resulting in the permanent loss of habitat essential for the continued existence of a species); or
- Create a potential health hazard or involve the use, production, or disposal of materials that pose a hazard to a special-status species population in the Project area.

The proposed Project site supports habitat for several special status plants, and animals. These species, as well as their habitats, could potentially be disturbed or harmed during construction activities. Removal of vegetation and direct or indirect impacts to wetlands has the potential to impact wildlife habitat. PG&E has proposed a variety of measures for this area, including providing Worker Environmental Awareness Program (WEAP) training, using Horizontal Directional Drilling (HDD) at key crossings of sensitive lands, preparing an HDD Fluid Release Contingency Plan, retaining a USFWS-approved biologist to monitor known occurrences of special status species, conducting nesting bird surveys for avian species and avoiding sensitive areas wherever feasible.

3.1.5 Cultural Resources

A Cultural Resources impact is considered significant if it:

- Results in damage to, the disruption of, or otherwise adversely affects a property that is listed in the California Register of Historic Resources (CRHR) or a local register of historical resources as per section 5020.1 of the Public Resources Code;

- Results in damage to, the disruption of, or otherwise adversely affects an important archaeological resource (prehistoric or historic) such that its integrity could be compromised or its eligibility for future listing in the CRHR diminished; or

- Results in damage to, the disruption of, or otherwise adversely affects an important historical resource such that its integrity could be compromised or its eligibility for future listing in the CRHR diminished.

Construction of buried pipelines and support facilities could impact contributing features of the Reclamation District 1000 (roads, levees, canals, etc.) and historic-period resources. Reclamation District 1000 is a member of the Sacramento Area Flood Control Agency (SAFCA), and is authorized to oversee agricultural and urban drainage, flood control, and levee maintenance within the Project area.

Where pipelines cross natural drainages, buried archaeological sites could be impacted. PG&E has proposed measures for this area, including completing surveys of unexamined areas before construction begins. If resources are identified, the areas should be avoided or evaluated in consultation with the State Historic Preservation Officer (SHPO) and the California State Lands Commission (CSLC).

3.1.6 Geology, Soils, Mineral Resources and Paleontologic Resources

Geology and Soils

An adverse impact on geology and soils is considered significant and would require mitigation if:

- Settlement of the soil could substantially damage structural components;
- Ground motion due to a seismic event or any resulting phenomenon such as liquefaction or settlement could substantially damage structural components;
- Rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map could expose people or structures to potential adverse effects;
- Damage resulting from any of the above conditions could result in an inadvertent or uncontrolled release of hazardous, harmful or damaging substances into the environment;
- Deterioration of structural components due to corrosion, weathering, fatigue or erosion could reduce structural stability;
- Result in substantial soil erosion or the loss of topsoil;
- Erosion rates would be increased, or soil productivity would be reduced by compaction or soil mixing, to a level that would prevent successful rehabilitation and eventual reestablishment of vegetative cover to the recommended or pre-construction composition and density;
- Agricultural productivity would be reduced for longer than 3 years because of soil mixing, structural damage, or compaction; or
- Any Project activity or condition has a chance of adversely affecting the stability or proper functioning of any levee or levee system.

Hazards related to slope instability and landslides are generally associated with foothill areas and mountain terrain as well as steep river banks and levees. Excavation and trenching for the pipeline would occur across relatively flat or gently sloping agricultural lands. Though there is a risk of landslide at certain points along the proposed pipeline route, foundation demolition could be executed without danger of triggering a landslide on the river bank with implementation of proper mitigation measures. PG&E plans to use HDD at levee crossings.

Saturated, loose sands and soft clays may pose difficulties in access during construction. Soft or loose soils could also cause instability of trenches and other excavations during construction of the facilities. However, design-level geotechnical studies would be performed to evaluate the potential for, and effects of, saturated, soft, or loose soils where necessary.

Soil surveys indicate the majority of the soils in the project area are moderately to highly corrosive to steel. These corrosive subsurface soils would have a detrimental effect on concrete and metals exposed to these soils. Depending on the degree of corrosivity of the subsurface soils concrete, reinforcing steel in concrete structures, and bare-metal, piping exposed to these soils could deteriorate, which could eventually lead to structural or pipeline failures. Design-level geotechnical studies would be conducted to identify the presence of potentially detrimental substances, such as chlorides and sulfates, in soils. Appropriate design measures for protection of reinforcements, concrete, and metal-structural components against corrosion would be utilized, such as use of

corrosion-resistant materials and coatings, and use of passive and/or active cathodic protection systems.

Mineral Resources
An adverse impact on mineral resources is considered significant and would require mitigation if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State.
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

The primary mineral resources in the project area are non-metallic mineral commodities, consisting of sand, gravel, and crushed rock. The project should not result in the loss of availability of any known mineral resources.

Paleontological Resources
Paleontological resources are fossilized evidence of past life found in the geologic record. Despite the prodigious volume of sedimentary rock deposits preserved worldwide and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils (particularly vertebrate fossils) are considered to be nonrenewable resources. Because of their rarity and the scientific information they can provide, fossils are highly significant records of ancient life. As such, paleontological resources may be considered "historically significant" in the scientific annals of California under CEQA Guidelines Section 15064.5[3]. An impact to an identified paleontologic resource is considered "historically significant" and would require mitigation if:

- Project construction or operation would result in damage or loss of vertebrate or invertebrate fossils that are considered important by paleontologists and land management agency staff; or
- The resource is considered to have scientific or educational value. A paleontological resource can be considered to have scientific or educational value if it:
    - provides important information on the evolutionary trends among organisms, relating living inhabitants of the earth to extinct organisms;
    - provides important information regarding development of biological communities or the interaction between botanical and zoological biota;
    - demonstrates unusual or spectacular circumstances in the history of life;
    - is in short supply and in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation and is not found in other geographic locations;
    - is recognized as a natural aspect of our national heritage;

- lived prior to the Holocene (~11,000 B.P.); and
- is not associated with an archaeological resource, as defined in Section 3(1) of the Archaeological Resources Protection Act of 1979 (16 USC § 470bb[1]).

Construction of buried pipelines and support facilities, as well as the crossing of natural drainages, could impact unknown paleontological resources.

3.1.7 Hazards and Hazardous Materials

An adverse impact regarding hazards and hazardous materials is considered significant and would require mitigation if the Project would:

- Expose people to an unacceptable risk of existing or potential hazards, including upset and accident conditions involving the release of hazardous materials into the environment;
- Create significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste that could adversely affect existing or proposed schools, residential areas, or other sensitive receptors;
- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands; or
- Significantly increase fire hazard in areas with flammable materials.

There also exists potentially significant Hazards and Hazardous Materials impact if:

- Current or future operations may not be consistent with federal, state or local regulations (note: conformance with regulations does not necessarily mean that no significant hazard related impacts exist);
- Any facility or operation, existing or proposed, does not conform to its contingency plans or other hazard or risk related plans that are in effect;
- Existing and proposed emergency response capabilities are not adequate to effectively mitigate emergency conditions the project has the potential for causing; or
- There is a potential for fires, explosions, releases of flammable or toxic materials, or any other accidents that could cause injury or death to members of the public.

Construction and operation of Lines 406 and 407 would occur in rural areas, but also within close proximity to residences and other sensitive receptors, and therefore, could pose a risk to public safety. Project-related hazards potentially include accidental

releases of fuel and/or release of natural gas during the initial and/or continual operation of Line 406 and 407. Soil or items contaminated with hazardous materials in sufficient amounts to present a health risk could inadvertently be encountered during construction, and workers and the public could be exposed to adverse health risks. A Spill Prevention, Control and Countermeasure Plan (SPCCP) would be prepared for the proposed Project as required by the Storm Water Pollution Prevention Plan (SWPPP) and would include action measures to minimize the potential for accidental releases of hazardous materials into the environment. In addition, the Line 406 and 407 pipelines would be designed and constructed pursuant to current safety standards. Lastly, PG&E would follow all applicable hazards and hazardous materials regulations for the use, transportation, or disposal of hazardous materials.

3.1.8 Hydrology and Water Quality

General

An adverse impact on water quality is considered significant and would require mitigation if Project construction or operation would:

- Cause the water quality objectives promulgated by the Regional Water Quality Control Board with jurisdiction over the region affected by the Project to be exceeded;
- Cause the water quality criteria contained in the Proposed California Toxics Rule to be exceeded;
- Result in either short- or long-term violation of Federal, or State agency numerical water quality standards or water quality objectives; or
- Cause a change in background levels of chemical and physical constituents or elevate turbidity levels such that long-term changes in the receiving environment of the site, area or region occur, or such that beneficial uses of the receiving water are impaired or degraded.

Groundwater

An adverse impact on groundwater resources is considered significant and would require mitigation if Project construction or operation would:

- Alter the flow of groundwater to local springs or wetland areas; or
- Interrupt or degrade groundwater used for private or municipal purposes;

Surface Water

An adverse impact on surface water resources is considered significant and would require mitigation if Project construction or operation would:

- Result in increased sedimentation or erosion that adversely affects the operation of irrigation water control structures, gates, or valves or the quality of municipal water supply reservoirs;

- Result in increased sedimentation or erosion such that degradation of water quality results;
- Reduce stream flow quantity or quality where such a change would significantly damage either beneficial uses or aquatic life;
- Increase contaminant levels in the water column, sediment, or biota to levels shown to have the potential to cause harm to marine organisms even if the levels do not exceed formal objectives;
- Increase the potential for flooding outside the stream channel;
- Place permanent structures within the 100-year floodplain that would be damaged by flooding; or
- Degrade the integrity of structures, such as bridges, pipelines, and utilities due to erosion and improper conveyance of stormwater during construction and operation.

The Project site is within the jurisdiction of the California Central Valley Regional Water Quality Control Board (CVRWQCB), which has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. Water quality objectives for the Sacramento River are specified in the The Water Quality Control Plan for the Sacramento River and San Joaquin River Basin (Basis Plan), prepared by the CVRWQCB in compliance with the Federal CWA and the State Porter-Cologne Water Quality Control Act. The CVRWQCB has also adopted a general National Pollutant Discharge Elimination System (NPDES) permit for short-term discharges of small volumes of wastewater from certain construction-related activities as specified in the Waste Discharge Requirements General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (Order No. 5-00-175, NPDES No. CAG995001). Discharges may be covered by the permit provided they are either four months or less in duration, or the average dry weather discharge does not exceed 0.25 million gallons per day. The general permit specifies standards for testing, monitoring, reporting, discharge prohibitions, and receiving water limitations.

During construction of the pipeline, several waterbodies would be crossed using the open-cut method. Waterbodies with low flows would be crossed using a dry-crossing method (coffer dams with temporary water diversion).

These crossings would be performed in a dry open-cut method so that in-stream work is performed in a relatively dry streambed, and BMP's and the Erosion Control and Sediment Transport Plan would be implemented in order to minimize downstream sedimentation. In addition, the CDFG would be consulted for a Section 1602 Streambed Alteration Agreement, and a Section 404 permit for the ACOE would be obtained, as necessary. This would also require federal CWA 401 certification for the RWQCB. The project would also adhere to additional requirements that may be stipulated in the Streambed Alteration Agreement and/or Section 404 permit.

Larger waterbody crossings would be performed using the HDD method, including Knights Landing Ridge Cut, Yolo Bypass/Tule Canal, Sacramento River, Natomas East

Main Drainage Canal (Steelhead Creek), and the second Curry Creek crossing. The possibility exists that a frac-out could occur, which would cause impacts to these waterbodies. PG&E would develop an HDD Fluid Release Contingency Plan that addresses containment and cleanup of a potential frac-out.

3.1.9 Land Use and Planning

A Land Use and Planning impact is considered significant if it;

- Conflicts with adopted land use plans, policies or ordinances;
- Results in conflicts with planning efforts to protect the recreational resources of an area;
- Results in incompatible adjacent land uses as defined by planning documentation;
- Results in residual impacts on sensitive water recreation areas, including shoreline lands and river banks that are host only to non-water recreation activities;
- Physically divides an established community;
- Conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflicts with any applicable habitat conservation plan or natural community conservation plan.

The River Ranch Conservation Bank, managed by Wildlands Inc., is a 76-acre mitigation bank west of the Sacramento River located on both sides of County Road (CR) 16 in Yolo County. It provides permanent habitat for the endangered Valley elderberry longhorn beetle. The bank is within a 3,682-acre property owned by the Sacramento River Ranch LLC. The bank sells conservation credits for the loss of Valley elderberry longhorn beetle habitat within the primary service area, which includes all of Sutter, most of Sacramento, and smaller portions of Yolo and Placer counties. Wildlands plans to open two additional portions of the River Ranch Valley elderberry longhorn beetle conservation bank, encompassing an additional 95 acres. A portion of Line 407 West extends through the River Ranch Conservation Bank, and mitigation would be required.

Segments of Line 407 West and Line 407 East in Sutter County traverse lands covered by the Natomas Basin Habitat Conservation Plan (NBHCP), and the Powerline Road Distribution Feeder Main (DFM) in Sacramento County is also on land covered by the NBHCP. Four conservation tracts (Huffman East, Huffman West, Vestal, and Atkinson) exist along Riego Road in the Line 407 West project area, two on the north side and two

on the south side of the road. In addition, most of the Natomas Basin is currently used for agriculture, and rice fields dominate the project area within the NBHCP.

The purpose of the NBHCP is to promote biological conservation in conjunction with economic and urban development within the permit areas. The NBHCP establishes a multi-species conservation program to minimize and mitigate expected take of covered species that could result from development, including giant garter snake and Swainson's hawk. The NBHCP requires mitigation for designated types of development within the NBHCP area boundaries, including public and private utilities. Compliance includes the requirements for land and/or fee dedication as well as the application of measures to avoid, minimize, and mitigate the take of species covered by the NBHCP.

3.1.10 Noise

A Noise impact is considered significant if:

- Noise levels from Project operations exceed criteria defined in a noise ordinance or general plan of the local jurisdiction in which the activity occurs;
- Noise or groundborne vibrations from Project operations have direct or indirect effects on sensitive receptors (such as residential neighborhoods);
- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Movement of natural gas through the pipeline would not contribute noise in excess of the operation of the current pipeline. Consequently, there would be no additional noise impact from operation of the Project. Construction of the Project would temporarily generate levels of noise that could substantially increase ambient noise levels in the vicinity of the pipeline route. These noise levels could exceed Municipal Code noise standards. An additional potentially significant impact is that of groundborne vibration

and its potential to affect nearby receptors, specifically the potential to disrupt the sleep of nearby residents as a result of possible nighttime construction.

3.1.11 Recreation

- Prevent or impede access to an established recreation area during its peak use periods or for more than 1 year;
- Adversely affect areas of special recreational concern (such as a wilderness area or wilderness study area);
- Provide or enable access to previously inaccessible, environmentally sensitive areas;
- Result in permanent alteration of a recreation resource (e.g., use of recreation lands or waters, disturbance to unique vegetation, habitat or outstanding landscape characteristics);
- Result in increased use of existing neighborhood and regional parks, resulting in physical deterioration; or
- Result in substantial adverse physical effects from construction of new or altered recreational facilities.

The project would be constructed to support existing and planned development and would not impact population in the area or create the need for new or expanded parks or other recreation facilities. The project would be constructed within 0.5 mile of Cache Creek, the Sacramento River, Rio Ramaza Marina, and existing Class II bikeways in the city of Roseville. The Sacramento River would be crossed using horizontal directional drilling techniques, so boating, rafting, and use of the Rio Ramaza Marina would not be interrupted. There would be no need to close city of Roseville bikeways within the vicinity of the project area because the project would not extend onto Baseline or Fiddyment roads. Impacts associated with construction noise may be experienced by the public during project construction; however, these impacts would be temporary.

3.1.12 Socioeconomics (Population and Housing; Public Services; Utilities and Service Systems)

An adverse socioeconomic impact is considered significant and would require mitigation if Project construction or operation would:

- Cause the vacancy rate for temporary housing to fall to less than 5 percent;
- Increase the short- or long-term demand for public services, utilities, or service systems in excess of existing and projected capacities;
- Cause a permanent population increase of 3 percent or more in a county affected by the Project; or
- Displace a large number of people.

Population and Housing

During construction, temporary impacts to existing residences would occur on private driveways, and construction activities would be coordinated with home owners. Thus, no direct impacts on accessing residences are expected during construction or operation. Pipeline construction would occur primarily across agricultural lands and rural residences, but would not remove or displace residences, people, or businesses. Therefore, no direct impacts related to displacement of existing housing or people, necessitating the construction of replacement housing elsewhere, would result from the proposed Project. During Project construction, Project-area population impacts related to workforce would be short-term. The Project would not result in the direct construction of additional housing units.

Public Services

The project would be constructed to support existing and planned development and would not increase demands on, or require the construction of, additional fire or police facilities, school facilities, park spaces, or any other public service. In terms of pipeline risks and safety, PG&E's *Gas System Maintenance & Technical Support, Emergency Plan Manual* would apply to pipeline construction and maintenance activities and includes established guidelines and procedures to be followed in the event of an emergency. The purpose of the plan is to provide procedures and other directives to be carried out in the event of fire, explosion, earthquake, accidental release of hazardous materials or waste, or any similar emergency. When such an emergency occurs, the plan would be implemented by PG&E's Facility Emergency Coordinator. The plan is annually reviewed with local agencies to ensure that plan design and implementation measures are current and that all personnel understand the plan and their responsibilities.

Utilities and Service Systems

The project would be constructed to support existing and planned development and would not result in the need for new or altered water supply, water facilities, wastewater treatment facilities, or expanded sewer trunk lines. The project would not result in new point sources and would not cause wastewater requirements established by the Regional Water Quality Control Board to be exceeded.

Portable restrooms would be used and maintained during construction and removed after completion of the project. PG&E would obtain hydrostatic test water from agricultural wells, and agricultural wells and canals would be sources of water for dust control during project construction.

PG&E would dispose of waste in accordance with published national, state, and local standards relating to solid waste. The project would not have a significant impact on landfills because the project would generate a small amount of construction waste, which can be easily accommodated by landfills located near the project area. In addition, project waste would be recycled to the extent practicable.

Construction activities could inadvertently contact underground facilities, possibly leading to short-term service interruptions. This is not anticipated to occur and implementation of standard practices, such as contacting Underground Service Alert, would reduce the impact.

Operation and Maintenance would not result in or require new staff to support the project once the pipeline is in operation, so there would be no increase to population requiring additional or expanded utilities. Operation of the natural gas pipeline would not cause negative adverse affects on utilities and service systems in the project area.

3.1.13 Transportation and Circulation

A Transportation impact is considered significant if:

- Project related traffic or other activities must use an access road that is already at or below Level of Service (LOS) E, or is such that it would bring a roadway down to LOS E. (E level traffic flow = 75% - 100% of capacity);

- Project related traffic or other activities would result in a substantial safety hazard to motorists, bicyclists or pedestrians;

- Project related traffic or other activities would restrict one or more lanes of a primary or secondary arterial during peak-hour traffic, thereby reducing its capacity and creating congestion;

- Project implementation could or does result in insufficient parking;

- The installation of the transmission line within, adjacent to, or across a roadway would reduce the number of, or the available width of, one or more travel lanes during the peak traffic periods, resulting in a substantial disruption to traffic flow and/or a substantial increase in traffic congestion;

- Construction activities would restrict access to or from adjacent land uses and there would be no suitable alternative access;

- A major roadway (arterial or collector classification) would be closed to through traffic as a result of construction activities and there would be no suitable alternative route available. An increase in vehicle trips associated with construction workers or equipment would result in a substantial disruption to traffic flow and/or a substantial increase in traffic congestion on the roadways in the project vicinity;

- Construction activities or the operation of the project would interfere with or extend into navigable airspace and could potentially have an impact on aviation activities within the restricted area of a designated airport or helipad;

- Construction activities or the operation of the project would result in safety problems for vehicular traffic, pedestrians, transit operations, or trains;

- Construction activities of the project would restrict the movement of emergency vehicles, and there would be no reasonable alternative access routes available;

- Construction activities or staging activities would increase the demand for and/or reduce the supply of parking spaces, and there would be no provisions for accommodating the resulting parking deficiencies;

- Construction activities would disrupt bus or rail service and there would be no suitable alternative routes or stops;

- Construction activities within, adjacent to, or across from a railroad right-of-way would result in temporary disruption of rail traffic; or

- Construction activities would impede pedestrian movements or bike trails in the construction area and there would be no suitable alternative pedestrian/bicycle access routes.

Project-related traffic would involve the transportation of workers, equipment and construction materials to the construction site.

The Project includes installation of an underground natural gas transmission line with several crossings of local roads and directional drilling under freeways I-505 and I-5. Directional drilling would have no impact on traffic. The installation of the Line 406 underground pipeline would include trenching across the following roads: CR 85, CR 87, CR 88A and CR 96. The Line 407 underground pipeline would include trenching across CR 17, CR 98, CR 100, CR 101, CR 102, CR 117, Brewer Road, Fair Oaks Boulevard, Locust Road, Pleasant Grove Road, Powerline Road and Riego Road/Baseline Road. Underground construction along these roadways would cause temporary disruptions to project area roadways including lane closures, increased traffic volumes, access restrictions and have a negative affect on traffic safety. The Line 407 would also impact a minimal number of parking spaces and may result in temporary sidewalk closures.

PG&E plans to provide traffic control at all construction sites across roadways and limit work zones to a width that, at a minimum maintains alternate one-way traffic flow past the construction zone. PG&E would contact Placer County Unified School District at least one month prior to construction to coordinate construction activities adjacent to school bus stops. PG&E would obtain the required permits for temporary lane closures from Yolo County, Sutter County, Sacramento County, Placer County, and Caltrans. Before obtaining the permits PG&E would submit a Transportation Management Plan (TMP), subject to local jurisdictional review and approval. PG&E also plans to provide for residential areas a notification process for temporary parking impacts, appropriate sign postings, and specify the process for communicating with affected residents. In addition, PG&E would provide temporary pedestrian access, through detours or safe areas along the construction zone in areas with temporary closures of sidewalks and other pedestrian facilities.

3.2 Special Impact Areas

3.2.1 Cumulative Impacts

The CEQA requires an examination of the potential for a Project to have cumulative impacts when considered in conjunction with other Projects proposed and/or approved within a region. The Cumulative Projects Study Area for this Project is presently defined as proposed and approved projects in Yolo County, Sacramento County, Sutter County, Placer County and the city of Roseville. The EIR will contain a discussion of cumulative impacts of the proposed project.

3.2.2 Growth-Inducing Impacts

The CEQA requires a discussion of the ways in which a proposed Project could be an inducement to growth. The State CEQA Guidelines (section 15126.2(d)) identify a project to be growth-inducing if it fosters or removes obstacles to economic or population growth, provides new employment, extends access or services, taxes existing services, or causes development elsewhere. The EIR will contain a discussion of potential growth-inducing impacts of the proposed Project.

3.2.3 Environmental Justice

An environmental justice impact will be considered significant if implementation of the proposed Project or alternatives would:

- Have a potential to disproportionately impact minority and/or low-income populations at levels exceeding the corresponding medians for the County in which the project is located; or

- Result in a substantial disproportionate decrease in the employment and economic base of minority and/or low-income populations residing in the County and/or immediately surrounding cities.

The CSLC developed and adopted an Environmental Justice Policy to ensure equity and fairness in its own processes and procedures. This policy stresses equitable treatment of all members of the public and commits to consider environmental justice in its processes, decision-making, and regulatory affairs which is implemented, in part, through identification of, and communication with, relevant populations that could be adversely and disproportionately impacted by CSLC projects or programs, and by ensuring that a range of reasonable alternatives is identified that would minimize or eliminate environmental impacts affecting such populations.

The EIR will analyze the distributional patterns of high-minority and low-income populations on a regional basis. The analysis will focus on whether the proposed Project's impacts would have the potential to affect an area(s) with high-minority population(s) and on low-income communities disproportionately, thereby creating an environmental justice impact.

Appendix B: Notice of Preparation (NOP), Comment Letters, Meeting Transcripts, and Location of Responses

Appendix B includes a copy of the Notice of Preparation (NOP) for the proposed Project, copies of all comment letters received on the NOP during the public comment period, transcripts of public scoping meetings conducted during the public comment period, and an indication (Section, sub-Section and page number) where each individual comment is addressed in the Draft EIR. Table B-1 lists all comments and shows the comment set identification number for each letter or commenter. Table B-2 lists all public meeting transcripts and shows the comment set identification number for each commenter. Each comment set is immediately followed by the location where each individual comment is addressed in the Draft EIR. Both comment letters and meeting transcripts are presented chronologically.

Table B-1: NOP Commenters and Comment Set Numbers

Agency/Affiliation	Name of Commenter	Date of Comment	NOP Comment Set
Landowner	Michael R. and Treva Valentine	No Date	1
Department of Water Resources	Floodway Protection Section	6/29/07	2
Placer County Office of Education	Matt Shawver, Facilities Support Analyst	7/2/07	3
Landowner	Howard and Bonnie Lopez	7/4/07	4
Landowner	Doug Wirth, Co-Trustee, Robert B. and Vesta E. Wirth Family Revocable Trust	7/13/07	5
Department of Conservation	Dennis J. O'Bryant, Program Manager	7/16/07	6
County of Placer Department of Public Works	Andrew Gaber, DPW, Transportation	7/17/07	7
Department of Energy	Heidi R. Miller, Realty Officer	7/17/07	8
Measure M Owner's Group	George M. Carpenter, Jr., Attorney at Law	7/17/07	9
Natural Resources Conservation Service	Phil Hogan, District Conservationist	7/17/07	10
Placer County Flood Control and Water Conservation District	Andrew Darrow, P.E., Development Coordinator	7/17/07	11
Wildlands, INC.	Jeff Mathews, Director of Sales and Marketing	7/17/07	12
City of Roseville	Mark Morse, Environmental Coordinator	7/18/07	13

Agency/Affiliation	Name of Commenter	Date of Comment	NOP Comment Set
RSC Engineering	Richard S. Chavez P.E.	7/18/07	14
Wirth Real Estate/Valuation Services/Landowner	Robert B. Wirth, Jr., Real Estate Appraiser/Consultant Occupant	7/18/07	15
Yolo County Board of Supervisors	Duane Chamberlain, Fifth District Supervisor	7/18/07	16
Yolo County Farm Bureau	Joe F. Martinez, President	7/18/07	17
Yolo-Solano Air Quality Management District	Mathew R. Jones, Senior Air Quality Planner	7/19/07	18
Wildlands, Inc.	Brian Monaghan, Project Director	7/20/07	19
Landowner	William L. Dibble	7/26/07	20
United States Department of the Interior Fish and Wildlife Service	Kenneth Sanchez, Assistant Field Supervisor	10/29/07	21
Atkinson, Andelson, Loya, Ruud & Romo / Attorneys for Center Unified School District	Elizabeth B. Hearey	12/11/08	22
Hefner, Stark & Marois	Martin B. Steiner	01/07/09	23

Table B-2: Public Scooping Meeting Transcripts and Comment Set Numbers

Meeting Date (Time), Location	Name of Commenter / Affiliation	NOP Comment Sets
July 9, 2007 (3:30 pm), Woodland	Howard Lopez	1
	John Stone	1
	Charles Jensen	1
	Fulton Stephens	1
July 9, 2007 (5:35), Woodland	Lynnel Pollock	2
	Herb Pollock	2
	Michael Valentine	2
	Dick Leonard	2
	Tom Horgan	2
	Paul Smith	2
	Carol Gorman	2
	Laura Leonard	2
July 10, 2007 (3:00), Roseville	Andrew Carpenter	3
	George Carpenter / Placer County Department of Public Works	3

Meeting Date (Time), Location	Name of Commenter / Affiliation	NOP Comment Sets
July 10, 2007 (5:45), Roseville	No comments were made	4

COMMENT SET 1

Michael R. Valentine
Treva Valentine
38871 County Road 16A
Woodland, CA 95695

Crystal Spurr
Staff Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825

Project: PG&E Lines 406 and 407 Natural Gas Pipeline
CSLC Ref: W30169-4, W26210, R19806
SCH#: 2007062091

Dear Ms. Spurr;

Thank you for the opportunity to provide comments, both in this written form and at the public scoping meeting held on July 9 in Woodland, on the appropriate scope and content of the environmental analysis that should be included in the environmental impact report (EIR) for the above pipeline project. We have comments that are meant to supplement those concerns expressed at the July 9 meeting. As a threshold matter, though, I should note that I was previously an employee of the California State Lands Commission. My employment with the Commission ended September 4, 2006 and for a period of one year following that date the state's "revolving door" statute prohibits me from appearing in Commission proceedings as a compensated representative of third parties. Please be assured that these comments regarding the pipeline project are made solely on behalf of my wife and me and no compensation has been received from any third party in connection with this proceeding.

For the most part, the significance criteria as outlined in Attachment 1 to the notice of public scoping meeting are very helpful in setting out the proposed analytical approach for determining the importance of impacts along the pipeline route. I have comments, however, on those sections relating to natural resources, aesthetics and conversion of agricultural land to non-agricultural use.

Along the project proponent's preferred alternative route, there are several large, mature trees that contribute greatly to the aesthetic aspect of the area and that are also of considerable biological significance. The loss of such trees, or in some cases of even one of them, would constitute a significant impact both on the aesthetics and wildlife values of the area. Several of these trees are along Road 16A just east of Yolo. For example, in the considerably less than 50 feet between our house and the right-of-way for County Road 16A there stands a very large heritage oak tree that has in past years been the nesting site for Swainson's hawks. The loss of even this one tree, given the diminishing

1-1

numbers of these heritage trees in the area of the project and the threatened status of Swainson's hawks, would in our view constitute a significant wildlife/biological impact and would also have a major impact on the aesthetics of the area. It is not clear from a review of the significance criteria for the project that the loss of a heritage oak, whether by direct removal or by damage to root systems or drainage caused by excavation, would be considered a significant project impact. In our view, impacts on such heritage trees and other trees used by sensitive species for important life activities such as nesting and foraging should be carefully analyzed and should be considered significant project impacts. Where possible, these impacts should be avoided by selection of an alternative route or by deviations in the route chosen so as to avoid impacts on heritage or biologically significant trees. And where avoidance is considered infeasible, mitigation measures should, of course, be imposed. The principal purpose of this comment at this juncture is to urge the Commission to require analysis of both direct removal and disturbance impacts on heritage trees or trees otherwise having biological importance so that avoidance measures can be developed and recommended as the project is considered for approval. 1-1

On aesthetics, several of the homes along the pipeline route in the vicinity of Yolo have trees, shrubs, and buildings in the 50 area proposed by PG&E for the permanent right-of-way for the project. The PG&E representative at the July 9 meeting said that perennial plants would not be allowed in the right-of-way. Given the length of the project and its route through areas where there are substantial numbers of residences, this has the potential to substantially degrade the existing visual character or quality of the project site and its surroundings. In other words, removal of vegetation in the vicinity of the homes and along the road frontage will not only have detrimental visual (and economic) effects on the homeowners but will tend to degrade the aesthetics along the entire pipeline route. Given that this project is proposed for an area already substantially developed with permanent plants and homes, removal of trees along the route, especially along roadways, should be analyzed as potentially significant impacts and avoidance measures proposed wherever possible. 1-2

Finally, the significance criteria indicate that permanent loss of farmland would be considered a significant impact of the project. As noted above, the project proponent has stated that a right-of-way 50 feet wide will be acquired for the pipeline. The pipeline is proposed to be buried only five feet deep and, as a result, PG&E wants to prohibit permanent plants in the right-of-way. This will not result in complete conversion of land to non-agricultural use, of course, but will restrict use to row crops or grazing. Orchards, a very prevalent form of agricultural use in the project area, and vineyards will be precluded and this, as a form of restriction on agricultural use of prime soils, should be considered a significant impact for which avoidance or mitigation measures are imposed. I don't believe that it would be legally permissible to conclude that the preclusion of some but not all agricultural uses along the project route would be less than a significant impact. Such limitations on agricultural use would make agriculture less economically feasible along the project route and would therefore have the tendency to result in long-term losses of agricultural land. Limitations on agricultural use resulting from the project should be considered a significant impact of the project under the significance criteria. 1-3

Again, thank you for this opportunity to comment on the scope of the EIR. I will send these comments in both electronic and hard copy forms for your convenience. Please place us on your mailing list for all notices and documents relating to this project. Electronic mail may be sent to us at mraytre@yahoo.net.

Sincerely,

Michael R. Valentine

RESPONSE TO COMMENT SET 1

Comment Number	Section of Draft EIR	Page Number(s)
1-1	4.1 -Aesthetic Resources 4.4 - Biological Resources	4.1-14 4.4-18, 4.4-33, and 4.4-61 to 4.4-107
1-2	4.1 - Aesthetic Resources 4.4 - Biological Resources	4.1-8, 4.1-13 and 4.1-14 4.4-88 to 4.4-92
1-3	4.2 - Agricultural Resources	4.2-22 to 4.2-25

COMMENT SET 2

STATE OF CALIFORNIA -- THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

June 29, 2007

Crystal Spurr
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, California 95825-8202

PG&E Line 406/047 Project
State Clearinghouse (SCH) Number: 2007062091

The project corresponding to the subject SCH identification number has come to our attention. The limited project description suggests your project may be an encroachment on the State Adopted Plan of Flood Control. You may refer to the California Code of Regulations, Title 23 and Designated Floodway maps at http://recbd.ca.gov/. Please be advised that your county office also has copies of the Board's designated floodways for your review. If indeed your project encroaches on an adopted food control plan, you will need to obtain an encroachment permit from the Reclamation Board prior to initiating any activities. The attached Fact Sheet explains the permitting process. Please note that the permitting process may take as much as 45 to 60 days to process. Also note that a condition of the permit requires the securing all of the appropriate additional permits before initiating work. This information is provided so that you may plan accordingly. **2-1**

If after careful evaluation, it is your assessment that your project is not within the authority of the Reclamation Board, you may disregard this notice. For further information, please contact me at (916) 574-1249.

Sincerely,

Christopher Huitt
Staff Environmental Scientist
Floodway Protection Section

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

Encroachment Permits Fact Sheet

Basis for Authority

State law (Water Code Sections 8534, 8608, 8609, and 8710 – 8723) tasks the Reclamation Board with enforcing appropriate standards for the construction, maintenance, and protection of adopted flood control plans. Regulations implementing these directives are found in California Code of Regulations (CCR) Title 23, Division 1.

Area of Reclamation Board Jurisdiction

The adopted plan of flood control under the jurisdiction and authority of the Reclamation Board includes the Sacramento and San Joaquin Rivers and their tributaries and distributaries and the designated floodways.

Streams regulated by the Reclamation Board can be found in Title 23 Section 112. Information on designated floodways can be found on the Reclamation Board's website at http://recbd.ca.gov/designated_floodway/ and CCR Title 23 Sections 101 - 107.

Regulatory Process

The Reclamation Board ensures the integrity of the flood control system through a permit process (Water Code Section 8710). A permit must be obtained prior to initiating any activity, including excavation and construction, removal or planting of landscaping within floodways, levees, and 10 feet landward of the landside levee toes. Additionally, activities located outside of the adopted plan of flood control but which may foreseeable interfere with the functioning or operation of the plan of flood control is also subject to a permit of the Reclamation Board.

Details regarding the permitting process and the regulations can be found on the Reclamation Board's website at http://recbd.ca.gov/ under "Frequently Asked Questions" and "Regulations," respectively. The application form and the accompanying environmental questionnaire can be found on the Reclamation Board's website at http://recbd.ca.gov/forms.cfm.

Application Review Process

Applications when deemed complete will undergo technical and environmental review by Reclamation Board and/or Department of Water Resources staff.

Technical Review

A technical review is conducted of the application to ensure consistency with the regulatory standards designed to ensure the function and structural integrity of the adopted plan of flood control for the protection of public welfare and safety. Standards and permitted uses of designated floodways are found in CCR Title 23 Sections 107 and Article 8 (Sections 111 to 137). The permit contains 12 standard conditions and additional special conditions may be placed on the permit as the situation warrants. Special conditions, for example, may include mitigation for the hydraulic impacts of the project by reducing or eliminating the additional flood risk to third parties that may caused by the project.

Additional information may be requested in support of the technical review of

your application pursuant to CCR Title 23 Section 8(b)(4). This information may include but not limited to geotechnical exploration, soil testing, hydraulic or sediment transport studies, and other analyses may be required at any time prior to a determination on the application.

Environmental Review

A determination on an encroachment application is a discretionary action by the Reclamation Board and its staff and subject to the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code 21000 et seq.). Additional environmental considerations are placed on the issuance of the encroachment permit by Water Code Section 8608 and the corresponding implementing regulations (California Code of Regulations – CCR Title 23 Sections 10 and 16).

In most cases, the Reclamation Board will be assuming the role of a "responsible agency" within the meaning of CEQA. In these situations, the application must include a certified CEQA document by the "lead agency" [CCR Title 23 Section 8(b)(2)]. We emphasize that such a document must include within its project description and environmental assessment of the activities for which are being considered under the permit.

Encroachment applications will also undergo a review by an interagency Environmental Review Committee (ERC) pursuant to CCR Title 23 Section 10. Review of your application will be facilitated by providing as much additional environmental information as pertinent and available to the applicant at the time of submission of the encroachment application.

These additional documentations may include the following documentation:

- California Department of Fish and Game Streambed Alteration Notification (http://www.dfg.ca.gov/1600/),
- Clean Water Act Section 404 applications, and Rivers and Harbors Section 10 application (US Army Corp of Engineers),
- Clean Water Act Section 401 Water Quality Certification, and
- corresponding determinations by the respective regulatory agencies to the aforementioned applications, including Biological Opinions, if available at the time of submission of your application.

The submission of this information, if pertinent to your application, will expedite review and prevent overlapping requirements. This information should be made available as a supplement to your application as it becomes available. Transmittal information should reference the application number provided by the Reclamation Board.

In some limited situations, such as for minor projects, there may be no other agency with approval authority over the project, other than the encroachment permit by Reclamation Board. In these limited instances, the Reclamation Board

may choose to serve as the "lead agency" within the meaning of CEQA and in most cases the projects are of such a nature that a categorical or statutory exemption will apply. The Reclamation Board cannot invest staff resources to prepare complex environmental documentation.

Additional information may be requested in support of the environmental review of your application pursuant to CCR Title 23 Section 8(b)(4). This information may include biological surveys or other environmental surveys and may be required at anytime prior to a determination on the application.

RESPONSE TO COMMENT SET 2

Comment Number	Section of Draft EIR	Page Number(s)
2-1	1.4 - Introduction 4.8 - Hydrology and Water Quality	1-8 and 1-9 4.8-15, and 4.8-20 to 4.8-22

COMMENT SET 3

From: "Shawver, Matt" <mshawver@placercoe.k12.ca.us>
To: <spurrc@slc.ca.gov>
Date: 07/02/2007 9:22:07 AM
Subject: Placer County Office of Education / Natural Gas Pipeline Lines 406 & 407

Hi Crystal,

Do natural gas pipeline lines 406 & 407encroach within ¼ mile of any schools in Placer County? **3-1**

Thanks,

Matt

Matt Shawver

Facilities Support Analyst

Placer County Office of Education

Phone: (916) 415-4443

Fax: (916) 415-4423

mshawver@placercoe.k12.ca.us <mailto:mshawver@placercoe.k12.ca.us>

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Please note that any views and/or opinions presented in this e-mail are solely those of the author and do not necessarily represent those of the Placer County Office of Education.

Finally, the recipient should check this e-mail and any attachments for the

presence of viruses. Although the Placer County Office of Education has taken reasonable precautions to ensure no viruses are present in this e-mail, it accepts no liability for any loss or damage arising from the use of this e-mail or attachments.

RESPONSE TO COMMENT SET 3

Comment Number	Section of Draft EIR	Page Number(s)
3-1	3.0 - Alternatives and Cumulative Impacts 4.3 - Air Quality 4.7 - Hazards and Hazardous Materials 4.9 - Land Use and Planning 4.10 - Noise 4.12 - Population and Housing / Public Services / Utilities and Service Systems 4.13 - Transportation and Traffic	3-3, and 3-55 to 3-57 4.3-17 4.7-2, 4.7-5, 4.7-6, 4.7-32, 4.7-38, and 4.7-42 to 4.7-44 4.9-1, and 4.9-29 to 4.9-32 4.10-5, 4.10-19, and 4.10-30 to 4.10-32 4.12-8 and 4.12-9 4.13-19 (APM-TRANS-5), 4.13-24 and 4.13-24

COMMENT SET 4

Howard Lopez
Bonnie Lopez
27495 Co. Rd. 17
Esparto, Ca 95627

July 4, 2007

To whom it may concern,

We received your proposal on the Natural Gas Pipeline that is to run from Esparto to Roseville. We are landowners located on County Road 17 and our property goes south to County road 19, and is east of the intersection of 19 and 87.

According to your proposal the line 406 Southern Alternative on the west end will go east from the intersection of 87 and 19 and align with CR 17 on east side of I 505. Doing so will dissect our property in half at an angle. We strongly oppose this proposal for many reasons and have all intentions to fighting it for as long as it takes. 4-1

You are dictating on what we, and our heirs, can and can not plant on our own property. We were considering planting an orchard on this land but that would be impossible with the line going through the middle of our land and needing a 30 foot wide strip at an angle. With this line coming close to our home your asking us to ignore the effects on our way of life and our health with the possibility of gas leaks. You're risking our groundwater resources, digging up our prime agriculture land and disrupting our top soil forever. What unforeseen risks are you asking us to take? 4-2

There are other choices than to take prime agriculture land and dissect it, like going along an existing county road, or like Line 406 Central Alternative that follows along CR16. 4-3

Again, we plan on fighting this proposal with every means possible.

Respectfully,

Howard Lopez

Bonnie Lopez

RESPONSE TO COMMENT SET 4

Comment Number	Section of Draft EIR	Page Number(s)
4-1	3.0 - Alternatives and Cumulative Projects. Alternative Options D and E were evaluated because they would avoid bisecting agricultural fields located between CR-17 and CR-19 east of CR-87. Each alternative is analyzed in all of the resource sections (4.1 through 4.14) of the Draft EIR.	3-14, 3-53, and Figure 3-2D
4-2	4.2 - Agricultural Resources 4.7 - Hazards and Hazardous Materials	4.2-22 to 4.2-25 4.7-4, 4.7-9, 4.7-29 to 4.7-39
4-3	3.0 - Alternatives and Cumulative Projects Each alternative is analyzed in all of the resource sections (4.1 through 4.14) of the Draft EIR.	3-14 and 3-53

COMMENT SET 5

MEMO TO: CRYSTAL SPURR
STAFF ENVIRONMENTAL SCIENTIST
STATE LANDS COMMISSION
FROM: DOUG WIRTH
CO-TRUSTEE
ROBERT B. AND VESTA E. WIRTH FAMILY REVOCABLE TRUST
DATE: 7/13/07
RE: ENVIRONMENTAL IMPACT REPORT
P.G. & E. NATURAL GAS PIPELINE—407 WEST

Dear Ms. Spurr:

I am submitting these comments to the Notice of Proposed Environmental Impact Report regarding the P.G. & E. proposal to build a natural gas pipeline between Esparto, in Western Yolo County, and Roseville, in Placer County. My family's trust owns agricultural land near Yolo in Yolo County that would apparently be affected by the Preferred Route of Line 407 West.

Specifically, our property is described as the West Half of the East Half of Section 5, Township 10 North, Range 2 East. It is bounded on the West and South by State Highway 113. This coincides with County Road 17 on the south boundary. On the East and North, the property is bounded by other agricultural land.

It is not clear from the maps if the pipeline is proposed for the North or South side of Highway 113. If it is on the north side, it would cross our property about ¼ mile on the south end of the property. Of course, my family would prefer that the pipeline not cross our property at all. If it does end up coming through, I have the following concerns: 5-1

1. Irrigation. Our main irrigation well is on the south end of the property, adjacent to State Highway 113. This well has a pipeline that runs diagonally northwest to the Highway 113 frontage, and from there the water is conducted north one mile by gravity flow. This well irrigates the entire property. The well is directly in the path of the preferred alternative route. I am very concerned about disturbance of this well, contamination and/or interruption of the water supply for the property. 5-2

2. Width. The proposal indicates a 30' wide easement will be necessary. Within the easement, no permanent crops may be grown. This seems an excessively wide easement. 10' should be adequate for one pipeline. The impact of leaving so much unproductive and barren soil should be assessed. 5-3

3. Access. Since the entire quarter-mile frontage on State Route 113 on the south end of our property would be blocked by the pipeline route, 5-4

the limitation on access to the property must be assessed. Will we be permitted to cross the easement with farm equipment, and will the easement permit us to construct future driveways across it for access to a future home site on the south end of the property. We need some amount of reasonable access across the easement to farm and live on the property.. 5-4

4. Cable. There is a transcontinental telecommunications cable buried on the property, I believe in a north-south direction. The location of this cable needs to be spotted, so that it is not disturbed during construction. 5-5

5. Flooding. The location of the 407 West line is very near an historic breakout point of Cache Creek, located at County Road 17 near the SW corner of Sec. 5, T 10 N, R 2 E. The report should assess the effect of floodwaters eroding and covering the pipeline. 5-6

6. Earthquake. The risk of earth movement damage to the pipeline should be assessed, particularly where it crosses under waterways such as the Sacramento River. 5-7

7. Greenhouse Gas Emissions. On a general project analysis, I did not see any proposal for analysis of the global warming effects of the project. As an environmental scientist, you are well aware of the impacts of delivery of a large quantity of natural gas to developing areas in Placer County. This should be included in your report. 5-8

RESPONSE TO COMMENT SET 5

Comment Number	Section of Draft EIR	Page Number(s)
5-1	2.0 - Project Description	Entire Section
5-2	4.8 - Hydrology and Water Quality	4.8-19 to 4.8-20
5-3	4.2 - Agricultural Resources	4.2-22 to 4.2-25
5-4	2.0 - Project Description 4.2 - Agricultural Resources 4.13 - Transportation and Traffic	2-32 to 2-39 4.2-22 to 4.2-25 4.13-18 to 4.13-22
5-5	4.12 - Population and Housing / Public Services / Utilities and Service Systems	4.12-25
5-6	4.8 - Hydrology and Water Quality	4.8-15, and 4.8-20 to 4.8-22
5-7	4.6 - Geology and Soils	4.6-20 to 4.6-33 and 4.6-39 to 4.6-41
5-8	4.3 - Air Quality	4.3-12 to 4.3-13, 4.3-17 to 4.3-19, and 4.3-49 to 4.3-52

COMMENT SET 6

DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • FAX 916 / 327-3430 • TDD 916 / 324-2555 • WEBSITE conservation.ca.gov

July 16, 2007

VIA FACSIMILE (916) 574-1810
Crystal Spurr
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95802-8202

Subject: Notice of Preparation (NOP) for the PG&E Line 406/407 Project (Yolo, Sutter, Sacramento, and Placer County) **SCH# 2007062091**

Dear Ms. Spurr:

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the DEIR for the referenced project. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the project's impacts on agricultural land and resources.

Project Description

The project being proposed by Pacific Gas & Electric (PG&E) is to construct an approximately 40-mile, 30-inch diameter natural gas pipeline (Lines 406 and 407). The project would run from the Esparto area in Yolo County east to Roseville in Placer County. There would be a potentially significant impact to agricultural resources, as the project would cross agricultural lands that may be under numerous Williamson Act contracts. Therefore, the Division recommends that the Draft EIR (DEIR) address the following items to provide a comprehensive discussion of potential impacts of the project on agricultural land and activities.

Agricultural Setting of the Project

- Location and extent of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and other types of farmland in and adjacent to the project area.
- Current and past agricultural use of the project area. Please include data on the types of crops grown, and crop yields and farm gate sales values. **6-1**

To help describe the full agricultural resource value of the soils on the site, the Department recommends the use of economic multipliers to assess the total contribution of the site's

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LANDS COMM

potential or actual agricultural production to the local, regional and state economies. Two sources of economic multipliers can be found at the University of California Cooperative Extension Service and the United States Department of Agriculture (USDA). 6-1

Project Impacts on Agricultural Land

- Type, amount, and location of farmland conversion resulting directly and indirectly from project implementation and growth inducement, respectively.
- Impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes, vandalism, etc.
- Incremental project impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely projects in the future. 6-2

Under California Code of Regulations Section 15064.7, impacts on agricultural resources may also be both quantified and qualified by use of established thresholds of significance. As such, the Division has developed a California version of the USDA Land Evaluation and Site Assessment (LESA) Model. The California LESA model is a semi-quantitative rating system for establishing the environmental significance of project-specific impacts on farmland. The model may also be used to rate the relative value of alternative project sites. The LESA Model is available on the Division's website at:

http://www.consrv.ca.gov/DLRP/qh_lesa.htm

Mitigation Measures

The loss of agricultural land represents a permanent reduction in the State's agricultural land resources. As such, the Department recommends the use of agricultural conservation easements on land of at least equal quality and size as partial compensation for the direct loss of agricultural land. If a Williamson Act contract is terminated, or if growth inducing or cumulative agricultural impacts are involved, the Department recommends that this ratio of conservation easements to lost agricultural land be increased. Conservation easements will protect a portion of those remaining land resources and lessen project impacts in accordance with CEQA Guideline §15370. The Department highlights this measure because of its acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and because it follows an established rationale similar to that of wildlife habitat mitigation. 6-3

Mitigation via agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence the search for replacement lands should be conducted regionally or statewide, and not limited strictly to lands within the project's surrounding area.

Other forms of mitigation may be appropriate for this project, including:

- Protecting farmland in the project area or elsewhere in the County through the use of less than permanent long-term restrictions on use such as 20-year Farmland Security Zone contracts (Government Code section 51296 et seq.) or 10-year Williamson Act contracts (Government Code section 51200 et seq.).
- Directing a mitigation fee to invest in supporting the commercial viability of the remaining agricultural land in the project area, County or region through a mitigation bank that invests in agricultural infrastructure, water supplies, marketing, etc.

The Department also has available a listing of approximately 30 "conservation tools" that have been used to conserve or mitigate project impacts on agricultural land. This compilation report may be requested from the Division at the address or phone number below. General information about agricultural conservation easements, the Williamson Act, and provisions noted above is available on the Department's website, or by contacting the Division at the address and phone number listed below. The Division's website address is: 6-3

http://www.conservation.ca.gov/dlrp/index.htm

Of course, the use of conservation easements is only one form of mitigation that should be considered. Any other feasible mitigation measures should also be considered.

Williamson Act Lands

Under California Code of Regulations Section 15206(b)(3), a project is deemed to be of statewide, regional or area-wide significance if it will result in cancellation of a Williamson Act contract for a parcel of 100 or more acres. Since lands under Williamson Act contracts and/or in agricultural preserves exist in the project area, the Department recommends that the following information be provided in the DEIR:

- A map detailing the location of agricultural preserves and contracted land within each preserve. The DEIR should also tabulate the number of Williamson Act acres, according to land type (e.g., prime or non-prime agricultural land), which could be impacted directly or indirectly by the project.
- A discussion of Williamson Act contracts that may be terminated in order to implement the project. The DEIR should discuss the probable impacts on nearby properties resulting from the termination of adjacent Williamson Act contracts. For example, a termination of a Williamson Act contract may have a growth-inducing impact. In other words, a termination may not only lift a barrier to development, but also result in higher property taxes, and thus, an incentive to shift to a more intensive land use, such as urban development. 6-4
- As a general rule, land can only be withdrawn from a Williamson Act contract through the nine-year non-renewal process. Immediate termination via cancellation is reserved for "extraordinary circumstances" (See Sierra Club v. City of Hayward (1981) 28 Cal.3d 840, 852-855). Under Government Code section 51282, the city or county must approve a request for cancellation and base that approval on

specific findings that are supported by substantial evidence. When cancellation is proposed, the Department recommends that a discussion of the findings be included in the DEIR. Finally, a notice of the hearing to approve the tentative cancellation and a copy of the landowner's petition must be mailed to the Director of the Department ten working days prior to the hearing. (The notice should be mailed to Bridgett Luther, Director, Department of Conservation, c/o Division of Land Resource Protection, 801 K Street MS 18-01, Sacramento, CA 95814-3528.)

- Under Government Code section 51243, if a city annexes land under a Williamson Act contract, the city must succeed to all rights, duties, and powers of the county under the contract. However, under section 51243.5, a city may exercise its option not to succeed to the contract if certain conditions are met. LAFCO must notify the Department within 10 days of a city's proposal to annex land under a contract (Government Code section 56753.5). Additionally, LAFCO must not approve a change to a sphere of influence or annexation of contracted land to a city unless certain conditions are met (see Government Code sections 51296.3, 56426, 56426.5, 56749 and 56856.5).
- If portions of the planning area are under Williamson Act contracts (and will continue to be under contract after project implementation) the DEIR should discuss the proposed uses for those lands. Uses of contracted land must meet compatibility standards identified in Government Code sections 51238 - 51238.3. Otherwise, contract termination (see paragraph above) must occur prior to the initiation of the land use. **6-4**
- An agricultural preserve is a zone authorized by the Williamson Act and established by the local government to designate qualified land to be placed under the Williamson Act's 10-year contracts. Preserves are also intended to create a setting for contract-protected lands that is conducive to continuing agricultural use. Under Government Code section 51230, "An agricultural preserve may contain land other than agricultural land, but the use of any land within the preserve and not under contract shall within two years of the effective date of any contract on land within the preserve be restricted by zoning, including appropriate minimum parcel sizes that are at a minimum consistent with this chapter, in such a way as not to be incompatible with the agricultural use of the land." Therefore, the DEIR should also discuss any proposed general plan designation or zoning within agricultural preserves affected by the project.

Thank you for giving us the opportunity to comment on this NOP. If you have questions on our comments, or require technical assistance or information on agricultural land conservation, please contact Elliott Lum, Environmental Planner, at 801 K Street, MS 18-01, Sacramento, California 95814; or, phone (916) 324-0869.

Sincerely,

Dennis J. O'Bryant
Program Manager

cc: State Clearinghouse

RESPONSE TO COMMENT SET 6

Comment Number	Section of Draft EIR	Page Number(s)
6-1	4.2 - Agricultural Resources	4.2-1 to 4.2-17
6-2	4.2 - Agricultural Resources	4.2-22 to 4.2-25, and 4.2-31
6-3	4.2 - Agricultural Resources	4.2-23 to 4.2-25
6-4	4.2 - Agricultural Resources	4.2-16, 4.2-17, 4.2-22, 4.2-23, and Figures 4.2-1A, 4.2-1B, and 4.2-1C

COUNTY OF PLACER
Community Development Resource Agency

John Marin, Agency Director

ENVIRONMENTAL COORDINATION SERVICES

Gina Langford, Coordinator

COMMENT SET 7

FACSIMILE COVER SHEET

TO: Paul Thayer, Executive Officer **FAX #** 916-574-1885

FROM: Peg Rein, Secretary **DATE:** July 18, 2007

SUBJECT: **PG&E Line 406/407 Natural Gas Pipeline NOP**

PAGE # INCLUDING THIS COVER SHEET 4

MESSAGE:

The ERC (environmental Review Committee) has reviewed your NOP and has provided the following information.

3091 County Center Drive, Suite 190 / Auburn, California 95603 / (530)745-3132 / Fax (530)745-3003 / email: cdraecs@placer.ca.gov

COUNTY OF PLACER
Community Development Resource Agency

ENGINEERING & SURVEYING

MEMORANDUM

DATE: JULY 17, 2007

TO: MAYWAN KRACH, ENVIRONMENTAL COORDINATION SERVICES

FROM: SARAH K GILLMORE, ENGINEERING AND SURVEYING

SUBJECT: PG&E LINE 406 & LINE 407 NATURAL GAS PIPELINE: NOTICE OF PREPARATION

The Engineering and Surveying Department (ESD) has completed our review of the above referenced application and offer the following comments for inclusion in the Environmental Impact Report to be prepared for the project.

TRANSPORTATION / CIRCULATION

See the attached Memo from the Department of Public Works.

MEMORANDUM

DEPARTMENT OF PUBLIC WORKS
County of Placer

TO: Phil Frantz, CD/RA DATE: July 17, 2007

FROM: Andrew Gaber, DPW, Transportation

SUBJECT: **PG&E Line 406 & Line 407 Natural Gas Pipeline, NOP**

I have completed my review of the project description and NOP and have the following comments:

The applicant is proposing to install a 30 inch gas pipeline, either within or adjacent to Baseline Road, by open trenching. Based on current roadway configuration and traffic volumes on Baseline Road, the County will not permit any lane closures during the day on weekdays. The applicant must obtain an Encroachment Permit prior to doing any work within the public ROW. **7-1**

Baseline Road will be widened initially to 4 lanes by the developers of Placer Vineyard and ultimately to 6 lanes prior to build out of the development. The timing of the installation and location of the gas pipeline shall be coordinated with the County, the City of Roseville, the developers of Placer Vineyards and Sierra Vista and other utility companies to avoid future conflicts and work within the roadway. **7-2**

Therefore, the environmental analysis shall provide a discussion of:

Traffic implications of the various proposed alignments and construction methods. What construction hours are proposed, what traffic lane closures or detours are proposed, what traffic, noise and air impacts will be created? What are the implications of constructing the line sooner, prior to the roadway widening, rather than installing the line in conjunction with the roadway widening? What are the implications of installing the line using open trenching versus trenchless methods? What accommodations are necessary to allow for construction of other utility lines within the Baseline ROW? **7-3**

One of the alternative alignments will run under the proposed corporation yard within Placer Vineyards. This is proposed to be a full service maintenance facility which will have gas and oil tanks, as well as possibly a CNG fueling station. What are the necessary clearances between these facilities? Are there other implications of having these facilities in close proximity? **7-4**

RESPONSE TO COMMENT SET 7

Comment Number	Section of Draft EIR	Page Number(s)
7-1	1.0 - Introduction 4.13 - Transportation and Traffic	1-8 and 1-9 4.13-18 to 4.13-20; APM TRANS-3 and APM TRANS-6
7-2	4.13 - Transportation and Traffic	4.13-18 to 4.13-20; APM-TRANS-1 through APM-TRANS-8
7-3	2.0 - Project Description 3.0 - Alternatives and Cumulative Projects	2-27 to 2-85 3-1 to 3-58
7-4	4.7 - Hazards and Hazardous Materials	4.7-41 to 4.7-45

Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

COMMENT SET 8

JUL 17 2007

Ms. Crystal Spurr
Staff Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

Dear Ms. Spurr:

Thank you for the opportunity to comment on the Notice of Preparation of the Draft Environmental Impact Report for the Pacific Gas and Electric Company's natural gas pipeline project. The project will cross the United States Department of Energy, Western Area Power Administration's (Western) Olinda-Tracy 500-kilovolt (kV), Obanion-Elverta, Cottonwood-Roseville, and Roseville-Elverta/Roseville-Fiddyment 230-kV transmission lines in Colusa and Placer Counties. Western must review specific project plans to ensure the proposed project does not interfere with our easement rights and are in accordance with our general guidelines. Please submit the project specific improvement plans to Western for review and approval for a license agreement prior to construction. **8-1**

Enclosed is a copy of Western's General Guidelines for the use of the transmission line easements. If you have any questions, please contact Ms. Susan Sinclair at (916) 353-4600.

Sincerely,

Heidi R. Miller

Heidi R. Miller
Realty Officer

3 Enclosures

cc:
Mr. Don Wagenet
Navigant Consulting Inc.
3100 Zinfandel Boulevard, Suite 600
Rancho Cordova, CA 95670

WESTERN AREA POWER ADMINISTRATION
GENERAL GUIDELINES CONCERNING THE USE OF
ELECTRIC TRANSMISSION LINE RIGHTS-OF-WAY

RE: Olinda-Tracy 500-kV Transmission Line (Olinda to the Sacramento River)

Western Area Power Administration (Western) owns a 125-foot easement along the length of the referenced transmission line. Western's rights within the easement include the right to construct, reconstruct, operate, maintain, and patrol the transmission line.

Rights usually reserved to the landowner include the right to cultivate, occupy, and use the land for any purpose that does not conflict with Western's use of its easement. To avoid potential conflicts, it is Western's policy to review all proposed uses within the transmission line easement. We consider (1) Safety of the public, (2) Safety of our Employees, (3) Restrictions covered in the easement, (4) Western's maintenance requirements, and (5) Protection of the transmission line structures and (6) Road or street crossings.

The outline below lists the considerations covered in the review. Please note that some items may overlap. This outline has been prepared only as a guide; each right-of-way encroachment is evaluated on an individual basis.

1. Safety Of The Public

   A. Approval depends, to a large extent, on the type and purpose of the development. Western takes our obligation to public safety very seriously. To insure our obligation, any use of the easement that will endanger the public will not be allowed or strongly discouraged (e.g., kite flying is prohibited).

   B. Metal fences must be grounded in accordance with applicable safety codes.

   C. Lighting standards shall not exceed a maximum height of 15 feet and not placed directly under the conductors (wires). All lighting standards must be grounded.

   D. All vegetation on the easement shall not exceed a maximum height of 12 feet at maturity.

   E. Structures are not allowed on the easement. Structures include, but are not limited to, buildings, sheds, swimming pools, basketball courts, tennis courts, gazebos, etc.

   F. No ground elevation changes are allowed which would reduce the ground to conductor clearance below 35 feet.

2. Safety Of Our Employees

Vegetation and encroachments into our right-of-way requires our crews to take action, which places them at risk. Therefore, any vegetation or encroachments that present a risk to our employees will not be allowed.

3. Restrictions Covered In The Easement

The easement prohibits the following: (1) any use that will interfere with or damage the equipment of the United States, (2) digging or drilling of a well, (3) erecting buildings or structures, (4) placing or piling up material within the easement boundaries. The easement gives Western the right to remove trees, brush or other objects interfering with the safe operation and maintenance of the line.

4. Maintenance Requirements

A. Berms shall not be placed next to the base of the transmission line tower.

B. Any proposed improvements to the easement (including grading, parking lot, lighting, landscaping, fences, etc.), must be reviewed by Western to assure that they will not interfere with the safe operation and maintenance of the transmission line.

C. A 14-foot gate is required in any fences that cut off access along our easement.

D. Thirty (30) feet of unobstructed access is to be maintained around towers.

5. Protection Of The Transmission Line Structure (Towers, Guy Wires, etc.)

A. If the proposed use increases the possibility of a motor vehicle hitting the transmission line structure, an appropriate guardrail shall be installed to protect the structure (e.g., parking lots or roads).

B. Trench digging, which would weaken or damage the structure, is prohibited.

C. No ground elevation changes are allowed within 20 feet of the structure, and in no case shall the conductor to ground clearance be reduced below code limitation.

6. Roads Or Street Crossings

Western's policy is to have roads or streets cross the easement at right angles, or as nearly at right angles as possible, so that a minimum area of the road or street lies within the transmission line easement.

Requests for permission to use the transmission line right-of-way should be submitted to: Western Area Power Administration, Sierra Nevada Regional Office, Attn: Realty Officer, 114 Parkshore Drive, Folsom, CA 95630.

WESTERN AREA POWER ADMINISTRATION
GENERAL GUIDELINES CONCERNING THE USE OF
ELECTRIC TRANSMISSION LINE RIGHTS-OF-WAY

RE: Obanion-Elverta 230-kV Transmission Lines

Western Area Power Administration (Western) owns a 125-foot easement along the length of the referenced transmission line. Western's rights within the easement include the right to construct, reconstruct, operate, maintain, and patrol the transmission line.

Rights usually reserved to the landowner include the right to cultivate, occupy, and use the land for any purpose that does not conflict with Western's use of its easement. To avoid potential conflicts, it is Western's policy to review all proposed uses within the transmission line easement. We consider (1) Safety of the public, (2) Safety of our Employees, (3) Restrictions covered in the easement, (4) Western's maintenance requirements, and (5) Protection of the transmission line structures and (6) Road or street crossings.

The outline below lists the considerations covered in the review. Please note that some items may overlap. This outline has been prepared only as a guide; each right-of-way encroachment is evaluated on an individual basis.

1. Safety Of The Public

   A. Approval depends, to a large extent, on the type and purpose of the development. Western takes our obligation to public safety very seriously. To insure our obligation, any use of the easement that will endanger the public will not be allowed or strongly discouraged (e.g., kite flying is prohibited).

   B. Metal fences must be grounded in accordance with applicable safety codes.

   C. Lighting standards shall not exceed a maximum height of 15 feet and not placed directly under the conductors (wires). All lighting standards must be grounded.

   D. All vegetation on the easement shall not exceed a maximum height of 12 feet at maturity.

   E. Structures are not allowed on the easement. Structures include, but are not limited to, buildings, sheds, swimming pools, basketball courts, tennis courts, gazebos, etc.

   F. No ground elevation changes are allowed which would reduce the ground to conductor clearance below 30 feet.

2. Safety Of Our Employees

Vegetation and encroachments into our right-of-way requires our crews to take action, which places them at risk. Therefore, any vegetation or encroachments that present a risk to our employees will not be allowed.

3. Restrictions Covered In The Easement

The easement prohibits the following: (1) any use that will interfere with or damage the equipment of the United States, (2) digging or drilling of a well, (3) erecting buildings or structures, (4) placing or piling up material within the easement boundaries. The easement gives Western the right to remove trees, brush or other objects interfering with the safe operation and maintenance of the line.

4. Maintenance Requirements

A. Berms shall not be placed next to the base of the transmission line tower.

B. Any proposed improvements to the easement (including grading, parking lot, lighting, landscaping, fences, etc.), must be reviewed by Western to assure that they will not interfere with the safe operation and maintenance of the transmission line.

C. A 14-foot gate is required in any fences that cut off access along our easement.

D. Thirty (30) feet of unobstructed access is to be maintained around towers.

5. Protection Of The Transmission Line Structure (Towers, Guy Wires, etc.)

A. If the proposed use increases the possibility of a motor vehicle hitting the transmission line structure, an appropriate guard rail shall be installed to protect the structure (e.g., parking lots or roads).

B. Trench digging, which would weaken or damage the structure, is prohibited.

C. No ground elevation changes are allowed within 20 feet of the structure, and in no case shall the conductor to ground clearance be reduced below code limitation.

6. Roads Or Street Crossings

Western's policy is to have roads or streets cross the easement at right angles, or as nearly at right angles as possible, so that a minimum area of the road or street lies within the transmission line easement.

Requests for permission to use the transmission line right-of-way should be submitted to: Western Area Power Administration, Sierra Nevada Regional Office, Attn: Realty Officer, 114 Parkshore Drive, Folsom, CA 95630.

WESTERN AREA POWER ADMINISTRATION
GENERAL GUIDELINES CONCERNING THE USE OF
ELECTRIC TRANSMISSION LINE RIGHTS-OF-WAY

RE: Roseville-Elverta/Roseville-Fiddyment and Cottonwood-Roseville 230-kV Transmission Lines

Western Area Power Administration (Western) owns a 250-foot easement along the length of the referenced transmission line. Western's rights within the easement include the right to construct, reconstruct, operate, maintain, and patrol the transmission line.

Rights usually reserved to the landowner include the right to cultivate, occupy, and use the land for any purpose that does not conflict with Western's use of its easement. To avoid potential conflicts, it is Western's policy to review all proposed uses within the transmission line easement. We consider (1) Safety of the public, (2) Safety of our Employees, (3) Restrictions covered in the easement, (4) Western's maintenance requirements, and (5) Protection of the transmission line structures and (6) Road or street crossings.

The outline below lists the considerations covered in the review. Please note that some items may overlap. This outline has been prepared only as a guide; each right-of-way encroachment is evaluated on an individual basis.

1. Safety Of The Public

   A. Approval depends, to a large extent, on the type and purpose of the development. Western takes our obligation to public safety very seriously. To insure our obligation, any use of the easement that will endanger the public will not be allowed or strongly discouraged (e.g., kite flying is prohibited).

   B. Metal fences must be grounded in accordance with applicable safety codes.

   C. Lighting standards shall not exceed a maximum height of 15 feet and not placed directly under the conductors (wires). All lighting standards must be grounded.

   D. All vegetation on the easement shall not exceed a maximum height of 12 feet at maturity.

   E. Structures are not allowed on the easement. Structures include, but are not limited to, buildings, sheds, swimming pools, basketball courts, tennis courts, gazebos, etc.

   F. No ground elevation changes are allowed which would reduce the ground to conductor clearance below 30 feet.

2. Safety Of Our Employees

Vegetation and encroachments into our right-of-way requires our crews to take action, which places them at risk. Therefore, any vegetation or encroachments that present a risk to our employees will not be allowed.

3. Restrictions Covered In The Easement

The easement prohibits the following: (1) any use that will interfere with or damage the equipment of the United States, (2) digging or drilling of a well, (3) erecting buildings or structures, (4) placing or piling up material within the easement boundaries. The easement gives Western the right to remove trees, brush or other objects interfering with the safe operation and maintenance of the line.

4. Maintenance Requirements

A. Berms shall not be placed next to the base of the transmission line tower.

B. Any proposed improvements to the easement (including grading, parking lot, lighting, landscaping, fences, etc.), must be reviewed by Western to assure that they will not interfere with the safe operation and maintenance of the transmission line.

C. A 14-foot gate is required in any fences that cut off access along our easement.

D. Thirty (30) feet of unobstructed access is to be maintained around towers.

5. Protection Of The Transmission Line Structure (Towers, Guy Wires, etc.)

A. If the proposed use increases the possibility of a motor vehicle hitting the transmission line structure, an appropriate guard rail shall be installed to protect the structure (e.g., parking lots or roads).

B. Trench digging, which would weaken or damage the structure, is prohibited.

C. No ground elevation changes are allowed within 20 feet of the structure, and in no case shall the conductor to ground clearance be reduced below code limitation.

6. Roads Or Street Crossings

Western's policy is to have roads or streets cross the easement at right angles, or as nearly at right angles as possible, so that a minimum area of the road or street lies within the transmission line easement.

Requests for permission to use the transmission line right-of-way should be submitted to: Western Area Power Administration, Sierra Nevada Regional Office, Attn: Realty Officer, 114 Parkshore Drive, Folsom, CA 95630.

COMMENT SET 9

GEORGE M. CARPENTER, JR.
ATTORNEY AT LAW
141 Morella Court · Roseville · California 95747
Telephone (916) 434-6660 · Facsimile (916) 434-6661
Email: georgemcarpenter@comcast.net

July 17, 2007

VIA FACSIMILE ONLY (916) 574-2274

Crystal Spurr, Staff Environmental Specialist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, California 95825

RE: Comments on Notice of Preparation; PG&E Natural Gas Line 406 & Line 407 Natural Gas Pipeline;
CSLC Ref Files: W30169-4, W26210, R19806;
SCH No. 2007062091

Dear Ms. Spurr:

I am writing to provide comments on the above referenced project and to request that the project environmental impact report address these comments. I represent the Measure M Owner's Group which is developing the 7500-acre Sutter Pointe Specific Plan in south Sutter County. The Sutter Pointe development is centered around the intersection of Riego Road and State Route 99/70. The proposed pipeline traverses through the heart of the plan area.

The construction of a new high pressure natural gas pipeline through the heart of the Sutter Pointe development is problematic if not properly planned and constructed. The proposed alignment of the proposed pipeline as it traverses the Sutter Pointe development is along the northerly side of Riego Road, a narrow two lane rural (but heavily used) road.

Riego Road will be improved into a 6 and 8 lane major arterial as a part of the Sutter Pointe development. As such, it is going to be a primary arterial through this new community, along with all the normal high intensity residential and commercial properties abutting a major urban arterial.

The danger of explosion of the proposed pipeline will pose major risks to life and property unless the proposed pipeline is planned, designed and constructed with the forethought necessary to allow the placement of a major natural gas pipeline in an urban setting. The exact placement of the pipeline along the roadway, the methods and materials of construction, and the class and depth of the pipeline will have a dramatic effect on the level of risk that the proposed pipeline will pose to the residents of Sutter Pointe. **9-1**

Knowing that PG&E was planning this natural gas pipeline through Sutter Pointe, the Sutter Pointe Specific Plan, currently under review by Sutter County, calls for the standards of care that must be met in order to place major energy and communications facilities within the limits of the community. The applicable portions of these standards that apply to the proposed natural gas pipeline are cited below:

"Natural Gas Facilities

"New high pressure gas mains and all other large scale gas transmission and distribution facilities shall be located within railway and electric transmission corridors, along major arterial roads, and wherever possible, within existing easements. If not feasible, these gas mains shall be placed as close to existing easements as possible. To protect the public health and safety, all gas mains shall be designed to minimize the threat of potential loss of property and human life in the event of a rupture and explosion of the gas main.

"The design of all new gas mains shall ensure that the normal building setbacks provided in the zoning requirements and development standards established for all land use zones within this Specific Plan are sufficient to protect the health and safety of the public from the threat of explosion and fire from gas main rupture. New high-pressure gas mains and all other large-scale gas transmission and distribution facilities shall not be located within 1,500 feet of any existing or proposed school site.

"The design of all new high-pressure gas mains and all other large scale gas transmission and distribution facilities within 500 feet of any existing or proposed residential land uses shall include the preparation of an estimated annual individual risk assessment by a qualified professional to prove that the individual risk levels are below 1 x 10-6 (one-in-a-million). The design of these facilities shall also be designed in accordance with the minimum standards of the regulatory body governing the utility provider in an urban environment.

"Proposals to locate all new high-pressure gas mains and all other large-scale gas transmission and distribution facilities shall be submitted to the County Community Services Department for review and comment in the form of a Specific Plan Conformity request. The submittal shall include a discussion of mitigation measures to be utilized indicating the specific site treatments to be employed."

We respectfully request that the EIR address the siting and alignment of the proposed pipeline in conjunction with the above standards. Specifically, we request the following be addressed:

1. With respect to the annual risk assessment, the assessment should assume the existence of low, medium and high-density residential dwellings and commercial/retail buildings being constructed at the edge of the proposed 50' wide easement of the pipeline. 9-2

2. The alignment of the proposed pipeline should be carefully chosen to accommodate future improvements being made to Riego Road as it is improved from its rural two land configuration into a major 6-8 land urban arterial. 9-3

3. The alignment of the proposed pipeline should be coordinated such that its placement in the proposed landscape corridor (including major tree plantings along the proposed pedestrian and bicycle path that will parallel the north side of Riego Road) will accommodate these planned future roadway improvements. 9-4

4. The proposed easement language should accommodate these future improvements and be a non-exclusive easement. 9-5

5. The vertical alignment of the pipeline should contemplate and make provisions for future utility crossing (water, sewer and drainage) that will be necessary to service the proposed Sutter Pointe development. 9-6

We look forward to working with the applicant in the resolution of these issues. Please feel free to call our civil engineer, Mr. Ken Giberson, PE, if you need additional information. His contact information is as follows:

Ken Giberson, PE
MacKay & Somps Civil Engineers, Inc.
1771 Tribute Road, Suite E
Sacramento, CA 95815
916-929-6092

Thank you for allowing us to provide comments on the proposed project.

Respectfully yours,

George M. Carpenter, Jr.

cc: Chris Ellis, PG&E
Ken Giberson, MacKay and Somps

RESPONSE TO COMMENT SET 8

Comment Number	Section of Draft EIR	Page Number(s)
8-1	4.9 - Land Use and Planning	4.9-12, and 4.9-19 to 4.9-20

RESPONSE TO COMMENT SET 9

Comment Number	Section of Draft EIR	Page Number(s)
9-1	4.9 - Land Use and Planning	4.9-18 to 4.9-23
9-2	4.7 - Hazards and Hazardous Materials Describes the Risk Assessment and the High Consequence Areas (HCAs)	4.7-13 to 4.7-46
9-3	2.0 - Project Description 4.13 - Transportation and Traffic	Entire Section 4.13-16 to 4.13-24
9-4	4.1 - Aesthetic Resources 4.4 - Biological Resources	4.1-14 4.4-18, and 4.4-61 to 4.4-107
9-5	2.0 - Project Description	Entire Section
9-6	4.12 - Population and Housing / Public Services / Utilities and Service Systems	4.12-25

COMMENT SET 10

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
221 West Court, Suite 1
Woodland, CA 95695

PHIL HOGAN
District Conservationist
(530) 662-2037 x111
phil.hogan@ca.usda.gov

July 17, 2007

Crystal Spurr, Staff Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

PROJECT: PG&E Line 406 Natural Gas Pipeline

Dear Ms. Spurr:

My comments only concern the section of the above-mentioned pipeline in the Hungry Hollow area of Yolo County (beginning of the project just west of County Road 85) east to Interstate 505.

Attached are the following:

1) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Base Map
2) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Topography
3) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Soils
4) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – FEMA Flood Zones
5) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Protected Species
6) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Groundwater Protection Areas
7) Limitations for the Soils (Shallow Excavations)
8) Limitations for the Soils (Corrosion of Steel)
9) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Corrosion of Steel
10) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Howard Lopez Properties
11) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Howard Lopez Properties - SOILS
12) Map: PG&E Proposed 406 Pipeline, Hungry Hollow, Yolo County Part – Howard Lopez Properties - TOPOGRAPHY

- Number of acres in the Hungry Hollow area impacted by the pipeline (50-foot easement): 34 (29,765 feet X 50 feet)
- Number of acres in the Hungry Hollow area impacted by the pipeline (30-foot restricted area) for Howard Lopez property: 3.0

Reducing Impact on Agricultural Land

- The pipeline should be located along roads, not through the middle of farm fields.
- Pipelines located in fields make farming more difficult
- The 30-foot restriction of permanent crops (orchards, vineyards, etc.) results in a potential economic loss to the landowner should they want to plant these types of crops in the future. Is the landowner to be compensated for this loss?
- Will there be more to the pipeline in the area, such as compressors and other infrastructure?

10-1

How Will the Following Be Addressed?

- Impacts on crop production
- Topsoil and subsoil Mixing
- Soil compaction
- Erosion control in the construction and restoration right-of-way
- Impacts on drainage and irrigation systems
- Impact on residences
- Effects on property values
- Impacts on future farm expansions.

10-2

PHIL HOGAN

District Conservationist

Cc:
Howard Lopez, Landowner
Paul Robins, Executive Director, Yolo County Resource Conservation District
John Bencomo, Director, County of Yolo Planning, Resources & Public Works Department

RESPONSE TO COMMENT SET 10

Comment Number	Section of Draft EIR	Page Number(s)
10-1	2.0 - Project Description (above ground facilities) 3.0 - Alternatives and Cumulative Projects 4.2 - Agricultural Resources	2-30 to 2-32 Entire Section 4.2-22 to 4.2-25
10-2	4.2 - Agricultural Resources 4.6 - Geology and Soils 4.8 - Hydrology and Water Quality	4.2-22 to 4.2-25 4.6-37 to 4.6-39 4.8-15, and 4.8-19 to 22

COMMENT SET 11

PLACER COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Ken Grehm, Executive Director
Brian Keating, District Engineer
Andrew Darrow, Development Coordinator

July 17, 2007

Maywan Krach
Placer County
Community Development Resource Agency
3091 County Center Drive
Auburn, CA 95603

RE: PG&E Line 406 & Line 407 Natural Gas Pipeline / NOP of a Draft EIR

Maywan:

We have no comments regarding the subject project at this time. **11-1**

Andrew Darrow, P.E.
Development Coordinator

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3091 County Center Drive, Suite 220 / Auburn, CA 95603 / Tel: (530) 745-7541 / Fax: (530) 745-3531

RESPONSE TO COMMENT SET 11

Comment 11-1

This comment notes that Placer County Flood Control and Water Conservation District has no comments regarding the project at this time. No response is necessary.

COMMENT SET 12

July 17, 2007

WILDLANDS, INC.

Sent via U.S. Mail and E-Mail

Crystal Spurr, Staff Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

RE: Notice of Preparation, PG&E Line 406 and Line 407 Natural Gas Pipeline

Dear Ms. Spurr,

Thank you for the opportunity to comment on the Pacific Gas and Electric Company's proposed project to construct a new natural gas pipeline from Esparto in Yolo County to Roseville in Placer County. Based upon the preliminary mapping provided in the notice, it appears that the preferred route will bisect property owned by Sacramento River Ranch, LLC, and managed by Wildlands, Inc., an environmental mitigation banking company, as an environmental preserve.

The Sacramento River Ranch totals approximately 4300 acres and provides a variety of habitat types for threatened and endangered species including the Valley Elderberry Longhorn Beetle and Swainson's hawk. The ranch is also in the final stages of approval by the U.S. Army Corps of Engineers to establish the Sacramento River Ranch Wetland Mitigation Bank which will provide jurisdictional seasonal wetland habitat to project proponents impacting wetlands in the Sacramento region. In addition, the preserve also offers a site for agricultural mitigation as required by the County of Yolo as a condition of approval to develop agricultural land.

12-1

Sacramento River Ranch, LLC, supports PG&E's efforts to provide greater capacity and service reliability to the existing gas transmission and distribution system in the Sacramento Valley Region. However, we are concerned that the construction and subsequent permanent easement and restrictions bisecting our property could result in disruption to and net loss of sensitive species and biological habitat, and would hinder our ongoing efforts in the realm of mitigation and conservation banking.

We look forward to working with the California State Lands Commission during the environmental review process to eliminate or reduce the impacts of the proposed pipeline to the Sacramento River Ranch. Please feel free to contact us at (916) 435-3555 to schedule a meeting and site visit. Please also add our name and address to your mailing list for project updates and upcoming meetings.

Sincerely,

Jeff Mathews /CA

Jeff Mathews
Director of Sales and Marketing
Wildlands, Inc.

3855 Atherton Road • Rocklin, CA 95765 • (916) 435-3555 • Fax (916) 435-3556

RESPONSE TO COMMENT SET 12

Comment Number	Section of Draft EIR	Page Number(s)
12-1	4.9 - Land Use and Planning	4.9-19 to 4.9-20

COMMENT SET 13

CITY OF ROSEVILLE
TRADITION • PRIDE • PROGRESS

Community Development
311 Vernon Street
Roseville, California 95678-2649

July 18, 2007

Crystal Spurr, Staff Environmental Scientist
CA State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

Via: Email and Regular Mail spurrc@slc.ca.gov

Subject: PG&E Line 406 and Line 407 Natural Gas Pipeline – NOP Comments

Dear Ms. Spurr:

Thank you for the opportunity to review and comment on the Notice of Preparation for the above referenced natural gas pipeline project. The City of Roseville has reviewed the proposed project and has identified the following issues as outlined below:

Public Works Department

1. Given the fact that Baseline Road is a major arterial roadway within the City of Roseville, the Draft Environmental Impact Report (DEIR) should evaluate what impacts the proposed project would have on traffic circulation in Roseville during construction. The NOP states that the pipeline would be constructed along Baseline Road. Staff would like the proposed pipeline alignments to be better defined in the DEIR. For example, would the pipeline route be within the existing paved roadway along Baseline Road? Or would the alignment be parallel to, but outside of the existing roadway? If it is located outside the roadway, would the alignment be constructed to the North or South of Baseline Road? **13-1**
2. The DEIR should consider the future widening of Baseline Road with multiple planned signalized intersections. The alignment of the proposed gas line may be influenced by potentially deep foundations for signal poles and the required control apparatus. **13-2**

Planning Department

3. In the analyses of the potential for hazardous conditions near sensitive resources such as schools and residences, the DEIR should identify school district policy relative to locating schools in close proximity to gas lines, pressure limiting stations, and associated infrastructure. **13-3**

Thank you for your consideration of our comments. Should you have any questions concerning this letter, please contact me at (916) 774-5334.

Sincerely,

Mark Morse
Environmental Coordinator

RESPONSE TO COMMENT SET 13

Comment Number	Section of Draft EIR	Page Number(s)
13-1	2.0 - Project Description 4.13 - Transportation and Traffic	Entire Section 4.13-3, 4.13-7, 4.13-12, 4.13-20 to 4.13-24
13-2	2.0 - Project Description 4.13 - Transportation and Traffic	2-24 to 2-50 4.13-17 to 4.13-25
13-3	3.0 - Alternatives and Cumulative Impacts 4.3 - Air Quality 4.7 - Hazards and Hazardous Materials 4.9 - Land Use and Planning 4.10 - Noise 4.12 - Population and Housing / Public Services / Utilities and Service Systems 4.13 - Transportation and Traffic	3-3, and 3-55 to 3-57 4.3-17 4.7-2, 4.7-5, 4.7-6, 4.7-32, 4.7-38, and 4.7-42 to 4.7-44 4.9-1, and 4.9-29 to 4.9-32 4.10-5, 4.10-19, and 4.10-30 to 4.10-32 4.12-8 and 4.12-9 4.13-19 (APM-TRANS-5), 4.13-24 and 4.13-24

COMMENT SET 14

RSC ENGINEERING

001-016

July 18, 2007

California State Lands Commission
100 Howe Avenue, Suite 100
Sacramento, CA 95825-8202

Attn: Crystal Spurr

Subject: PG&E Line 406 and Line 407 Natural Gas Pipeline
CSLC Ref Files: W30169-4; W26210; R19806
SCH # 2007 062091

RSC Engineering, Inc.
Consulting Engineers

Dear Ms. Spurr,

We represent Donahue Schriber who is proposing to develop the 76 acre commercial project at the northwest corner of Fiddyment Road and Baseline Road in the City of Roseville. The project lies within the boundaries of the Sierra Vista Specific Plan which is currently being processed in the City of Roseville.

We are concerned about the location and depth of the proposed 30-inch gas pipe line. The environmental document for the proposed gas pipeline should discuss where the line is proposed i.e. the north or south side of Baseline Road. It should also evaluate the depth of the pipeline and consider the locations and depths of existing and proposed drainage crossings of Baseline Road. The environmental document should also recognize and evaluate how the proposed pipeline will interface with the future widening of Baseline Road and the locations and depths of water mains, sanitary sewer lines and dry utilities lines which will run parallel to Baseline Road along its north side. **14-1**

Please advise us of the progress of the environmental document and of the development of the preliminary or final alignment plans for the gas pipeline. We would like the opportunity to review these documents and provide comments and/or information on existing or proposed facilities adjacent to our project boundaries.

2250 Douglas Blvd.
Suite 150
Roseville, CA 95661
916.788.2884
Fax 916.788.4408
info@rsc-engr.com

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Thank you for the opportunity to comment on the N.O.P.

Sincerely,

Richard S. Chavez, P.E.

cc: Jan Petersen – Donahue Schriber
Mark Perlberger – HalBear Enterprises
Nick Alexander – NG Alexander Real Estate Development LLC
Jeff Ronten – D. F. Properties, Inc.
Ken Denio – D. F. Properties, Inc.
Mark Sauer – MacKay & Somps

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RESPONSE TO COMMENT SET 14

Comment Number	Section of Draft EIR	Page Number(s)
14-1	2.0 - Project Description 4.13 - Transportation and Traffic	Entire Section 4.13-3, 4.13-7, 4.13-12, 4.13-20 to 4.13-24

COMMENT SET 15

WIRTH REAL ESTATE / VALUATION SERVICES

Robert B. Wirth, Jr.

Certified General
Real Estate Appraisers

July 18th, 2007

Crystal Spurr, Staff Environmental Scientist
California State Lands Commisssion
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

Re: PG&E Pipeline Project

Dear Ms. Spurr,

Our family owns land within the described project area L-407 West of the preferred route described for the above mentioned project.

Vesta E. Wirth, Yolo County APN 027-280-01.

On June 19th 2007 you sent out requests for comments related to preparation and scoping of the EIR. Please note the following requests for inclusion in your EIR considerations.

Our family owns nearly 1,200 acres in Yolo and Napa Counties. We have noted some trends in public acquisitions related to right of ways across our lands which primarily relate to acquisition contractors hired by the various agencies seeking rights of ways.

The acquisition contractors appear motivated to acquire rights of way at economic prices for the agencies they serve. They are unfortunately less motivated to adhere to ethical practices which are designed to protect the rights of the owners who's property rights are the subject of the taking endeavors. The contractors we have recently had experience with were working for PG&E so we are concerned about the quality of this endeavor.

This letter constitutes a request to include and provide acquisition guidelines for the typical area to be acquired for permanent as well as temporary construction easement and the rights to be taken within those areas. The rights to be acquired should be specified within the EIR and designed to be simple and straight forward to accomplish project requirements and protect the owners impacted by the project. **15-1**

1.) The EIR should develop and detail typical physical requirements of the easement and the physical (area) requirements should not exceed the area required for the pipeline. (Ie: don't acquire 20 ft. if 8 ft. is what is needed. Also monitor the depth to accommodate the depth of typical farm implements utilized in modern farm practices.) **15-2**

2.) Develop the rights to be acquired within the easement physical area. Instruct acquisition contractors in advance of the standard rights to be acquired. Do not allow creative restructure of rights to be acquired. (Ie: one example I have seen in the past ten years attempted to obtain permanent restrictions over temporary work area while paying only for temporary use.) The federal government maintains typical and standard easement language for many types of easements. While there may be need for special language in some circumstances it should be addressed with an authorized exception process which includes review to protect the rights of private owners. **15-3**

Do not include excessive restrictions on surface rights that would restrict use of property beyond the area of the easement acquired. The property rights affected are much broader in that instance. (Ie: restrictions affecting construction of driveways which cross over the easement area. While it is understandable where a roadway or any surface structures should not be placed over the length of the easement, restrictions which limit perpendicular crossing can be excessively limiting to rights of use outside the easement area.) **15-4**

Respectfully Submitted,

Robert B. Wirth, Jr.
Real Estate Appraiser / Consultant
Occupant 13455 Hwy 113
Woodland, CA 95776
rbwirth@netscape.com

RESPONSE TO COMMENT SET 15

Comment Number	Section of Draft EIR	Page Number(s)
15-1	2.0 - Project Description	2-17, and 2-32 to 2-37
15-2	2.0 - Project Description 4.2 - Agricultural Resources	2-17, and 2-32 to 2-37 4.2-8, 4.2-22 to 4.2-25
15-3	4.2 - Agricultural Resources	4.2-22 to 4.2-25
15-4	4.2 - Agricultural Resources	4.2-22 to 4.2-25

COMMENT SET 16

DUANE CHAMBERLAIN

Supervisor, Fifth District
Yolo County Board of Supervisors

625 Court Street, Room 204
Woodland, CA 95695-3448

Office (530) 666-8627
Fax (530) 666-8193
duane.chamberlain@yolocounty.org

July 18, 2007

Ms. Crystal Spurr
Staff Environmental Scientist
California State Lands Commission
100 Howe Avenue, suite 100 South
Sacramento, CA 95825

Dear Ms. Spurr,

Thank you for giving me the opportunity to make comments regarding the proposal to construct a 30-inch diameter natural gas line beginning in Esparto. I understand the need to construct the line, but I am deeply concerned with this proposal.

My main concern is the depth of the pipeline itself. My staff sent an e-mail to Alisa Okelo-Odongo, of PG&E, asking how deep the pipe would be placed. The response my staff received was four to five feet from the top of the pipeline. This is unacceptable. Yolo County is an agricultural county. We pride ourselves on the preservation of agricultural lands and this project undermines the ability of local farmers to maintain their farming practices. It also places unfair agricultural restrictions on farmers and landowners.

I have spoken with a number of farmers who are concerned with the project. The farmers believe the pipeline should be placed deeper. I believe the top of the pipeline should be eight feet below the ground to allow for farming practices. **16-1**

Again, I understand the necessity to provide better service to your customers, but I am respectfully asking that this pipeline be placed deeper in the ground so it does not prohibit our farmers from doing their business.

Thank you for your time and please do not hesitate to contact me should you have any questions.

Sincerely,

Duane Chamberlain
Fifth District Supervisor

RESPONSE TO COMMENT SET 16

Comment Number	Section of Draft EIR	Page Number(s)
16-1	2.0 - Project Description 4.2 - Agricultural Resources	2-15 to 2-19, 2-49, and 2-60 4.2-22 to 4.2-25

COMMENT SET 17

American Farm Bureau Federation/California Farm Bureau Federation

YOLO COUNTY FARM BUREAU

69 West Kentucky Avenue • P.O. Box 1556, Woodland, California 95776
530-662-6316 • FAX 530-662-8611 • www.yolofarmbureau.org

PRESIDENT
Joe F. Martinez
1ST VICE-PRESIDENT
Tim Miramontes
2ND VICE-PRESIDENT
Chuck Dudley
SECRETARY/TREASURER
Denise Sagara

July 18, 2007

Crystal Spurr, Staff Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento CA 95825
FAX: 916.574.2274

RE: CSLC EIR No.: 740
Project: PG&E Line 406 and Line 407 Natural Gas Pipeline

Dear Ms. Spurr;

Thank you for allowing Yolo County Farm Bureau to make comments on the preliminary report.

Farm Bureau recognizes there is and will continue to be major growth in the area and PG&E needs to expand their natural gas delivery system. After reviewing the preliminary report we would like to make the following comments:

1) Very few landowners received notification of this project. Everyone should be contacted if they will be directly affected. **17-1**
2) Reclamation District 1600 was not contacted. There are hazard and right-of-way issues which would put the public directly at risk. The district's lawyers and engineers need to be consulted before any plans are made to place this pipeline through their district. **17-2**
3) There is nothing in the report to indicate the actual depth of the pipeline. There are common agricultural practices that go into the 4 – 5 feet deep area. **17-3**
4) Why are the alternative locations not going to submitted? A landowner property north of Esparto is concerned about the plan to place this pipeline right through the middle of his field. This would create two much smaller farmable fields. The field is large enough to be a attractive as a farmable parcel – making it into two smaller parcels can make it more difficult to farm in row crops. Either alternative A or B (placing the pipeline further north of the Esparto area) is preferable, but they were told these two alternatives aren't being submitted. Why? **17-4**
5) One landowner (who was not contacted) is opposed to plans to locate the pipeline directly across from his home – 25 feet from the front yard and 75 feet from his home. This clearly is not acceptable, especially if the pipeline would only be 4 – 5 feet underground. Who would want a pipeline with a potential for a deadly explosion placed next to his family home? **17-5**
6) Construction of this project needs to be done during the dry season to avoid severe compaction of the land. Reclamation District 1600 cannot have construction during the wet season as it interferes with their flood control operations. **17-6**

Please add our name to the list so we can make comments on the EIR when it is published

Sincerely,

Joe Martinez

Joe F. Martinez
President

RESPONSE TO COMMENT SET 17

Comment Number	Section of Draft EIR	Page Number(s)
17-1	Appendix A	
17-2	2.0 - Project Description 4.7 - Hazards and Hazardous Materials	Entire Section 4.7-13 to 4.7-46
17-3	2.0 - Project Description 4.2 - Agricultural Resources	2-15 to 2-19, 2-49, and 2-60 4.2-22 to 4.2-25
17-4	3.0 - Alternatives and Cumulative Projects	Entire Section
17-5	2.0 - Project Description 4.7 - Hazards and Hazardous Materials	Entire Section 4.7-13 to 4.7-46
17-6	2.0 - Project Description 4.8 - Hydrology and Water Quality	2-32 to 2-80 4.8-14, 4.8-15, 4.8-20, 4.8-21

COMMENT SET 18

1947 Galileo Ct., Suite 103 • Davis, California 95618

(530) 757-3650 • (800) 287-3650 • Fax (530) 757-3670

July 19, 2007

California State Lands Commission
Ms. Crystal Spurr, Staff Environmental Scientist
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

Subject: Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the PG&E Line 406 and Line 407 Natural Gas Pipeline

Dear Ms. Spurr:

The Yolo-Solano Air Quality Management District (District) received a copy of the NOP for the above referenced project and appreciates the opportunity to review and offer comments. The area in our District's jurisdiction includes all of Yolo County and the northeastern portion of Solano County. For all projects, impacts to air quality are a concern for various pollutants, including regional impact of ozone, the impact of fine particles such as particulate matter less than 10 microns (PM10), and the localized impact of Hazardous Air Pollutants (HAPs). **18-1**

The proposed PG&E Natural Gas Pipeline project includes construction of a 30-inch diameter pipeline approximately 40 miles long from Esparto in eastern Yolo County to West Roseville in Placer County. As noted in the NOP, the DEIR will evaluate the project's impact on regional air pollutants and their precursors as well as localized fugitive dust impacts. In addition, the analysis will address both operational (long-term) and construction level (short-term) impacts. As a reminder, the District considers a project significant if:

1. The project's emissions exceeds 82 pounds per day (ppd) of Reactive Organic Gases (ROG) or Oxides of Nitrogen (NOx), or 150 ppd of PM10.
2. The project would cause an exceedance of a California Ambient Air Quality Standard for any of the other criteria pollutants (i.e., Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), etc.). **18-2**
3. The project contributes to an exceedance of or locates a sensitive receptor (e.g., school, households, etc.) within the District's action levels for acute or chronic hazard index of 1 or greater and 10 in a million increase cases for cancer.

The Sacramento Metropolitan Air Quality Management District Roadway Construction Emissions Model is considered to be the appropriate computer program for estimating project construction emissions from linear based projects, like pipeline installation. The Model is available for download from the webpage: www.airquality.org/ceqa/index.shtml#construction. **18-3**

If the project is determined to be significant, mitigation measures are included below for Lead Agency consideration. The following list is not intended to be an exclusive list of possible measures, and the Lead Agency is encouraged to explore and incorporate additional feasible mitigation measures. **18-4**

The mitigation of construction equipment exhaust should include strategies that reduce NOx, ROG, and PM10 emissions. These strategies may include restricting unnecessary vehicle idling to 5 minutes, incorporating catalyst and filtration technologies, and modernizing the equipment fleet with cleaner repowered and newer engines, among others. Many of the heavy-duty diesel mitigation measures may qualify for state and District incentive funding programs. Contact the District if interested in knowing more about our incentive funding programs. 18-4

As a side note, the District would like to point out that independent of the CEQA process, the following District Rules and Regulations may apply to the project:

- Visible emissions from stationary diesel-powered equipment are not allowed to exceed 40 percent opacity for more than three minutes in any one-hour, as regulated under District Rule 2.3, RINGELMANN CHART.
- Dust emissions must be prevented from creating a nuisance to surrounding properties as regulated under District Rule 2.5, NUISANCE.
- Any open burning requires approval and issuance of a burn permit from the District and shall be performed in accordance with District Rule 2.8, OPEN BURNING, GENERAL. 18-5
- Portable equipment, other than vehicles, must be registered with either the Air Resources Board's (ARB's) Portable Equipment Registration Program (PERP) (http://www.arb.ca.gov/perp/perp.htm) or with the District.
- Architectural coatings and solvents used at the project shall be compliant with District Rule 2.14, ARCHITECTURAL COATINGS.
- Cutback and emulsified asphalt application shall be conducted in accordance with District Rule 2.28, CUTBACK AND EMULSIFIED ASPHALT PAVING MATERIALS.
- District Rule 2.40 WOOD BURNING APPLIANCES prohibits installation of any new traditional "open hearth" type fireplaces.
- All stationary equipment, other than internal combustion engines less than 50 horsepower, emitting air pollutants controlled under District rules and regulations require an Authority to Construct (ATC) and Permit to Operate (PTO) from the District.

In conclusion, the District appreciates receiving this NOP and the opportunity to discuss the recommendations presented in this letter. A properly prepared air quality section will inform decision-makers and the public about the project's impacts and facilitate meaningful public dialogue. If you require additional information, please contact Dan O'Brien at (530) 757-3677.

Sincerely,

Mathew R Jones

Mathew R. Jones
Senior Air Quality Planner

RESPONSE TO COMMENT SET 18

Comment Number	Section of Draft EIR	Page Number(s)
18-1	4.3 - Air Quality	Entire Section
18-2	4.3 - Air Quality	Entire Section
18-3	4.3 - Air Quality	Entire Section
18-4	4.3 - Air Quality	Entire Section
18-5	A list of District rules and regulations that might apply to the project were provided. No response necessary.	

COMMENT SET 19

WILDLANDS, INC.

July 20, 2007

Ms. Crystal Spurr
California State Lands Commission
100 Howe Avenue
Suite 100-South
Sacramento, CA 95825-8202

RE: State Clearinghouse Number 2007062091
PG&E Line 406/407 Project, Sacramento Valley

Dear Ms. Spurr:

We learned about the above referenced project through the California State Clearinghouse, which publishes information on projects currently under California Environmental Quality Act (CEQA) review. One of the potential conditions of your CEQA review may require the permit applicant to mitigate for any wetland, wildlife habitat or agricultural impacts. Wildlands, Inc. specializes in providing a cost effective and environmentally sound solution to meet these mitigation requirements. 19-1

Wildlands, Inc. owns and operates multiple mitigation and conservation banks throughout California. Credits may be currently available for sale for any project required to provide mitigation in your area.

Please feel free to contact me or our Sales Coordinator Julie Maddox at (916) 435-3555 to inquire about how Wildlands can solve your mitigation requirements.

Very truly yours,

Wildlands, Inc.

Brian Monaghan
Project Director

3855 Atherton Road • Rocklin, CA 95765 • (916) 435-3555 • Fax (916) 435-3556

RESPONSE TO COMMENT SET 19

Comment Number	Section of Draft EIR	Page Number(s)
19-1	4.9 - Land Use and Planning 4.4 - Biological Resources	4.9-19 to 4.9-20 Entire Section

Crystal Spurr - pipeline

From: <dibblesbs@inreach.com>
To: <spurrc@slc.ca.gov>
Date: 07/26/2007 10:14 AM
Subject: pipeline

I am sorry about thru lateness of this, but I just found out about the pipeline.
I am strongly opposed to this pipeline going across our property, we have such small acreage that it is hard to make enough money on the property to pay the taxes. This pipeline would restrict what we could plant making it harder to do this. 20-1
I do not understand why you could not use one of the other routes as there is nothing but hill land to infringe on. I know this is probably the cheapest route, but what about the inconvenience to us small farmers. The county did not care about us when they put in the rock plant to the west of us, hopefully you will.
I live on 27960 C.R. 19.
Thank you for your time.
William L. Dibble

RESPONSE TO COMMENT SET 20

Comment Number	Section of Draft EIR	Page Number(s)
20-1	3.0 - Alternatives and Cumulative Projects Alternative Options D and E were evaluated because they would avoid bisecting agricultural fields located between CR-17 and CR-19 east of CR-87. Each alternative is analyzed in all of the resource sections (4.1 through 4.14) of the Draft EIR.	3-14, 3-53, and Figure 3-2D

COMMENT SET 21

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:
1-1-07-TA-1220

OCT 29 2007

Christoffer Ellis
Pacific Gas and Electric Company
Technical and Land Services
2730 Gateway Oaks Drive
Sacramento, CA95833

Subject: Pacific Gas and Electric Line 406 and 407 Project in Yolo, Sutter, Sacramento, and Placer Counties, California

Dear Mr. Ellis:

This responds to the *Notice of Preparation of a Draft Environmental Impact Report and Notice of Public Scoping Meeting* (NOP) for the proposed Pacific Gas and Electric (PG&E) Line 406 and 407 project (proposed project). The U.S. Fish and Wildlife Service (Service) received this NOP on June 21, 2007. Due to staffing constraints, the Service was not able to respond within the mandated comment period. The Service provides the following comments to aid PG&E and the California State Lands Commission, the California Environmental Quality Act (CEQA) lead agency, to prepare a Draft Environmental Impact Report (DEIR) that comprehensively addresses potential impacts to federally-listed species. The primary concern and mandate of the U.S. Fish and Wildlife Service (Service) is the protection of federally-listed species pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

PG&E proposes to construct a new 30-inch diameter, 40-mile long natural gas pipeline to transmit and distribute natural gas to growing communities in Placer, Sutter, and Sacramento counties. Line 406 would begin on the existing Line 400 and 401 in Yolo County at the base of the Coast Range and extend to the existing Line 172A near the town of Yolo. Line 407 would extend from Line 172A east to the existing Line 123 near the city of Roseville in Placer County. A proposed distribution feeder main would extend south from Line 407 along Riego Road in Sutter County along Power Line Road and terminate at Elverta Road in Sacramento County.

Of primary concern to the Service are the potential for the proposed project to affect the following species:

- endangered vernal pool tadpole shrimp (*Lepidurus packardi*),
- endangered Conservancy fairy shrimp (*Branchinecta conservatio),*
- endangered Sacramento orcutt grass (*Orcuttia viscida*),
- endangered palmate-bracted bird's-beak (*Cordylanthus palmatus*),
- threatened slender orcutt grass (*Orcuttia tenuis),*
- threatened vernal pool fairy shrimp (*Branchinecta lynchi*),
- threatened giant garter snake (*Thamnophis gigas*),
- threatened California red-legged frog (*Rana aurora draytonii),*
- threatened California tiger salamander (*Ambystoma californiense*),
- threatened Colusa grass (*Neostapfia colusana*),
- threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus),*
- threatened delta green ground beetle (*Elaphrus viridis*),

21-1

Direct Effects

The Service believes that the proposed project may directly affect the aforementioned species. Temporary and permanent ground disturbance from the clearing of pipeline right-of-way (ROW), trenching to install the pipeline, and construction of permanent and temporary access roads are all activities of concern. Excavation activities may result in increased erosion, leading to siltation of wetlands and other receiving water features, including drainage and irrigation canals (habitat for giant garter snake), and vernal pool features (habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, and vernal pool plants).

21-2

Giant garter snakes may be killed or injured by trenching activities to install pipeline. Giant garter snakes typically utilize aquatic habitats during their "active period" (May 1 – October 1) and are better able to escape danger associated with ground disturbance from heavy equipment. In the inactive period (October 2 – April 30), giant garter snakes typically retreat into terrestrial uplands to overwinter in mammal burrows and crevices, and are less mobile. The Service is concerned that activities associated with installing pipeline may result in adverse effects to giant garter snakes through direct mortality, harm, or harassment. The Service recommends that the DEIR address how these effects will be avoided, minimized, and, if necessary, off-set through compensatory mitigation by PG&E.

21-3

Vernal pool species are threatened primarily by loss and fragmentation of existing habitat. Vernal pool complexes, which are mosaics of wetted pools which are hydrologically connected and include the associated upland habitat and local watersheds essential for the function of the pools, must be preserved on a landscape level to ensure the persistence of the species that inhabit them. Although dispersal of vernal pool crustaceans between complexes is and probably always

21-4

has been relatively low, fragmentation of existing intact complexes could contribute to the loss of genetic diversity of vernal pool species, and reduce the likelihood of recolonization from other populations. Fragmentation by conversion or degradation of habitat may essentially serve as a barrier to dispersal. It is essential that large, contiguous areas of uninterrupted vernal pool habitat, including both wetted and upland components, be preserved across the range of each of the listed species to "buffer" against unforeseen stochastic events.

Construction of access roads or pipeline ROWs may serve to fragment existing vernal pool complexes by introducing impermeable or hardpacked surface which may disrupt the hydrology and mechanisms by which vernal pool species disperse. Vernal swales, which are sometimes present in vernal pool complexes and serve to "connect" pools, could be truncated by access roads or ROWs. 21-4

Ground disturbance associated with pipeline installation may result in colonization by non-native plants, animals, and insects. Non-native species may outcompete with crustaceans and plants in vernal pools, prey directly on native vernal pool species, and outcompete or prey on species which pollinate vernal pool plants. In addition, depending on the local soil and geological conditions, the hardpan may be as little as a few inches below the surface, in which case subsurface excavation could "break" the hardpan. Maintaining the hardpan is necessary to ensure surface and subsurface water contributions to the vernal pool features remain intact; otherwise, the inundation period of features, which is critical for the vernal pool crustaceans to complete their life cycle, may be irreparably disrupted. The Service encourages PG&E to strive to route the pipeline to areas outside of and as far away as possible from existing vernal pool complexes to prevent this from occurring.

Elderberry (*Sambucus* sp.) shrubs are the sole host plant and food source for the valley elderberry longhorn beetle (beetle). If proposed activities include removing or transplanting elderberry shrubs, or any ground disturbing activities within 100 feet of elderberry shrubs, PG&E should use the Service's July 9, 1999, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*, which can be found at the website http://www.fws.gov/sacramento/es/documents/velb_conservation.PDF. 21-5

Indirect and Cumulative Effects

CEQA guidelines require a discussion of the ways in which a project could potentially foster economic or population growth or the construction of additional housing in the surrounding environment. The DEIR should address the potential for the proposed project to contribute to economic or population growth or the construction of additional housing in the surrounding environment. The Service recommends that the DEIR provide the above discussion by 21-6

examining the relationship between energy supply and land use planning for this project, and demonstrate how growth inducing impacts to federally-listed species will be avoided or reduced to a level below significance. 21-6

The Service recommends the DEIR include an analysis of how the proposed project may affect implementation of existing and pending habitat conservation plans.

Potential Impacts on the Natomas Basin Habitat Conservation Plan

The DEIR should assess impacts of the proposed project on the Natomas Basin Habitat Conservation Plan's (NBHCP) operating conservation program. In particular, the DEIR should include a comprehensive and meaningful analysis of the proposed projects' effects on giant garter snake, the state-listed as threatened Swainson's hawk (*Buteo swainsoni*), and other Covered Species.

While the Service acknowledges that the proposed project is not urban development, the proposed project may result in significant effects to listed species in the Natomas Basin as a result of permanent and temporary habitat modification and disturbance, and is likely to adversely affect the implementation of the NBHCP (City of Sacramento *et al.* 2003). The proposed installation of natural gas pipeline could result in a loss habitat beyond that anticipated, analyzed and covered for take under Incidental Take Permits (ITPs) issued to the City of Sacramento (City), Sutter County, and the Natomas Basin Conservancy (Conservancy) for the NBHCP and could constitute a significant departure from the NBHCP's Operating Conservation Program. The NBHCP's ITPs cover the take of 22 plant and animal species, many of which are listed as endangered or threatened under the California Endangered Species Act and/or the Federal Endangered Species Act. 21-7

The ITPs issued to the Conservancy authorized the take of covered species associated with the restoration, enhancement, operation, and management of 7,758.5 acres of upland, managed marsh and rice preserves set aside as mitigation for the City's and Sutter County's development activities under the NBHCP. It appears that the route of the proposed Line 407 traverses through or directly adjacent to Conservancy preserves along Riego and Power Line roads. Activities associated with installation of a natural gas pipeline and establishment of a permanent utility easements in these preserves may negatively impact these preserves by: (1) resulting in additional direct, indirect and cumulative impacts to the NBHCP's 22 covered species; (2) negatively impacting restoration activities that have occurred or are planned in these preserves; (3) decrease biological connectivity between and within the Natomas Basin's three major geographic areas; (4) decrease the available acreage and locations of potential Conservancy acquisitions; and (5) adversely affect implementation of the NBHCP and its operating conservation strategy. The DEIR should address the impacts of the proposed project on the NBHCP's Operating Conservation Program.

Finally, the DEIR's should consider the potential indirect and cumulative impacts on the NBHCP's Covered Species. The following is a list of possible future projects that may represent reasonably foreseeable cumulative development in the basin. If they are deemed cumulative, the effects of the proposed project may be considerably greater in light of these potential land use changes, and result in increased conservation needs for the Covered Species in the basin.

Possible future projects in the Natomas Basin:

- Natomas Fish Screen Replacement Project
- Bureau of Reclamation's Sacramento River Water Reliability Study Project
- Sacramento Metropolitan Airport Expansion Project
- Sacramento Metropolitan Airport Master Plan
- Natomas Joint Vision Project
- Downtown to Natomas Rail Light Rail Transportation Project 21-8
- Sacramento Municipal Utility Substation Expansion Projects (numerous)
- Placer Parkway
- Western Area Power Agency's Sacramento Area Voltage Support Project
- Camino Norte (residential)
- Greenbriar (residential)

In highlighting what we view may be probable and reasonably foreseeable future development in the Natomas Basin, the Services recognizes that additional development in the basin beyond that authorized under the existing federal and State permits is proposed and all concerned parties should reasonably expect that to occur. Even though specific details regarding individual projects may not be available, the effects analysis needs to provide a more thorough assessment of reasonably foreseeable additional development in the basin and the cumulative impact of the proposed project in light of other reasonably foreseeable development on the long-term viability of the operating conservation program.

Potential Impacts on the proposed Placer County Conservation Plan

The proposed Placer County Conservation Plan (PCCP) is currently being developed. It is designed to address the increasing demand for urban development in western Placer County, while establishing a conservation strategy designed to avoid, minimize, and compensate for the loss or modification or wetlands, waters, and species habitat. Although the PCCP is not yet approved, the Service encourages PG&E to coordinate with Placer County, the City of Lincoln, and the other PCCP proponents to design their project which would avoid selecting an alternative which would preclude the success of a future PCCP. 21-9

Please contact Jana Milliken, Senior Staff Biologist, at (916) 414-6561 if you have any questions concerning these comments for the Pacific Gas and Electric Line 406 and 407 Project.

Sincerely,

Kenneth Sanchez
Assistant Field Supervisor

cc:

Mr. Todd Gardner and Mr. Jeff Finn, California Department of Fish and Game, Rancho Cordova, California
Ms. Crystal Spurr, California State Lands Commission, Sacramento, California
Mr. John Roberts, The Natomas Basin Conservancy, Sacramento, California
Mr. Scot Mende, City of Sacramento Planning Department, Sacramento, California
Mr. Larry Bagley, County of Sutter, Yuba City, California

RESPONSE TO COMMENT SET 21

Comment Number	Section of Draft EIR	Page Number(s)
21-1	4.4 - Biological Resources	Entire Section
21-2	4.4 - Biological Resources	Entire Section
21-3	2.0 - Project Description 4.4 - Biological Resources	2-50 to 2-51 4.4-61 to 4.4-72 (APM BIO 25-APM BIO 28), 4.4-94 to 4.4-108
21-4	4.4 - Biological Resources	4.4-61 to 4.4-72 (APM BIO 24), 4.4-79 to 4.4-108
21-5	4.4 - Biological Resources	4.4-94 to 4.4-108
21-6	6.0 - Other CEQA Sections Cumulative effects are discussed in each resource section of the Draft EIR	6-2 to 6-5
21-7	4.4 - Biological Resources	4.4-56, 4.4-58, 4.4-94 to 4.4-108
21-8	4.4 - Biological Resources Cumulative effects are discussed in each resource section of the Draft EIR	4.4-138 to 4.4-142
21-9	4.4 - Biological Resources	4.4-59

COMMENT SET 22

ATKINSON, ANDELSON, LOYA, RUUD & ROMO

A PROFESSIONAL CORPORATION

ATTORNEYS AT LAW

5776 STONERIDGE MALL ROAD, SUITE 200
PLEASANTON, CALIFORNIA 94588
(925) 227-9200

FAX (925) 227-9202
WWW.AALRR.COM

CERRITOS
(562) 653-3200
FAX (562) 653-3333

FRESNO
(559) 225-6700
FAX (559) 225-3416

IRVINE
(949) 453-4260
FAX (949) 453-4262

RIVERSIDE
(951) 683-1122
FAX (951) 683-1144

SACRAMENTO
(916) 923-1200
FAX (916) 923-1222

SAN DIEGO
(858) 485-9526
FAX (858) 485-9412

OUR FILE NUMBER:

005484.00026
180668v1

December 12, 2008

VIA FACISIMILE (916) 574-1810 AND U. S. MAIL

California State Lands Commission
100 Howe Avenue Suite 1005
Sacramento, CA 95825-1810

Att: Crystal Spurr

Re: Request for Notices of Environmental Documents

Dear Ms. Spurr:

This office represents the Center Unified School District ("District").

We are requesting a copy of all future notices regarding the preparation, availability, and/or review of environmental documents and hearings related to PG & E's proposed high pressure pipe line L-407 Phase 1, also referred to as 406/407 project on Base Line Road in Placer County. Please provide copies of all notices to:

Elizabeth B. Hearey
Atkinson, Andelson, Loya, Ruud and Romo
The Atrium, Suite 200
5776 Stoneridge Mall Road
Pleasanton, CA 94588

and

Center Unified School District
8408 Watt Avenue
Antelope, CA 95843-9116
Att: Craig Deason, Assistant Superintendent Facilities and Operations

The proposed pipeline will impact a proposed District school site located within the Placer Vineyards Specific Plan Area on Base Line Road in Placer County. 22-1

If you have any questions, please do not hesitate to contact me.

Very truly yours,

ATKINSON, ANDELSON, LOYA, RUUD & ROMO

Elizabeth B. Hearey

EBH/rb

cc: Craig Deason (via email cdeason@centerusd.k12.ca.us)
Michael Winters (via email to cfw@cfwcardiff.com)

RESPONSE TO COMMENT SET 22

Comment Number	Section of Draft EIR	Page Number(s)
22-1	3.0 - Alternatives and Cumulative Impacts 4.7 - Hazards and Hazardous Materials 4.9 - Land Use and Planning	3-3, and 3-55 to 3-57 4.7-32 to 4.7-44 4.9-29 to 4.9-32

HEFNER STARK & MAROIS LLP
LAW OFFICES
ESTABLISHED 1896

2150 RIVER PLAZA DRIVE
SUITE 450
SACRAMENTO, CA
95833-4136
TEL (916) 925-6620
FAX (916) 925-1127

COMMENT SET 23

MARTIN B. STEINER
EMAIL: MSTEINER@HSMLAW.COM

January 7, 2009

Crystal Spurr
California State Lands Commission
100 Howe Ave, Suite 100-South
Sacramento, CA 95825

Via Email spurrc@slc.ca.gov
and Regular Mail

Re: CSLC EIR No. 740 for PG&E Line 406/407 Project
Compatibility and Adequacy of Alternatives Analysis Regarding
Placer Vineyards Specific Plan

Dear Ms. Spurr:

Our firm represents the Placer Vineyards Development Group, LLC ("Owners Group"). The Owners Group is comprised of the owners of property within the Placer Vineyards Specific Plan who were instrumental in promoting and obtaining approval of the Placer Vineyards Specific Plan in Placer County ("Specific Plan"). Over many years, our Owners Group worked with the County of Placer and other interested agencies and utilities, including PG&E, to design and obtain approval of a comprehensive land use plan, covering over 2,000 acres near the City of Roseville, to meet the needs for growth in Placer County. Finally, after many years of planning and re-planning the Specific Plan to meet the needs of the County and to be compatible with area-wide development constraints and plans, the Owners Group received approval from the County in July 2007 of the Specific Plan land use entitlements; a copy of the map showing the land uses approved for the Specific Plan is enclosed herewith. Please note, in particular, the high density uses planned along Baseline Road, including the high school site on Baseline Road and the elementary school site located within approximately 1,000 feet of Baseline Road.

During this process, PG&E was fully aware of the land uses being proposed for the Placer Vineyards project. PG&E provided comments in 2006 to the Draft Environmental Impact Report that was then being circulated as part of the Specific Plan, a copy of which comment letter is enclosed herewith. At no time did PG&E object to the proposed land uses or the proposed locations of these land uses within the Specific Plan. Instead, their comments to the Specific Plan DEIR were focused on the compatibility of their service plans for the area, including their plans for a future 24-inch gas transmission line along Baseline Road. We understood from these comments that these planned gas transmission lines were intended to serve the planned growth for the area and would be compatible with the land uses planned for

Placer Vineyards. At no point did PG&E indicate that the gas transmission line planned for Baseline Road would be installed or operated as a high pressure gas line.

Now, as part of the Line 406/407 Project, PG&E is seeking to install a 30-inch high pressure gas transmission pipeline (designed to operate at up to 975 psi) along Baseline Road to connect to an existing gas transmission line at the intersection of Baseline and Fiddyment Roads. The location of this proposed pipeline will run along the northern boundary of the Specific Plan and, as shown by the map of approved land uses for the Specific Plan, this high pressure transmission line is proposed to be located within 1,500 feet of a planned elementary school site, adjacent to a planned high school site, and along high density residential and high density retail commercial uses approved for the Specific Plan.

We understand that the California State Lands Commission ("CSLC") is the lead agency responsible for reviewing this Project and is in the process of preparing a comprehensive Draft Environmental Impact Report ("DEIR") to analyze the potential environmental impacts associated therewith. Our concern is that, as proposed in both the preferred route and alternative routes, the location of a high pressure gas transmission line either along the northern boundary of the Specific Plan or through the Specific Plan (as proposed in one of the alternatives) will be completely incompatible with the approved uses for the Specific Plan. Furthermore, we are concerned that the Alternatives Analysis as proposed in your Notice of Preparation will not adequately consider the full range of feasible alternatives that could avoid the adverse impacts of locating a high pressure gas line adjacent to and/or near approved school and high density residential and commercial uses for this area. 23-1 23-2

As proposed, the location of a high pressure gas transmission line along Baseline Road will place two approved school sites in conflict with school siting requirements that must be followed by the school district when acquiring the approved sites. Section 14010(h) of Title 5 of the California Code of Regulations prohibits school districts from acquiring a school site located within 1,500 feet of an easement for an underground pipeline if such pipeline could pose a safety hazard as determined by a risk analysis study. We have confirmed with the Center Unified School District (within whose jurisdiction the approved school sites are located) that, in recognition of this State siting regulation and the inherent risks of locating school children near high pressure gas transmission lines, the School District will not agree to acquire school sites within 1,500 feet of a high pressure gas line. Accordingly, if Line 407 is designed as a high pressure gas transmission line and located along Baseline Road as proposed, the Project will conflict with and impair the ability to develop the Specific Plan as approved, which will disrupt years of planning for the area and threaten the viability of the entire project; if the Project is approved as proposed, all school sites in the Specific Plan would need to be relocated more than 1,500 feet from Baseline Road, which may not be feasible and may have other adverse planning impacts on the area. At a minimum, the reasonably foreseeable environmental impacts 23-3 23-4

More importantly, due to these reasonably foreseeable conflicts of the Project with the approved uses for the Specific Plan and the potential adverse environmental impacts associated therewith, CSLC needs to consider a full range of feasible alternatives that could eliminate the potential land use conflicts and avoid the potential adverse impacts posed by the proposed Project. In particular, each of the alternative alignments shown in the NOP will adversely impact the approved Specific Plan, either with the location along Baseline Road or through the Specific Plan; alternative alignments need to be considered that would avoid impact the Specific Plan altogether. Furthermore, the alternative for multiple lines operated at normal pressure, although mentioned in the NOP as to the entire project, should also be considered as a feasible alternative for the portion of the Project adjacent to or within the approved Specific Plan with schools and high density urban uses; regular pressure gas transmission lines, if located within and around the Specific Plan (and additional routes outside the Specific Plan to reach the point of connection), would presumably be more compatible not only with the planned school sites, but also with the high density urban uses planned along Baseline Road. Such improved compatibility may help avoid the conflicts and adverse impacts of the proposed Project with the approved Specific Plan uses outlined above. 23-4 cont

Thank you for your consideration of our request. We look forward to working with you to assure that the DEIR and supporting analyses conducted for this pipeline project are complete and fully address all impacts and all feasible alternatives to minimize the environmental impacts associated with this Project, including the potential impacts on the development of the approved Placer Vineyards Specific Plan which is intended to be served hereby.

Very truly yours,

HEFNER, STARK & MAROIS, LLP

By

Martin B. Steiner

MBS:sk
Enclosure
cc: Kent MacDiarmid, The MacDiarmid Company
Michael Smith, MacKay and Somps
Michael Winters, Caldwell Flores Winters, Inc.
Elizabeth Hurley, Esq., Atkinson, Andelson
Christoffer Ellis, P.G. & E.

K:\Placer Vineyards\PGE Gas Line\ltr spurr calc pge line 406 407 comment on alternatives (0107).doc

RESPONSE TO COMMENT SET 23

Comment Number	Section of Draft EIR	Page Number(s)
23-1	3.0 - Alternatives and Cumulative Impacts Cumulative effects are discussed in each resource section of the Draft EIR	3-66
23-2	3.0 - Alternatives and Cumulative Impacts	Entire Section
23-3	3.0 - Alternatives and Cumulative Impacts 4.7 - Hazards and Hazardous Materials 4.9 - Land Use and Planning	3-3 to 3-5, and 3-55 to 3-57 4.7-25 to 4.7-46 4.9-29 to 4.9-32
23-4	3.0 - Alternatives and Cumulative Impacts 4.7 - Hazards and Hazardous Materials 4.9 - Land Use and Planning	Entire Section 4.7-25 to 4.7-46 4.9-29 to 4.9-32

CALIFORNIA STATE LANDS COMMISSION

PUBLIC HEARING IN THE MATTER OF
PUBLIC SCOPING MEETING FOR
PG&E PIPELINES 406 and 407

CONFERENCE ROOM
HOLIDAY INN EXPRESS
2070 FREEWAY DRIVE
WOODLAND, CALIFORNIA

MONDAY, JULY 9, 2007
3:03 P.M.

COPY

PETERS SHORTHAND REPORTING CORPORATION
3336 BRADSHAW ROAD, SUITE 240 SACRAMENTO, CA 95827 / (916) 362-2345

A P P E A R A N C E S

Ms. Crystal Spurr, State Lands Commission

Mr. Eric Gillies, State Lands Commission

Mr. Chris Ellis, PG&E

Mr. Joe Pennington, PG&E Manager

Mr. John Stone, property owner

Mr. Howard Lopez, property owner

Mr. Chuck Jensen, property owner

Ms. S. Jensen, property owner

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1 P R O C E E D I N G S

2 MS. SPURR: We're going to start the Public
3 Scoping Meeting for the PG&E Line 406-407 natural gas
4 pipeline, for the pipeline EIR. It's July 9th, about 3:05
5 p.m., and we're transcribing this meeting so that we can be
6 able to comment, take questions, and have a record of that.
7 We have sign-in sheets available over there. If
8 you didn't sign when you came in, please sign when you leave
9 so that we can send you any notices for the future. I'm
10 sorry, I'll have to yell.
11 If you could sign in before you leave, if you
12 didn't sign when you arrived, so that we can have a record
13 of your name and send you any notices in the future.
14 There's also some speaker slips over there if you want to
15 comment after we give our presentation here, then please
16 fill that out and we'll call your name.
17 If you don't want to comment verbally then you can
18 write your comment on the back and we'll also take that. My
19 name is Crystal Spurr and I'm a Staff Environmental
20 Scientist with the California State Lands Commission in
21 their Environmental Planning and Management Department.
22 This is Eric Gillies, he's also with the California State
23 Lands Commission. Can you hear me?
24 MR. GILLIES: Barely.
25 MS. SPURR: Barely, still? Sorry.

1 MR. GILLIES: If the air conditioning machine was
2 louder then --
3 MS. SPURR: You probably can speak louder than me.
4 MR. GILLIES: Sorry about that. If you don't like
5 to sit up front --
6 MS. SPURR: Well, it's really loud right there.
7 MR. GILLIES: Oh, sorry.
8 MS. SPURR: And Jocelyn Macomis (phonetic) is
9 with our Land Management Division. We have Chris Ellis with
10 PG&E, he'll be giving a presentation later. Right now I'm
11 going to talk a little bit about the CEQA process and --
12 that's the California Environmental Quality Act -- and you
13 received our first notice, which is the Notice of
14 Preparation of an Environmental Impact Report.
15 What we're doing now with the Scoping Meeting is
16 taking your comments on anything you might want to see
17 environmentally, discussed in the Environmental Impact
18 Report. And we'll take that into consideration when we
19 prepare it.
20 The Notice went out June 19th and the comment
21 period ends on July 18th. So we need your comments by 5:00
22 on July 18th. So you'll get a chance also to comment when
23 the EIR comes out. We'll have a direct EIR and you'll be
24 able to comment on that and then when it goes to Commission,
25 our Commission, for certification of the EIR and approval of

1 the project, you'll also get a chance to -- if you want to
2 attend the Commission Meeting and comment to the Commission
3 members, at that time you'll be able to comment. So this is
4 not your only time you can comment on the EIR process.
5 We don't really have a schedule yet for the EIR.
6 We need to hire a consultant to prepare that draft EIR but
7 we're hoping to get started on it in October of this year
8 and then maybe it will go to Commission sometime in the
9 summer of 2008. So there's -- and the direct EIR when it
10 comes out will be available for public review for 45 days
11 and you'll be able to send in written comments.
12 And typically we have -- are we going to have a
13 public meeting?
14 MR. GILLIES: Yeah, there'll be one.
15 MS. SPURR: Typically we'll have a meeting during
16 that review time and you'll get a chance to verbally
17 comment, just like this. So, that's about the extent of the
18 CEQA process. Do you have any questions on the process? As
19 far as the EIR, at this time? Okay, so what we're --
20 FROM THE AUDIENCE: Is this just environmental
21 stuff or is it also in regards to property?
22 MS. SPURR: This is basically on the environmental
23 document. But PG&E is going to give a presentation on the
24 project. We're going to be responsible for overseeing the
25 preparation of the draft EIR. So these meetings are

basically for environmental purposes, for that draft EIR, but PG&E will tell you what the project is and you can ask them questions about the project at this time.

FROM THE AUDIENCE: Well, some of us feel that like we weren't part of the --.

MS. SPURR: Okay.

MR. GILLIES: Right.

MS. SPURR: Right. And, yeah, and if it goes through some people's property they may have some questions and you can ask those at this time. So, this is Chris Ellis from PG&E and he's going to give you an overview of the project and then you'll get a chance after he speaks to ask any questions that you have on the project itself.

MR. ELLIS: So, my name's Chris and I work in PG&E's Land Department and I'm working on obtaining all the permits and authorizations that may be required for the 406-407 pipeline, both state and federal. And of course today we're here for the State Lands Commission Public Meeting for the authorization of a lease from State Lands Commission.

A little bit of background. PG&E is a gas and electric utility in northern and central California. We have an existing pipeline system which -- for northern California the bulk of the gas comes from Canada. And on the, if you look on this drawing here, the map to the left, where that purple line ends and intersects into a yellow

1 dash line, that's our backbone transmission system which
2 comes down from Canada and that delivers the bulk of the
3 natural gas to this part of the state.
4 As you know, the greater Sacramento area,
5 including, you know, Placer, Sutter, Sacramento Counties,
6 there's been a tremendous amount of growth in these areas
7 for decades. And the result of that is that the existing
8 gas transmission capacity that we have in our pipelines is
9 basically taxed.
10 It's, we're shipping as much gas as we can, and we
11 need additional capacity to meet the needs that are out
12 there and that are forecasted to be developed over the next
13 ten, twenty years or so. So, in order to meet that we've
14 got engineers who are looking at ways to do that.
15 And we've looked at a lot of alternatives and in
16 this case the new transmission line capacity is the most
17 feasible and economical way to meet that demand. And so
18 when you look, at the existing system in this area, it
19 essentially forms a "U", with the capacity coming down into
20 Sacramento proper but the development is really north of
21 Sacramento. And that's what, we need more gas in that area.
22 So we looked at some alternatives for a pipeline
23 in that area, and that's on the second map over there, on
24 the right -- I know, it's kind of hard to see from here, but
25 if you have a chance to go over and look at it you can see

1 that there's a number of alternatives and locations for a
2 pipeline.
3 We looked at the feasibility, the environmental
4 impacts, we felt like we looked at all the variables that
5 may occur in construction of a pipeline, and we came up with
6 a preferred alignment and that's the alignment that we've
7 submitted to the State Lands Commission for approval. I
8 mean, one thing to remember is that through the EIR process
9 they are going to independently look through all of those
10 factors and ultimately they'll decide on what the project is
11 that they will approve.
12 The alignment that we've proposed intersects with
13 the existing line north of Esparto and it's -- yeah, the end
14 of the purple line just short of -- where that little box
15 is. And it, it basically heads east in the vicinity of
16 County Road 17. And then it does job north and follows a
17 portion of County Road 16A.
18 It crosses 505 and then 5 and -- well, this first
19 portion of the pipeline, that we're calling 406 -- will end
20 right around here at the intersection with our existing line
21 172. And there will be a pressure limiting station at that
22 location. It's approximately 100 feet by 100 feet.
23 And from that point -- this section we're calling
24 line 407. And again, it heads east and drops down a bit and
25 continues east. And in this area you've got a couple of

1 substantial water crossings, including the Sacramento River.
2 On the east side of the Sacramento River you'll
3 see here that there is a spur that comes down south from the
4 new pipeline and that's a ten inch pipeline. This pipeline
5 that we've been talking about is a thirty inch diameter
6 pipeline. This portion is ten inches and it's designed to
7 serve the area around the Metro Air Park developments.
8 FROM THE AUDIENCE: What are the two lines that
9 are --.
10 MR. ELLIS: This system over here, the line 400 is
11 36 inches in diameter and line 401 is 42 inches in diameter.
12 One pipeline was built in about 1962 and the other was in
13 about 1992 or '93. So, east of the Sacramento River the
14 alignment is essentially Riego Road/Baseline Road, the line
15 parallels that.
16 This little knob that you see right here is to
17 accommodate the CalTrans on and off ramps plan for Highway
18 99. And then the determination is here at, again our
19 existing line 123, just inside the city boundary of
20 Roseville.
21 The other thing to point out is, overall this
22 system is designed to reinforce our existing transmission
23 lines. It also will bring service to several large
24 developments that have been approved by local agencies.
25 There's -- it's gone through a lot of names but I think now

they're calling it Sutter Point, the Measure M property in Sutter County. And then also the Placer Vineyards development in Placer County. Those developments will be served by the pipeline as well.

FROM THE AUDIENCE: Question. Why aren't you following the county road? Why are you cutting across the -- I've got a piece of property out there that your line, the proposed line, is going to cut my place in half. So why aren't you just following the county road, from the end of the county road?

MR. ELLIS: Well, the -- that's a good question. There are certain situations where the, we're heading along on the county road, but in some situations we're lining up for a crossing of a major feature, whether it's a freeway or a river.

There is, you know, pipeline safety is a concern for PG&E and it's regulated by the agencies. And so, when we have a lot of shifts in the alignment of the pipeline, then we find that it's harder to locate that for other people who maybe operate equipment and having dig-ins.

FROM THE AUDIENCE: Well, I'll tell you, it's going to devalue my property because of the fact that -- in your paper it says that there's a 30 foot strip that goes through there that I'm not going to be able to plant an orchard or a vineyard. And right now I've been considering

LOPEZ 1-1

1 putting almonds in. Well, that's going to screw it up.
2 I'm really against this pipe and, you guys don't
3 have my permission to go on my property. But you already
4 have been going on my property without my permission.
5 I've talked to people in there, doing your
6 surveys, and asked them what they were doing, and they
7 wanted to hedge my questions. They didn't want to tell me.
8 Now I've found out what it was. Nobody had my permission
9 going in there. I want you to relay this to PG&E, you don't
10 have my permission to go on my property.
11 MR. ELLIS: It's noted, I will note that.
12 FROM THE AUDIENCE: I told those guys, I told
13 them, I said you guys need to come to me and ask for
14 permission. This is private property, I still own this
15 piece of property.
16 MR. ELLIS: Our understanding was that if he
17 didn't contact all the owners he was going to and if he
18 didn't then that was a mistake.
19 FROM THE AUDIENCE: It didn't happen to me.
20 MR. ELLIS: Then that was a mistake and hopefully
21 we can get your name and parcel number and we will note that
22 and we will talk to you --
23 FROM THE AUDIENCE: Well, I don't want you to
24 sidewind me, you turn it around another way. I don't want
25 it on me. You guys are -- stay off my property, when it

LOPEZ 1-1 cont

1 comes to my pipe.
2 MR. ELLIS: Sir, are you signed in? Do we have
3 your name and --?
4 FROM THE AUDIENCE: Yeah, I'm signed in. And I
5 wrote a letter too.
6 MR. ELLIS: You wrote a letter? In response to
7 the Notice of Preparation?
8 FROM THE AUDIENCE: Yeah.
9 MR. ELLIS: Okay.
10 FROM THE AUDIENCE: I don't know why you guys just
11 don't follow the county road, you now, come off the 15 feet.
12 There's a line there on 14, there's a line there that the
13 county road bisects with it and come off that way. You
14 know, this is baloney, coming right across, cutting property
15 in two.
16 FROM THE AUDIENCE: Why can't you just --
17 MR. ELLIS: Well, the transmission line -- I think
18 the line you're referring to we would call a distribution
19 line, or a small diameter lower pressure line. So the
20 transmission line that we're proposing operates at a much
21 higher pressure so you can't provide the same service to
22 customers along the way that a distribution line can. So, I
23 think that the two pipelines, although they're both
24 transporting gas, they're serving two different functions.
25 FROM THE AUDIENCE: Well, I realize that, but why

LOPEZ 1-2

LOPEZ 1-3

1 can't you just build one on the other side of the road
2 instead of going through his property and my property and
3 everybody else's, you know. You've got a pipeline that goes
4 down one side of Road 17 now, it's the county. Why not one
5 on the other side of the road?

LOPEZ 1-3 cont

6 MR. ELLIS: The location, the ultimate route
7 location is part of the process that we're doing right now
8 and that the agency is considering. We've proposed the
9 alignment that we felt was the best alignment for the
10 pipeline and State Lands Commission will take your comments
11 into consideration.
12 MS. SPURR: Before any more comments, could you
13 please, when you give your comment, before you have a
14 question or something, could you give your name, first and
15 last name please, so we have a record of that. Could I get
16 your --?
17 MR. LOPEZ: My name is Howard Lopez.
18 MR. STONE: John Stone.
19 MS. SPURR: Okay, thank you.
20 MR. STONE: How flexible would it be? The line?
21 You know, when it goes through our property, our ground, how
22 flexible is that line going to be? You know, you see a line
23 on here, on a map like that, but that could be two or three
24 hundred yards.

STONE 2-1

25 MR. LOPEZ: Yeah.

1 MR. STONE: And there's a place that we'd want
2 to --.
3 MR. ELLIS: In terms of, the final location on
4 where it actually is, is going to rely on the governmental
5 agency that's going to approve that alignment. I mean, we
6 submitted an alignment that we think is the best. But it's
7 going to be considered and, as far as the process, and if
8 any changes are warranted then -- it's hard for me to answer
9 what those changes might be or what set of factors are going
10 in to making those decisions.
11 MR. STONE: What power will we have as landlords
12 to determine where they'll be located?
13 MR. ELLIS: Well, PG&E is going to -- we have sent
14 out, and again there may be mistakes in the system where we
15 didn't hit particular landowners, but so far the process has
16 been to communicate by letter with property owners on
17 property that we intended to enter for either study purposes
18 or surveying purposes.
19 MR. STONE: Do you think you --. You have a line
20 there and that could be, you know, more than a mile away
21 from where it really is.
22 MR. ELLIS: Right.
23 MR. STONE: There are parts of that, you know,
24 would you say --
25 MR. ELLIS: Yes.

STONE 2-2

1 MR. STONE: You know, I mean, there are places
2 where we can accept the 30 inches and there are places
3 where, there's no way.
4 MR. ELLIS: Sir, there will be communications
5 between PG&E and property owners to acquire a right-of-way.
6 So, ultimately, in order to construct the line we need to
7 acquire a right-of-way form all the property owners, so we
8 would enter into discussions with you, with a proposal,
9 negotiate, arrive at a fair price, and -- so that's the main
10 mechanism for agreeing on a right-of-way.
11 In terms of - so you have that avenue and then you
12 also have the avenue with your governmental agency in terms
13 of their approval process.
14 MR. LOPEZ: We, before we --
15 FROM THE AUDIENCE: Well, what happens if we
16 refuse to give your alignment? Then what do you do?
17 Eminent domain?
18 MR. ELLIS: Well, that is, I mean, that is --
19 FROM THE AUDIENCE: Is that what you're going to
20 do?
21 MR. ELLIS: I'm not going to speculate on whether
22 we're going to use that or not. You know that is something
23 that's out there that is possible but I think it's our
24 intention to come to an agreement with the property owners
25 for the right-of-way.

1 MR. STEVENS: Well, I'm going to refuse, I'm not
2 going to give you the right-of-way. That's where I'm at on
3 the thing.
4 MR. ELLIS: Would you please just state your name
5 for the record?
6 MR. STEVENS: (indiscernible) Stevens. You have
7 worked faster on this pipeline than you do when you're
8 trying to get power run across.
9 MR. ELLIS: Again, noted, and I apologize for
10 that.
11 MR. STEVENS: Yeah, and you don't show your claims
12 very fast, or fairly either. Because all along Road 17 PG&E
13 started a big fire last year. Do you know about that?
14 MR. ELLIS: I'm not aware of the speed of the
15 claims settlement and again I --
16 MR. STEVENS: Some guys come around and offered me
17 ten cents on the dollar and denied their responsibility and
18 everything else for it.
19 MR. ELLIS: I will note that and -- again, I don't
20 have any specific knowledge about the claims process.
21 MR. STEVENS: That was along Road 17 and
22 everything got burned up, barns, some houses --.
23 MR. LOPEZ: Livestock.
24 MR. STEVENS: Livestock.
25 MR. LOPEZ: Yeah, a big fire.

1 MR. JENSEN: Charles Jensen, I live on 16A. First
2 of all, I need to talk with you about 100 foot by 100 foot
3 sections. I don't know what that was, is that, would the
4 pipe go above-ground or below-ground? That's the first
5 question. The second one relates to notice. I got a notice
6 addressed to me at County Road, no, Putah Creek Road 16A,
7 Creek Road 16A. So I wonder if anybody else on my road
8 actually got that notice, because we live on County Road
9 16A. We just luckily got ours.

JENSEN 3-1

10 MR. ELLIS: That, yeah, that is a problem and we,
11 when we sent the letters out we try to use the latest
12 available assessor parcel number and address information
13 that's out there and -- you're right.
14 MR. JENSEN: Yeah, but they don't acknowledge what
15 is really defective, if it was a legal document it would be
16 defective because it never got to the right address. And I
17 was wondering if my neighbors actually got it. Somebody new
18 down the street didn't have it so we gave it, I don't even
19 know if they even know about it. We don't know, did it only
20 go on the north side of 16A, the south side of 16A? How far
21 away is it from 16A?

JENSEN 3-2

22 MS. JENSEN: The specifics are, I think that's
23 what everybody is trying to get and at this point - -. And,
24 you know, we're concerned with -- we would be okay with --.
25 Things like that, you know, we would be interested in

JENSEN 3-2 cont

1 having more specific information to know how it's really
2 going to affect us, you know. And then that one -- I can't
3 remember what you called it, you said just inside of -- sort
4 of a substation? What was it?
5 MR. ELLIS: Yeah, along the route there's a couple
6 different stations. There's pressure limiting stations,
7 the --
8 MS. SPURR: Are those buildings? I mean, are
9 they --?
10 MR. ELLIS: They're essentially, so, the pipeline
11 is an underground pipeline and then there's markers
12 periodically to help us and other people locate where it is.
13 The stations that we're referring to, I would consider those
14 to be above-ground features.
15 They're fenced, there are valves that'll be above-
16 ground, there will be different mechanisms for shutting and
17 closing valves. So there are some piping features that are
18 above-ground.
19 MS. SPURR: Do you know specifically where those
20 are located or are proposed to be located, at this point?
21 MR. ELLIS: We know where we're proposing them to
22 be located.
23 MS. SPURR: Can you share that with us?
24 MR. ELLIS: There's one at the interconnection
25 point between 400 and 401 and the proposed pipeline.

1 There's one at the first termination point of 406 and 172.
2 MR. GILLIES: And that's by, right by --?
3 MR. ELLIS: Just north of the town of Yolo.
4 MR. GILLIES: Okay.
5 MR. STONE: Do you have that on the map?
6 MS. SPURR: Is that on 16-8?
7 MR. STONE: No, the other map.
8 MS. SPURR: This map?
9 MR. ELLIS: No, it's not, the stations are not
10 denoted on this map here. I can show you on a set of maps
11 that I have. So, you're welcome to come up and look at this
12 one.
13 MS. SPURR: Okay, yeah, that's what we'd like to
14 do. I guess we're all just sitting here looking for more
15 specific information that what you're apparently going to be
16 giving us.
17 MR. ELLIS: Yeah, it just, this is for a scoping
18 meeting and the alignment's bad, when you look at that
19 scale. But there are more specific alignments that cross
20 these -- you know, your property. And you're welcome to
21 look at these after.
22 And I know it doesn't provide you much information
23 but that's essentially the same process we're going through
24 is, we look at it from a corridor level and then, as we have
25 information and make decisions; and again, it's from our

1 perspective, but then it narrows down for us as well.
2 So, I think there will always be a little lag
3 between the information that we have and that we're sharing
4 with the agency and what you actually see.
5 MR. JENSEN: Do you know if it's preferred to --
6 this is Charles Jensen -- do you know if it's preferred to
7 have a pipeline adjacent to a county road? Or, you don't
8 care, it could be way off, a hundred feet away from the
9 road? Is there a preference?
10 MR. ELLIS: It can be in either location. In some
11 locations it's adjacent to the county road. In some cases
12 it's not. I think, from a pipeline construction and
13 maintenance perspective in certain situations it may be
14 beneficial to not be adjacent to the road but obviously we
15 need enough cover on the pipeline so that farming equipment,
16 etc. wouldn't come into contact with it.
17 MR. GILLIES: Chris, could you kind of go back, as
18 far as, how much width it takes to construct and then what
19 the easement would be for maintenance; well, actually, after
20 it's built?
21 MR. ELLIS: Yeah. For a pipeline of this size
22 we'd be looking for a 50 foot permanent right-of-way. It's,
23 I think, it's 50 is what we're looking for, and then for a
24 temporary construction easement it would be an additional 50
25 feet.

JENSEN
3-3

1 And again, that would be an agreement we would
2 come to with property owners, but it wouldn't be the long-
3 term easement that would be in existence. So 50 feet would
4 be the permanent right-of-way.
5 MR. STONE: So long-term would be 30 feet? That's
6 30 feet that you can't plant nothin'.
7 MR. ELLIS: There's, there are restrictions in
8 that right-of-way for deep rooted plants and structures,
9 that is true.
10 MR. STONE: What are you going to pay for the
11 ground?
12 MR. ELLIS: Our intent is to pay fair market value
13 for the value of that ground for that right-of-way.
14 MR. STONE: The assessed tax, is that what you're
15 talking about?
16 MR. ELLIS: Assessed or, appraised, you know, the
17 appraised value comes into play, and then a negotiated
18 agreement between PG&E and the owner.
19 MR. STEVENS: Well, it'll be hard for the --
20 MR. GILLIES: Sorry, please, one at a time.
21 MR. ELLIS: Yeah, 50 feet total permanent right-of
22 way.
23 MR. STONE: So 25 on each side.
24 MR. ELLIS: Right.
25 MR. STEVENS: Up near Arbuckle, where that line

STONE 3-4

STEPHENS 4-1

comes off, they've been allowed to plant almonds back on top. They tore them out when they put that line in back in '92 to '96 and they planted almonds back on it at some point.

STEPHENS 4-1 cont

MR. ELLIS: Yeah, typically our guideline is no deep-rooted plants within 15 feet of a transmission line. So, of a 50 foot right-of-way, typically you would see about 30 feet of that not having deep-rooted plants and --

MR. STONE: How come they could plant up there?

MR. ELLIS: I can't answer specifically, but there's a width that we try to exclude --

MR. STEVENS: -- across the orchard. You look out there right now and you can't tell where the pipeline was.

MR. ELLIS: That's a good question that I will look into but I can't answer that right now. I don't know why that is.

MR. JENSEN: Is the pipeline supposed to be -- Jensen again -- is the pipeline supposed to be five feet down?

JENSEN 4-2

MR. ELLIS: With this pipeline we're looking at five feet of cover from the top of the pipeline so, yeah, it would, the top of the pipeline would be five feet underground, you've got 30 inches of pipe so, you know, on average, probably in an eight foot trench.

MR. JENSEN: And is that enough cover for that

JENSEN 4-3

1 pipeline so that heavy farming equipment could go across it,
2 on top of it?
3 MR. ELLIS: That, yes, that's what we're designing
4 for.
5 MR. STEVENS: Is there ever problems with them
6 floating up?
7 MR. ELLIS: There can be problems with pipelines
8 floating up. In our design process we will take that into
9 consideration. If there's buoyancy issues there are
10 different codings and weightings that we can apply to the
11 pipeline to counteract whatever that is expected to be.
12 MS. JENSEN: If it does rupture, or whatever
13 pipelines do, what distracts me, I mean -- would it be just
14 the gas escaping, would it be flames? What would happen?
15 I'm curious to know, since I'm living close to it.
16 MR. JENSEN: Will we be here to talk to you about
17 it? Or not be here?
18 (laughter)
19 MR. ELLIS: You know, I -- obviously there are
20 horror stories about, you know, we've seen them in the
21 media.
22 MS. JENSEN: Well, you know, when you see
23 neighborhood gas lines, when they're doing construction, and
24 they hit a neighborhood gas line, they evacuate. So now I'm
25 wondering if we're on top of a really big one and something

JENSEN 4-3 cont

STEPHENS 4-4

JENSEN 4-5

JENSEN 4-6

JENSEN 4-6 cont

1 happens, what does happen, that's what I want to know.
2 MR. ELLIS: Let me start by saying that the wall
3 thickness of the pipeline that we're installing - and Joe,
4 correct me if I'm wrong -- but I think it's about a half an
5 inch thick. So, it's really thick pipe.
6 It would take a substantial direct hit on the
7 pipeline for it to be punctured by, you know, in terms of --
8 I will say this, we're installing the pipeline and it will
9 meet the CPUC's regulations and it will meet the Department
10 of Transportation's federal regulations for pipeline safety.
11 MS. JENSEN: Can you tell me what would happen if
12 a tractor or something, some equipment, hit and ruptured,
13 did cause a rupture? I mean, would the whole line, would it
14 spark, would it ignite a fire or --? Just be a leak of
15 gases?

JENSEN 4-7

16 MR. ELLIS: Well, okay - and just remember I'm
17 speculating here. But yeah, if you puncture a pipeline gas
18 is going to escape. It would require a source of ignition
19 to ignite that gas, so --
20 MS. JENSEN: Yeah, so, like contact between a plow
21 and the pipe, would that be sufficient to emit it or --?
22 MR. ELLIS: Well, I mean, I can't say that for
23 sure, I mean, there certainly are impacts to pipelines that,
24 where no ignition occurs, and gas escapes, emergency
25 procedures go into play and it shuts down.

1 MS. JENSEN: Would it be like a geyser? A geyser
2 of flame? Or would it be like all of a sudden the whole
3 pipeline would be gone?
4 MR. ELLIS: It would have to --
5 MS. JENSEN: I'm just wondering what --
6 MR. JENSEN: Oxygen burns so --
7 MR. ELLIS: Typically the puncture is going to
8 dictate the size of the opening and the gas that escapes.
9 Bu, again how far it's going to spread and, again --
10 MS. JENSEN: The ones you have going north to
11 south, between Canada and Mexico, do they -- are those set
12 off separate from everything? Is everything kept away from
13 them or do you need to allow the same kind of easement up
14 next to them that we would have in ours?
15 MR. ELLIS: In general, yes. We'd consider those
16 to be transmission lines just like this line would be. So
17 they have a right-of-way similar to the right-of-way that
18 this pipeline will have.
19 MS. JENSEN: Has there been any problems? Has
20 anything ever happened?
21 MR. ELLIS: I'm not aware of a dig-in or a
22 puncture on 400 or 401.
23 MR. GILLIES: How deep are those transmission
24 lines, do you know?
25 MR. ELLIS: Similar depth. The line 400, in some

1 cases, has less depth of cover than this one.
2 MR. GILLIES: Regulation requires a minimum of
3 three feet though, right?
4 MR. ELLIS: Yes. So we're exceeding the minimum
5 depth requirements.
6 MR. STONE: Well, if I want to plant an irrigation
7 pipe. So you're going to want to put a drip system in and
8 run a pipe across your pipe, then what are you gonna do?
9 You can't run it?
10 MR. ELLIS: No, we have --
11 MR. STONE: It's a buried line.
12 MR. ELLIS: Right. So we would want to work with
13 you to determine what elevation you're proposing for your
14 irrigation line. And there are minimum standards of
15 separation between different lines, types of lines, but
16 yeah, irrigation pipes -- the separation between the gas
17 line and the irrigation pipe is going to be not that much of
18 a distance. I think it's going to be in the 12 inch range.
19 MR. STEVENS: What about electric?
20 MR. ELLIS: What is -- Joe, what is the electric?
21 Joe Pennington, PG&E Project Manager.
22 MR. PENNINGTON: It's usually the same thing, 12
23 inches.
24 MR. ELLIS: When we do construction near the
25 pipeline there'll be --.

STONE
4-8

1 MR. GILLIES: And just to let you know, as far as
2 environmental document there's going to be this whole
3 section on safety and hazards so that will be addressed in
4 the environment document.
5 MR. STEVENS: What are the safety --, you know, in STEPHENS 4-9
6 case -- you check valves at the station?
7 MR. GILLIES: Yeah, there are valves. Some of the
8 stations we talked about earlier, those are valve locations
9 that come into play in terms of shutting down portions - of
10 sectionalizing the system.
11 MR. STEVENS: Does someone have to physically turn STEPHENS 4-10
12 them down or are they designed as a pressure drop?
13 MR. GILLIES: Right, they're automatic so they're
14 designed - it's designed in so that in certain conditions,
15 including pressure drops, that they automatically close.
16 MR. STEVENS: Can you burn trimming on top of
17 them?
18 MR. ELLIS: Yeah.
19 MS. SPURR: Do you have distances from -- that you
20 have to stay away from?
21 MR. ELLIS: Our regulations do address residential
22 development in proximity to the pipelines. It's been our
23 experience that we actually acquire sufficient right-of-way
24 that doesn't allow for permanent structures to be
25 constructed so that we meet all of those requirements.

1 MS. SPURR: If you have an existing house you're
2 making it go far enough away that --.
3 MR. ELLIS: Yeah, we're going to design the
4 pipeline to meet those requirements, yes. We're not going
5 to, we won't install a pipeline that's not in compliance
6 with proximity to either residences or businesses.
7 MR. STEVENS: How much have the rules changed
8 since 1992?

STEPHENS 4-11

9 MR. ELLIS: There's been significant changes since
10 1992. Just a few years ago there was the Pipeline Safety
11 Integrity Act which changed the Department of Transportation
12 regulations on pipelines and implemented a, what we think is
13 a pretty comprehensive monitoring program to ensure proper
14 maintenance and operation of the pipelines. So there's,
15 there's been substantial changes since '92.
16 MR. STEVENS: What can happen on wear and tear on
17 them, you know, like the Alaskan Pipeline, they say, is
18 corroding. What will happen with the natural gas?

STEPHENS 4-12

19 MR. ELLIS: The -- I mean, corrosion in pipelines
20 is a possibility. The legislation that I just mentioned
21 increased pipeline operators requirement to monitor for
22 corrosion so there's basically a new program in place which
23 requires us to inspect out pipelines to make sure that
24 corrosion is not occurring or if it is to be handled
25 accordingly.

1 So there's, we do have a maintenance program in
2 place which will detect and if need be we will correct any
3 corrosion that might occur.
4 MR. GILLIES: I just wanted to mention -- Charles,
5 you mentioned that some landowners may not have received the
6 NOP. If you know of names of people, if they could get in
7 contact with us, if you feel they haven't received this
8 information. And we're having another meeting later this
9 evening and then again tomorrow in Roseville.
10 MS. SPURR: Any more questions on the project?
11 Okay, I'll open it up for any comments you have on the scope
12 or content of the EIR, if you want to give any comments on
13 that at this time you can do that.
14 MS. SPURR: That must have been PG&E because we
15 haven't started our process yet for the EIR. And we'll have
16 independent studies done for that so, the public will be
17 contacted again in the future before we start that process
18 for other biologists and things to come out, so --.
19 MS. JENSEN: And when will this start?
20 MS. SPURR: Hopefully in October we'll start the
21 EIR process. And we'll do some independent studies, like
22 for cultural and biology and those kind of things.
23 MR. GILLIES: Yeah, we're, after this meeting our
24 process is to go out to bid to hire environmental consultant
25 firm because we don't have the staff to do that kind of

1 document. So we'll hire the best firm we feel competent to
2 do the document. And they'll have their team of biologists,
3 cultural folks, and also look at the safety and integrity of
4 the project. And so they'll work with PG&E as far as
5 getting permissions to enter with the landowners.
6 MS. JENSEN: Do you have the power to change the
7 direction? JENSEN 5-1
8 MR. GILLIES: We do look at alternatives and
9 during the process the consultants that we hire may find
10 alternatives as well. PG&E provided the first set of
11 alternatives and we'll look at it and if there's any other
12 changes that could happen that could -- typically when we
13 look through the alternative screening we look for
14 alternatives that will have less environmental damage. But
15 also we'll look at land use and other issues like that.
16 And as Crystal says, we have maps here, more
17 precise maps, if you want to look after the meeting, to see
18 where your property aligns with the pipeline. And then the
19 document will show more detail. At this point it's just a
20 scoping to get information that needs to be addressed in the
21 document. And obviously one of them is the safety and
22 integrity of project.
23 MR. STEVENS: Don't forget, Yolo County Board of
24 Supervisors has said that agriculture is the most important STEPHENS 5-2
25 thing in Yolo County.

MR. GILLIES: Yeah, in this process there are, I think, four counties, so we have to work with Placer, Yolo, Sutter and Sacramento, I believe.

MR. STONE: It looks to me like you guys are going to stay on the county road rather than going through property, through the middle of property, wherever you could. I know it's going to cost a little more to make those little jobs and things, but what you're doing is, you're really messing up people that's got property.

You're going to devalue their property, you're going to limit them on what they can plant on it, and that'll be there forever. The heirs will have that handed down to them, you guys will be traipsing across it, checking your line, you know, at least probably once a year or so. And it's going to be a real pain, that line, if it's going across the middle of your property.

STONE 6-1

If it's on the edge of the county road then it's maybe not going to be as bad, but where it cuts right through your property it's bad, real bad, to farm in. Because you have to cross that pipe. And then, like I say, it's limiting what you can plant on it, that strip of ground, that first feet.

See, that's what's got me upset. And then it's going to devalue my property. You guys are going to pay me and -- if I can help it you're not, because I'm not going to

1 let you have the right-of-way - but, if it does come to --.
2 All you're going to pay me is what the county
3 assessments were, and that is not very much. And the
4 property is, some of that property is going pretty high out
5 there, more than what it's assessed at, so --.
6 And then you're looking at, like Art's saying,
7 almonds, you're going to mess me up if I want to put almonds
8 in there. So you're messing me up with my future income.
9 You're dictating to me what I can plant on that piece of
10 property. The whole piece.
11 MR. ELLIS: Well I, I hear you. Like I said, we
12 designed the pipeline that met the standards, or the intent,
13 that we're looking at. We're going to work with all the
14 property owners, including you, on wherever the pipelines
15 approved to get the right-of-way and to, you know, to
16 compensate you for whatever the results might be.
17 MR. STONE: Yeah, well, it comes down to, if this
18 map is right, if it comes down to 17 and 87 then it turns
19 and it goes south down to 19. And then when it hits 19 it
20 cuts right across the fields up to 17, you know, instead of
21 going down 19 and cutting back and forth across the County
22 Road 19 and hitting over there at the -- grove then go up to
23 17.
24 I mean, I can't see where that's going to be, I
25 mean, that's going to be a little more pipe for you but --.

STONE 6-1 cont

STONE 6-2

1 MR. ELLIS: Well, after the meeting, come up and
2 we'll take a look at this and I'll try and answer any -- all
3 I can say is we do have this proposal and I recognize that
4 in some cases it's not necessarily what you want and
5 hopefully in the process that we can come out with an
6 agreement.
7 MR. STONE: Yeah, well, that's what I'm upset
8 about, it's going to cut my place down. My mother has the
9 place there, with my Dad, and then they've got another place
10 and it's going to go through there too. And I don't think
11 my Dad's going to give you the right-of-way, so --. I can't
12 speak for him but --.
13 MR. ELLIS: I hear you, I hear you.
14 MR. STONE: So, like I say, I think it'll be
15 easier for you guys if you go along the county road. You
16 have a better chance of not having so much grief with
17 everybody.
18 MR. ELLIS: That's -- I hear you.
19 MS. SPURR: Any other comments or questions? Then
20 we're going to adjourn the meeting at this time.
21 (Thereupon, the July 9, 2006, 3:00 p.m. Scoping
22 Meeting concerning the pipelines 406 and 407 was
23 adjourned.)
24 --o0o--
25 **********

CERTIFICATE OF REPORTER

I, William Kleinhans, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing State Lands Commission 3:00 p.m. public Scoping Meeting on the proposed PG&E Pipeline 406/407; that thereafter the recording was transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said meeting, or in any way interested in the outcome of said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand this 23rd of July 2007.

Wm A. Kleinhans

William Kleinhans
Certified Shorthand Reporter

RESPONSE TO PUBLIC SCOPING MEETING SET 1

Commenter	Comment Number	Section of Draft EIR	Page Number(s)
Howard Lopez	1-1	2.0 - Project Description 4.2 - Agricultural Resources	2-32 to 2-37 4.2-22 to 4.2-25
	1-2	3.0 - Alternatives and Cumulative Projects	3-1 to 3-39
	1-3	3.0 - Alternatives and Cumulative Projects	3-1 to 3-39
John Stone	2-1	2.0 - Project Description	Entire Section
	2-2	4.2 - Agricultural Resources	4.2-22 to 4.2-25
Charles Jensen	3-1	2.0 - Project Description Appendix A (Mailing List)	Entire Section Appendix A
	3-2	2.0 - Project Description	Entire Section
	3-3	3.0 - Alternatives and Cumulative Projects	3-1 to 3-39
	3-4	4.2 - Agricultural Resources	4.2-22 to 4.2-25
Fulton Stephens	4-1	4.2 - Agricultural Resources	4.2-22 to 4.2-25
	4-2	2.0 - Project Description	Entire Section
	4-3	4.2 - Agricultural Resources	4.2-24
	4-4	2.0 – Project Description 4.7 - Hazards and Hazardous Materials	2-71 4.7-13 to 4.7-46
	4-5	4.7 - Hazards and Hazardous Materials	4.7-13 to 4.7-46
	4-6	4.7 - Hazards and Hazardous Materials	4.7-13 to 4.7-46
	4-7	4.7 - Hazards and Hazardous Materials	4.7-4 to 4.7-46
	4-8	4.8 - Hydrology and Water Quality	4.8-19, 4.8-20
	4-9	2.0 - Project Description 4.7 - Hazards and Hazardous Materials	2-83 to 2-85 Entire Section
	4-10	2.0 - Project Description 4.7 - Hazards and Hazardous Materials	2-83 to 2-85 Entire Section
	4-11	4.6 - Geology and Soils 4.7 - Hazards and Hazardous Materials	4.6-33 to 4.6-36 4.7-10 to 4.7-24
	4-12	4.7 - Hazards and Hazardous Materials	4.7-3 to 4.7-33
Charles Jensen	5-1	3.0 - Alternatives and	3-1 to 3-39

Commenter	Comment Number	Section of Draft EIR	Page Number(s)
		Cumulative Projects	
	5-2	4.2 - Agricultural Resources	Entire Section
John Stone	6-1	2.0 - Project Description	Entire Section
		3.0 - Alternatives and Cumulative Projects	3-1 to 3-39
		4.2 - Agricultural Resources	4.2-22 to 4.2-25
	6-2	2.0 - Project Description	Entire Section
		3.0 - Alternatives and Cumulative Projects	3-1 to 3-39

CALIFORNIA STATE LANDS COMMISSION

PUBLIC HEARING IN THE MATTER OF
PUBLIC SCOPING MEETING FOR
PG&E PIPELINES 406 and 407

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A P P E A R A N C E S

Ms. Crystal Spurr, State Lands Commission

Mr. Eric Gillies, State Lands Commission

Mr. Chris Ellis, PG&E

Mr. Joe Pennington, PG&E Manager

Ms. Lynnel Pollock, property owner

Mr. Richard Leonard, property owner

Mr. Michael Valentine, property owner

Mr. Tom Horgan, property owner

Mr. Paul Smith, property owner

Mr. Bert Pollock, property owner

Ms. Carol Foreman, property owner

Ms. Laura Leonard, property owner

I N D E X

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PUBLIC QUESTIONS AND COMMENTS	8

1 P R O C E E D I N G S

2 MS. SPURR: We're going to start the Public
3 Scoping Meeting for the PG&E Line 406-407 natural gas
4 pipeline EIR. It's July 9th, about 5:35 p.m., and we're
5 transcribing this meeting so that we can get everybody's
6 comments. And when you do make a comment, if you could
7 please, whenever you do make a comment, if you could please,
8 whenever you ask a question or make a comment, please give
9 your first and last name so that we can have it on record.
10 We have sign-in sheets and if you didn't sign in
11 when you came in, please sign when you leave so that we can
12 send you are on our mailing lists for future notices.
13 We have speaker slips and we'll be asking for
14 comments on the scope and content of the draft EIR. So if
15 you'd like to speak on that please fill out a speaker slip.
16 And also, on the back, if you'd rather just give us a
17 comment in writing you can do that on the back of the slip
18 rather than giving that to us orally.
19 My name is Crystal Spurr. Oh, you have a
20 question?
21 FROM THE AUDIENCE: You said that you'd be asking
22 for comments on the draft EIR?
23 MS. SPURR: I'm sorry, comments on the scope and
24 content of the draft EIR. It's not ready yet, no. We're
25 going to be preparing it so we're asking for any input you

1 have and what you'd like to see addressed in the EIR.
2 My name is Crystal Spurr and I'm a staff
3 environmental scientist with the California State Lands
4 Commission in their Environmental Planning Division. And
5 this is Eric Gillies and he's also in the Environmental
6 Planning Division. Joslyn Macomes (phonetic) is in our Land
7 Management Division and she's sitting in the back. This is
8 Chris Ellis with PG&E and he'll be providing a presentation
9 later on about the project itself.
10 I'm just going to go through the CEQA process a
11 little bit, the California Environmental Quality Act. We
12 will be the lead agency for preparing a draft Environmental
13 Impact Report on this project. We're going to be going out
14 and getting bids and hiring a consultant to do the EIR
15 because we don't have the staff to do it.
16 So, we don't have a schedule yet for when the
17 draft will be coming out but we plan to try to get it
18 started in October and possibly go to our Commission for
19 certification maybe next summer, 2008. So the draft may be
20 out within about four to six months from October. You'll be
21 receiving a notice when that's available.
22 So, everyone who received this notice, if you're
23 here and you received the notice about the preparation of
24 the draft EIR and the Scoping Meeting then you'll also
25 receive a notice of the availability of the draft EIR. And

it'll tell you where you can review a copy and we'll always have it online, so you can download it or you can request a hard copy or a disk. Does anyone have any questions on the CEQA process, the draft EIR process we'll be going through?

FROM THE AUDIENCE: Yes, I just had a follow-up question on the timing. Does that mean that you're going to do an RFP or Request For Proposals in October?

MS. SPURR: Oh, I'm sorry. On the, we already sent out a statement of interest for consultants and we're hoping to choose one within the next couple of months and then get them started in October on the draft EIR.

FROM THE AUDIENCE: Okay.

MS. SPURR: Okay. Again, if you could state your first name and last name whenever you have a question, so we could have it for the record. Oh, just one time? Okay. Are there any other questions on the draft EIR process?

MR. GILLIES: You may want to mention, at a Hearing like this --.

MS. SPURR: Oh, okay. During the draft EIR, when it's released for public review, they'll be a 45 day public review period and during that time we'll have another meeting like this where you can provide comments on the draft EIR itself and those comments will be responded to in what's called a final EIR.

And when the final EIR is completed we send copies

of that to all commenter's and then the complete EIR goes to the Commission for certificate and approval. And at that time you can also appear before the Commission and make comments known to them. Any other comments on the EIR process? Okay. Chris Ellis is going to give a presentation on the project.

MR. ELLIS: Hello, my name's Chris Ellis. I work at PG&E in the Land Department and my work includes getting whatever authorizations or permits that may be required for this pipeline project, one of which is the State Lands Commission lease. We cross the Sacramento River and they have jurisdiction over that property.

I've got two maps over here, and I apologize that they're a little bit hard to see from where you are. The one to the left is what we presented to the State Lands Commission as our preferred alternative and the one to the right shows the alternatives that we looked at in order to arrive at that decision.

As we all know, there's been a tremendous amount of development in this greater Sacramento area, if you will, and PG&E's existing natural gas transmission system is pretty much at its' capacity in terms of serving the existing customer load base that's here and also looking in the future to what the local agencies are looking to approve over the next couple of decades.

1 So we looked at alternatives and how to increase
2 the capacity for natural gas in this area and came up with
3 this preferred alternative and made application with State
4 Lands for that. We expect that, not only State Lands, but
5 there are a number of other governmental agencies, state and
6 federal, that will be applying for permits.
7 As Crystal mentioned, this is the first of a
8 series of public comment periods through that process and so
9 your comments that you make will be considered in that
10 process. And from PG&E's perspective we also will be
11 working with property owners to obtain whatever right-of-way
12 is necessary to construct the pipeline. So we'll also have
13 contact with you as property owners in that process as well.
14 After the meeting -- I know some of you have
15 already seen these maps so those of you that haven't,
16 there's a better set of maps up here so you can take a
17 closer look at where at least the preferred alternative is.
18 So, later on, if you want to come up and take a peek at
19 that.
20 But in general, if we start on the western edge
21 here, the yellow dashed line and the purple line intersect
22 basically north of the town of Esparto. That dashed yellow
23 line represents our existing backbone transmission system,
24 which carries gas down from Canada. And the proposal is to
25 tap off of that line and essentially head east in the

1 vicinity of County Road 17 and County Road 16A, basically
2 due east.
3 And we cross 505 and ultimately I-5 and then we
4 intersect with another dashed yellow line, which is our
5 existing gas line 172. And at that location we will have a
6 station there that's approximately 100 by 100 feet and that
7 will serve as the interconnection between the two pipelines.
8 There will be valving there, etc.
9 We head east again, crossing over 99 -- I'm sorry,
10 over 113 -- and then we keep going and we have a couple of
11 water crossings, including the Sacramento River. You'll
12 see, on the east side of the Sacramento River you will see a
13 relatively short spur that heads due south. The east-west
14 pipeline is a 30 inch diameter pipeline. The spur that
15 heads south is a ten inch diameter pipeline, which will
16 bring service to the Metro Air Park area.
17 And then from that point -- there will be a
18 station at that point as well -- we head east again,
19 crossing over 99 and from the Sacramento River east we
20 essentially follow along Riego Road and then, which
21 eventually turns into Baseline Road.
22 And then, just inside the city boundary of
23 Roseville we interconnect with our existing gas line 123.
24 And those lines -- 172 and 123 are part of our existing
25 system that just isn't going to be able to keep up with the

1 demand that's out there and that's coming.
2 For our 30 inch diameter line we're looking to
3 acquire a 50 foot right-of-way, private easement, from
4 property owners. During construction we would look for an
5 additional 50 feet for a temporary construction area, but
6 that would not be part of the permanent right-of-way once
7 the construction is complete.
8 Like I said, the acquisition of the right-of-way
9 is a separate process that PG&E will be working with
10 property owners to come to an agreement on value and
11 acquisition of that right-of-way. That's, in a nutshell
12 that's the project.
13 Like I said, we've looked at alternatives and came
14 up with our preferred for application. The State Lands
15 Commission, now that we've applied, they'll go through their
16 own process, to look at not only our preferred but they'll
17 look at our alternatives. And they may come up with other
18 alternatives that we haven't looked at.
19 We, based on load projections at this point we'd
20 like to begin construction in 2009 and the construction
21 sequencing will depend on how developments are moving
22 forward in the local agency approval process. So, sitting
23 here today, I don't know exactly how that's going to go but
24 those are some of the things we're looking at in terms of
25 construction sequencing.

So that's kind of a summary and certainly if you have any questions I'd be happy to answer.

MS. SPURR: Can you give me your name?

MS. POLLOCK: Sure. I'm Lynnel Pollock and we are landowners in the area. You talked about crossing under some waterways but you did not mention the Yolo Bypass. Does that create any significant concerns or special considerations that you will need to do since there is foliage over that at certain times of the year?

POLLOCK 1-1

MR. ELLIS: Yeah, it's certainly, we do give it consideration. It's, for the most part, it's an issue of buoyancy of the pipeline versus water above a pipeline. That's something that we consider in the engineering process. There's ways to mitigate that and sometimes coating the pipe or having, basically having weighted situations to keep the pipeline down will remedy those situations.

In this situation it's not something that we think would preclude constructing the pipeline in that area. And certainly we would be getting whatever authorizations we needed to, from whatever agency may have jurisdiction in the bypass area. Does that answer?

MR. VALENTINE: Michael Valentine. Will all the alternatives displayed on the project alternatives map be analyzed as alternatives in the document?

VALENTINE 2-1

MS. SPURR: Yes, they will. Plus they may come up with others as we go along through the process.

MR. VALENTINE: I heard him say the latter. I just wanted to make sure that we're going to be --. And in the 50 foot access way, will people be able to farm over that once it's in?

VALENTINE 2-2

MR. ELLIS: Yeah. Yes. There are, in the right-of-way agreement there are certain restrictions, like for deep-rooted plants like trees, but it -- so there are some restrictions but agriculture is absolutely allowed, or is a part of that agreement. And, you know, that's something that is agreed upon in the negotiation process between PG&E and the property owner.

MR. VALENTINE: Along the same lines I have another question, if you don't mind. What do you plan to do in a situation where there's not 50 feet between permanent structures and the road?

VALENTINE 2-3

MR. ELLIS: There are situations where the width of the right-of-way could be less than 50 feet. At no time will they be less than what's allowable by CPUC regulation and Department of Transportation regulation. So in this case, and typical in PG&E, the 50 feet is not the regulation dimension so it may be less than that in certain situations.

MR. VALENTINE: If I may add a question. So, after installation, we can have row crops but if we wanted

VALENTINE 2-4

VALENTINE 2-4 cont

to have walnuts we'd be out of luck?

MR. ELLIS: For a certain distance from the pipeline. Typically what we look to as a safe distance for deep rooted plants are 15 feel either side of the pipe. So it won't put a restriction on the entire 50 feet but it would be a substantial portion of that 50 feet.

MR. VALENTINE: Thanks.

MR. LEONARD: Dick Leonard. I have a question. When you put the pipeline in and your boundaries, you're fence lines or -- well, it wouldn't be fence lines, but how far in from the boundaries, from the border, do you put your pipelines? Do you keep them close to the border, where do you don't have a pipeline sitting out 150 feet out here in the -- field, then you have to raise up for the pipeline. Whereabouts does the pipeline go?

LEONARD 3-1

MR. ELLIS: Well, in a situation where we're on the edge of a field, so to speak, not 100 percent buy typically we would like to be about as close to the middle of that right-of-way as we could be. So, for the typical right-of-way, roughly it would be about 25 feet in from whatever is on the edge of that property line. In some cases it's a road, in some cases it may be a canal or something like that. So --?

MR. LEONARD: How deep is this pipe?

LEONARD 3-2

MR. ELLIS: Typically there's five feet over this

1 pipe.

2 MR. LEONARD: That's not very much, that doesn't
3 seem like very much to me, because of what a lot of people
4 are putting into orchards now and the ridge of these
5 tractors is six feet or so deep, you know.

LEONARD 3-3

6 And, of course, I can't go wherever they put the
7 pipeline, and keeping it closer to the boundaries where they
8 don't have to start ripping and raising up and catching the
9 pipeline, you know, it just --. But that 50 foot right-of-
10 way means they can put it anyplace in there, wherever they
11 want, in that 50 foot of space, is that right?

12 MR. ELLIS: Yeah, the language of the right-of-
13 way, that's what it says. I know, what we try to do is work
14 with the landowner to figure out where - and if you have
15 practices that are going to be affected by the pipeline, if
16 there's a way that we can place it so it doesn't affect
17 that, I mean, we would try to do that.

18 MR. LEONARD: Like drilling a well, how far would
19 you have to put a well, because you like to put your well
20 close to the edge of your property if you can, you know,
21 and --.

LEONARD 3-4

22 MR. ELLIS: Yeah, usually, I mean, if the
23 pipeline's in and then you're going to install a well my
24 sense is that it's about that same 15 foot separation. So,
25 if the pipe's in first then we'd be looking for a 15 foot

separation with the well.

If the well's in then it's a matter of we don't want the pipeline to affect the productivity of your well. And so we'd have to figure out a way to determine if it was affected or not.

MR. LEONARD: Is there any vibrations going through that pipelines? Or if you have a well close to it? It's pretty smooth -- I mean, the ground's not shaking, I realize that but --.

LEONARD 3-5

MR. ELLIS: Right. Typically there's no visible shaking. And again, whether that affects the well or not, typically what we'd to is, we can do a pump test, basically. You test it before we build it and then we test it after it's in and determine if there's any difference at all in the capacity of the well. And if there is then we'd come to some agreement as to how to remedy that situation.

MR. LEONARD: Thank you.

MS. SPURR: Did you have a question?

MR. HORGAN: Yes, My name's Tom Horgan. I'm wondering if those detailed lines you have there show the proposed position relative to the property lines through the right-of-ways?

HORGAN 4-1

MR. ELLIS: Yeah, it does, yeah.

MS. SPURR: Are there any other questions on the project? Or comments?

VALENTINE 5-1

1 MR. VALENTINE: I have a construction question.
2 Can you give us a feel for the construction impact and how
3 long it will last? How long does it take to go, say, half a
4 mile of the pipe?
5 MR. ELLIS: Well, I can, just for example, let's
6 look at from the western terminus to basically I-5, and I
7 think that's about 12 or 13 miles, somewhere in that range.
8 I think we're expecting that construction to take, probably
9 five, six, let's say four to six months, in that range, to
10 do about 12 miles.
11 On a half-mile basis, you know, I -- but the
12 process is that we would basically clear the right-of-way
13 and the working strip, trench, weld up the pipe, then lower
14 the pipe in, and then backfill it. So, you know, for the
15 whole period -- something will be happening for that whole
16 period but there won't be a trench open that whole time.
17 But that's sort of -- that's a snapshot of what would be out
18 there.
19 And again, on your, on any one particular property
20 owner, you know, if you happen to be at the beginning of the
21 construction process then we would be in and out of your way
22 sooner than the folks at the other end. But by the same
23 token, they wouldn't have trenches open at the same time
24 that you did.
25 So it's a moving process and for every ten or 15

1 miles it's going to take probably four to six months to do
2 that.
3 MR. VALENTINE: And I see you're going along the
4 roads but you're not proposing to go down the road right-of-
5 way so that you have to close the roads for construction
6 purposes, are you?
7 MR. ELLIS: That's one of the benefits, yeah, that
8 we are proposing to be, in some cases adjacent to or near
9 roadways, but not actually constructing within the roadway,
10 except for where we cross them. And I, you know, I don't
11 want to say for sure that there won't be road closures but
12 the plan is that the work stip would be off the roadway and
13 that traffic disruptions would be minimized. But there may
14 be road closures at various times.
15 MR. SMITH: Paul Smith. What provisions are made
16 on grading property. Do you re-fence to keep them away from
17 trenching or of that nature?
18 MR. ELLIS: Yeah, we would, we will make
19 arrangements to keep whatever activity is going on away from
20 the work area and, yeah.
21 MR. SMITH: And what if there's a situation where
22 we have to maintain a road across the pipeline? Would you
23 put a bridge in to get us across?
24 MR. ELLIS: We would work with you to find an
25 agreeable way so that you could maintain your access. And

VALENTINE 5-2

SMITH 6-1

SMITH 6-2

that could take a couple of different forms, one of which is plating it or somehow bridging it. And there may be other ways too.

MR. SMITH: So you would work that out as you're progressing?

MR. ELLIS: Yes.

MR. SMITH: Okay.

MS. POLLOCK: I have another question. Obviously you're going to have to work with the landowners to acquire easements. Will that process start or will you wait until the EIR is certified before you do that?

MR. ELLIS: In a perfect world we would wait until the EIR is certified but I don't want to preclude a situation where we could come to you and start talking with you, recognizing that there's not an approved project yet. So, any conversations or any agreements that we may come to with the property owner certainly would be subject to the approval of the project.

MR. GILLIES: Also, during the environmental, when we hire the consultants, they're going to be going out there and we're going to ask for permission to enter property to conduct environmental studies for biological, cultural, land use and all that, so --. You should be contacted early on as far as getting the access for doing the environmental studies. And that would go for all the alternatives.

1 MS. POLLOCK: I would just like to emphasize that,
2 whoever your consultant is, is that they get permission from
3 the landowners, because we've had too many that come out to
4 private property without permission. It sets up a situation
5 that is not always pleasant for both sides.
6 MR. GILLIES: Okay. Yeah, when we hire the
7 consultants we'll be working with PG&E to ensure we get the
8 proper permissions on the properties.
9 MR. POLLOCK: I'm Bert Pollock. I'm directly
10 affected by your project here. And I don't, I have just a
11 couple of brief comments. Up until now I've been less than
12 impressed with the preliminary survey work and so forth.
13 That's in regard to permission to go on the property and so
14 forth. And I just take the view that there's a little
15 problem there.
16 The other comment is, out here where we're
17 directly affected, I have three PG&E power lines that go
18 across the ranch now that do not directly affect me. One of
19 them is the 500 KV line that goes up and down. And when is
20 enough enough here, as far as utilities and having your
21 property chopped up in one way and another and so forth? I
22 have real mixed feelings about that.
23 The other is, out in this intensive agricultural
24 area, you sure as hell better dig that deeper than five
25 feet. You're asking for trouble. And I realize that -- and

POLLOCK 7-1

I don't know what the depths are -- that it escalates. It gets real expensive the deeper you go because of regulations but - get that thing down there where nobody's ever going to mess with it. Five feet's not enough.

POLLOCK 7-1 cont

MR. SMITH: Another question. Is this going to go across the Sacramento River or under it?

SMITH 7-2

MR. ELLIS: Underneath the Sacramento River.

MR. SMITH: Under it?

MR. ELLIS: Yeah. We have a number of water -- that was the biggest, but there are several water crossings. Some of them will be done by horizontal directional drilling, so we won't be trenching through the waterway. It'll be drilled under and pulled back. There will be a couple of smaller water crossings that will be trenched through. But most of them will be directionally drilled.

MR. SMITH: Are you familiar with the problems on the crossing of Cache Creek and the existing --.

MR. ELLIS: Yeah. And one of the benefits of a directional drill is that it is substantially lower than that type of crossing that you see at Cache Creek. Those two crossings were trenched into the creek and in this situation it's going to be quite a bit deeper. So our hope is that it never sees daylight under the crossings.

MR. SMITH: Well, yeah, that was the thought when they put those lines in too.

1 MR. ELLIS: Right.
2 MR. SMITH: If there was any similar situation,
3 you know, you don't want another Cache Creek situation
4 but --.
5 MR. ELLIS: I agree.
6 MR. SMITH: The fact is, the problem is not solved
7 to this day.
8 MR. ELLIS: You're right. We think we're
9 designing away from that situation in this case.
10 MR. SMITH: Don't want a repeat of that.
11 MR. ELLIS: Right.
12 MR. SMITH: Wow, under the Sacramento River. How
13 deep do you think you'd be going under that river?
14 MR. ELLIS: We think it'll be somewhere between 50
15 and 75 feet or so under the river. That -- I mean, the
16 design work's not complete but that's sort of the range we
17 have there.
18 MR. POLLOCK: On the other waterways, how deep
19 under the bed will you dig, do you think?
20 MR. ELLIS: For the smaller waterways we would
21 look for around 15 feet under the waterway.
22 MR. POLLOCK: I ask because out here to the east
23 you'll be going under the Knight's Landing Ridge. And at
24 some point in time, probably not in our lifetimes but at
25 some point in time, that waterway's going to be modified.

SMITH 7-3

POLLOCK 7-4

POLLOCK 7-5

POLLOCK 7-5 cont

1 So if you go real deep to start with you don't have to worry
2 about it, is what I'm getting at.
3 MR. ELLIS: Yeah, I agree with you and the Knights
4 Ridge cut, I would sort of put it in that medium range where
5 we -- I think for smaller waterways we're going to be
6 looking at about a 15 foot range, something like that,
7 probably deeper.
8 MR. POLLOCK: Yeah, well, it's very shallow
9 presently so, you know --.
10 MR. ELLIS: You're right though, in those
11 situations we want to put it at a depth that we never have
12 to deal with it again, and it's there, and if it ends up
13 getting dredged or whatever we want to be out of the way of
14 whatever's going to happen there. Part of our process is to
15 talk with all the irrigation districts and the flood control
16 districts so that we have a sense of what their plans are
17 for the next 20 years or so, and so that we can design with
18 all that in mind.

FOREMAN 8-1

19 MS. FOREMAN: I'm sorry, I came in late too and
20 maybe I missed something already but, when the search line
21 goes through property what does it do for development, for
22 these people who want to put houses on the property?
23 We have a considerable portion of ag land that, I
24 saw a map a year ago that, it went to the south of us, and
25 now it's going on our property. And I was told that was

because the neighbor's property is destined for homes, with the extension of Yolo, going from Yolo to the north.

My name is Carol Foreman, so I represent the Foreman property, which is right here on the middle of your --. We had all these feasibility studies and all the environmentalists and everything that's gone through our ground already.

And I was questioning it because I didn't know why they switched it and they said well, these people have, you know, basically, they want to build houses there. Does it affect that if you put a gas line through and you can't build houses later?

MR. ELLIS: Well, the effect on structures in relation to the gas line is -- there are restrictions on how close you can build a structure to a natural gas pipeline. So I, the basic answer is yes, you can't build right over a gas line.

MS. FOREMAN: Well, what was the easement for that? And I apologize again if you're repeating yourself, but is there an easement then that qualifies for a home site?

MR. ELLIS: Well, the easement that PG&E would be looking to get is 50 feet, and so, on that easement, as part of that language, we would ask, we do ask for restriction on permanent structures within that 50 feet.

FOREMAN 8-1 cont

FOREMAN 8-2

MS. FOREMAN: With another how many?

MR. ELLIS: Within that 50 feet.

MS. FOREMAN: Oh, okay, that makes sense, okay.

MR. ELLIS: So, additional restrictions on top of that, PG&E doesn't have any restrictions. And as far as I know the Department of Transportation and the CPUC don't have additional restrictions so, you know, if the local agency -- that's not a question that I can answer, but as far as our right-of-way goes --

MS. FOREMAN: 50 feet.

MR. ELLIS: Yeah.

MS. FOREMAN: Okay, well, I just didn't know, long ways planning, what happens to this ag land if it's a chance of building a place and you're told you can't because you've got this through there. I was just wondering why the neighbors were so adamant that it was not happening on their property so I was trying to learn why.

MR. ELLIS: Right, right.

MS. FOREMAN: And I don't want it on our property either if they don't, that's my thought.

MR. ELLIS: Yeah, right, that may be true. But as far as our restrictions it would be that 50 foot right-of-way.

MS. LEONARD: I'm Laura Leonard. I'm not exactly sure where this pipeline, this gas line 172, crosses 17 and

LEONARD 9-1

16A. I know we have a gas line near our intersection, where Carol's talking about. We had thought at one time, when we bought the place, it was going to Spreckle's Factory over there. I'm not sure if that's the same line that you're talking about, that's 172?

LEONARD 9-1 cont

MR. ELLIS: I don't think so. 172 is, we consider it to be a transmission line that's taking gas, actually from 400 and 401, farther north and bringing it down into the greater Sacrament area. So my understanding of the System is that it doesn't go directly to some facility like Spreckle's. And it probably --

MS. LEONARD: Okay, because you had mentioned a 100 foot by 100 foot station and I was trying to picture where that would be, so --.

LEONARD 9-2

MR. ELLIS: Right. It's at the intersection of what the new pipeline and, it'll intersect with 172, and it is north of the town of Yolo. Yeah, I don't -- west --

MS. LEONARD: It's between the town of Yolo on this map --

MR. ELLIS: And west of County Road 98. It's between the freeway and County Road 98, north of the town of Yolo. Right in this area right here.

MS. LEONARD: Yeah, so that's very close to the freeway?

MR. ELLIS: Yeah, here's the freeway right here.

1 MS. LEONARD: Okay.
2 MR. ELLIS: A couple thousand feet east of the
3 freeway.
4 MR. LEONARD: A couple thousand feet east of the
5 freeway? So you're --
6 MR. ELLIS: Yeah, about 2,000 feet.
7 MR. LEONARD: So you're roughly a half mile or so
8 from the freeway there.
9 MR. VALENTINE: Chris, is it possible to look at
10 those drawings now?
11 MR. ELLIS: Sure. I just wanted to mention, if
12 you came in late, we have sign-in sheets on this little
13 table and please sign in so we have a record of your being
14 here.
15 MR. VALENTINE: I have another question or two.
16 In the process of sighting the pipeline and taking, or
17 requiring, easements for it, will there be some compensation
18 for economic losses, as Ms. Foreman was mentioning or
19 others, where they may not be able to develop it out to its
20 full potential in the future because of pipelines there. Is
21 that part of the process?
22 MR. ELLIS: There's many factors involved in the
23 process. I think the baseline, where we start, is the
24 appraised value of the property, and how much PG&E is
25 looking to acquire. And then, you know, any additional

1 factors that may be there would enter into the negotiation.
2 MS. LEONARD: Does PG&E maintain this right-of-way
3 afterwards? In other words, I can envision weeds that are
4 four feet high or whatever along this easement. Who takes
5 care of that?

LEONARD 9-3

6 MR. ELLIS: Well, in actively farmed areas
7 typically the landowner would resume whatever agricultural
8 activities they were doing prior. In situations, say around
9 a station or something to that effect, if there was, you
10 know, if there was a maintenance need that was there then
11 PG&E would do what we needed to do to maintain that
12 facility.
13 As far as maintenance, we inspect the right-of-way
14 per state and federal regulations so there's a maintenance
15 activity associated with the pipeline itself to make sure
16 it's maintained in a safe manner. But typically the land
17 use above the pipeline resumes with whatever the previous
18 use of it was, whether that was a dirt road or agriculture,
19 etc.
20 The caveat to that, again, would be the deep
21 rooted plants situation. We would have a restriction on
22 deep rooted plants.
23 MR. VALENTINE: Just a comment. I think you've
24 heard several people talk about, what I wrote in my notes as
25 "farmability". I'm not sure "farmability" is a word but you

VALENTINE 10-1

1 know what I mean. People are concerned, and they will want
2 to see it analyzed, if there are going to be limitations
3 placed on existing agricultural use of any of these lands.
4 And the other thing that I, I'm at least
5 personally concerned about, is accurate assessment of
6 natural resources along the right-of-way. I for one have a
7 big tree in my yard that Swainson's Hawks have nested in and
8 I place high value on that tree and on the hawks that nest
9 in it.
10 So, if that tree's going to go, whether, because
11 it has to come out because it's in the right-of-way or
12 because it's not going to do well given its proximity to the
13 right-of-way, that needs to be analyzed and measures
14 developed to mitigate for it.
15 MR. ELLIS: Yeah, I hear you. I can tell you
16 that, as part of our application process to State Lands and
17 to the other agencies, the natural resource studies that we
18 conducted are a major part of that application. State Lands
19 is going to have their own analysis of what those are and
20 it's, I hear you and it is a big part of our application
21 review process.
22 MS. SPURR: We'll definitely be looking at that in
23 our EIR. Trees, you know, loss of habitat, foraging
24 habitat, Swainson's Hawk habitat --. That'll definitely be
25 something that we'll be looking at.

VALENTINE
10-1
cont

POLLOCK 11-1

MS. POLLOCK: I'm just going to add, I'm sure whoever the consultant is will pick it up but, around Cache Creek, by Yolo, there are Native American cultural resources.

MS. SPURR: Okay. Yes, we'll be looking at cultural resources.

MR. GILLIES: Yeah, just to let you know, when PG&E applied to us they had these selected alternatives and we'll look at those but like we mentioned earlier, if there are sensitive resources the consultant or even us can say "if you could shift it over". So they'll be back out to look at environmental issues, cultural and natural sciences and --.

Just to let you know, we had a meeting at 3:00 and then this is the evening meeting. We're going to have another set of meetings in Roseville tomorrow and if you know anybody who hasn't gotten word of this project, you know, write it down on the sign-in sheet or let us know, because we got a mailing list from PG&E and it's not perfect but, I know at the 3:00 meeting we had some folks that may not have heard and so we have extra copies of the Notice of Preparation, if you want to take a couple feel free.

MR. POLLOCK: How big a crowd did you have at the earlier meeting?

MR. GILLIES: About this size.

VALENTINE 12-1

1 MR. VALENTINE: Will there be a public hearing of
2 some kind on the draft EIR when it's done or --?
3 MS. SPURR: Why don't you respond to that because
4 I'm not sure, does it usually go to the center, if there's
5 enough interest --?
6 MR. GILLIES: Well, I think -- you're talking
7 about the draft document.
8 MS. SPURR: Oh, not at the end, okay.
9 MR. GILLIES: Yeah, the draft document, we
10 anticipate, like we said, once we get the consultants on
11 board they'll do the studies, probably starting in October,
12 going into the Spring season probably for special status
13 species and there will be a draft document with a 45 day
14 review period.
15 And within that review period we'll have another
16 public hearing, just like this, probably held here since
17 we've had the NOP here, as well as another meeting in
18 Roseville on the other side of the pipeline. And then we'll
19 take any comments there that are written or verbal and
20 proceed with the final document.
21 And then there will be a another opportunity when
22 it goes to our Commission as a public hearing, when it goes
23 up for approval and certification. And then, I'm not sure
24 if we mentioned -- if you still want to have comments, the
25 comment period on the NOP ends --?

MS. SPURR: July 18th. So, on this particular notice you can come up until July 18th. But you'll have another chance to make comments when the draft EIR comes out.

MS. LEONARD: This is just general conversation, but it's a done deal, right? I mean, no one --

MS. SPURR: No.

MR. GILLIES: No.

MS. LEONARD: There still can be variances there?

MS. SPURR: Yeah, this is not an approved project so --. We have to go through the process of looking at it voluntarily and there may be alternatives that we come up with that are superior to this and then it has to go to the Commission for certification of the EIR and approval of the project, so --.

MS. LEONARD: It affects our ground in both maps.

MS. SPURR: Okay, on both alternatives. And there may be other alternatives too that we come up with. But that's all that we have right now.

MS. LEONARD: With PG&E, once it does get in place then they approach the owners of the ground to begin negotiations about what happens next? Or do we just get a notice?

MR. ELLIS: No, like you said, talking about the right-of-way and where it is or getting the rights and

1 talking with the property owners is a separate process and
2 that's one that PG&E will enter into with you and other
3 property owners.
4 So, I'm not sure if you were here yet, but
5 somebody had a question about when that happens and, we may
6 start talking with you prior to the certification of the
7 approved process, but certainly whatever conversation we
8 have with you would be subject to whatever the approved
9 project ends up being, sure.
10 MR. SMITH: Another question. The property
11 owners, do they have any recourse if they object? What if
12 they don't want this thing going across their property?
13 MR. ELLIS: Well the, I think initially the
14 process to object is through the State Lands Commission
15 comment periods.
16 MS. SPURR: Initially for the environmental
17 document. But you have, I don't know what happens if you
18 have an issue with PG&E once the project's approved, I'm not
19 sure what that process is. But you have, you have a chance
20 to comment on the environmental document and you can say
21 that you oppose the project at that time.
22 What, we're really looking for comments on the
23 document itself and on the environment but you can provide
24 any comments that you want during that time. And then when
25 it goes, when the final is prepared, the final EIR, we

1 respond to the comments and we send those to all the
2 commenter's. And then when it goes before the Commission
3 there will be a public hearing and you'll be able to make
4 comments before the Commission at that time.
5 MR. SMITH: Well, that's --
6 MS. SPURR: And it's up to them. It's up to the
7 Commission whether to certify and approve the project.
8 MR. SMITH: A question. Some of these property
9 owners have a lot of easements going across their property
10 and, like the gentleman said, enough's enough. Is there any
11 recourse? Is it a negotiable situation?
12 MR. ELLIS: Once the project --
13 MR. SMITH: When it's a done deal the property
14 owner just has to go along with it?
15 MR. ELLIS: Once the project is approved then, I
16 guess you go through the negotiation process with PG&E. I
17 don't really know, at that point I don't know, beyond the
18 environmental process. Once the project is approved by the
19 Commission then, I guess it's negotiations from then on.
20 MR. VALENTINE: Let's face it, PG&E does have
21 eminent domain authority for this pipeline, right?
22 MR. ELLIS: PG&E can use eminent domain, but only
23 for approved projects, so --. I think the answer to your
24 question is that you can submit comments to the Commission
25 requesting denial of the project and then it will be the

Commission's decision on whether to approve it or not.

Once you get beyond that, if it does become an approved project, then, you know, we like to negotiate an easement with owners but, like you mentioned, there is the eminent domain process, which has its own set of rules, in a court of law, basically.

So, I guess the big picture answer is there's a couple check points along the way where you can provide input to the process to either have it changed or denied.

MR. GILLIES: Are there any more questions? If there's no more questions we're going to go ahead and close the meeting. But what we'd like to do, we have the aerial photos that are a better depiction of the route than these maps. If you'd like to look at them, feel free to. Right now it's back there.

MS. SPURR: Okay. The meeting is adjourned and we'd like to thank everyone for coming.

(Thereupon, the July 9, 2006, 5:30 p.m. Scoping Meeting concerning PG&E pipelines 406 and 407 was adjourned.)

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CERTIFICATE OF REPORTER

I, William Kleinhans, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing State Lands Commission 5:45 public Scoping Meeting on the proposed PG&E Pipeline 406/407; that thereafter the recording was transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said meeting, or in any way interested in the outcome of said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand this 23rd of July 2007.

Wm A. Kleinhans

William Kleinhans
Certified Shorthand Reporter

1 RESPONSE TO PUBLIC SCOPING MEETING SET 2

Commenter	Comment Number	Section of Draft EIR	Page Number(s)
Lynnel Pollock	1-1	Project Description 4.4 - Biological Resources	2-56 to 2-59, Table 2-5 4.4-61, and 4.4-107
Michael Valentine	2-1	3.0 - Alternatives and Cumulative Projects	3-1 to 3-39
	2-2	4.2 - Agricultural Resources	4.2-22 to 4.2-25
	2-3	2.0 - Project Description	2-32 to 2-39
		4.7 - Hazards and Hazardous Materials	4.7-10 to 4.7-26
	2-4	4.2 - Agricultural Resources	4.2-22 to 4.2-25
Dick Leonard	3-1	2.0 - Project Description	Entire Section
	3-2	2.0 - Project Description	2-17 to 2-19, and 2-49
	3-3	4.2 - Agricultural Resources	4.2-24
	3-4	4.8 - Hydrology and Water Quality	4.8-19 and 4.8-20
	3-5	4.8 - Hydrology and Water Quality	4.8-19 and 4.8-20
Tom Horgan	4-1	2.0 - Project Description	Entire Section
Michael Valentine	5-1	2.0 - Project Description	2-38 to 2-80
	5-2	4.13 - Transportation and Traffic	4.13-18 to 4.13-24
Paul Smith	6-1	2.0 - Project Description	2-38 to 2-80
	6-2	4.13 - Transportation and Traffic	4.13-18 to 4.13-24
Herb Pollock	7-1	4.2 - Agricultural Resources	4.2-24
	7-2	2.0 - Project Description	2-56 to 2-59, Table 2-5
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CALIFORNIA STATE LANDS COMMISSION

PUBLIC HEARING IN THE MATTER OF
PUBLIC SCOPING MEETING FOR
PG&E PIPELINES 406 and 407
Followed by
BIDDER'S CONFERENCE

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A P P E A R A N C E S

Crystal Spurr, State Lands Commission

Eric Gillies, State Lands Commission

Chris Ellis, PG&E

Joe Pennington, PG&E Manager

Dave Brown, State Lands Commission

Terry Wang, Nino and Mort (sp)

Katie Simpson, Ceres Associates

Anne-Marie McGraw, Opus Environmental

Tom Herzog, Power Engineers

Cindy Arrington, SWCA

Stephanie Chun, Geo Engineers

Emily Keller, EIP

Somer Goulet, Aspen

John Klemunes, Stantec Consulting

Hal Freeman, E Corp Consulting

John Rickenbach, Rincon Consultants

Matt Fagjerdes, ESA

Brett Moore, Stantec

Carrie Andreotti, NGO, Inc

Walter Kim, Engineering Environmental Management

Roy Skinner, Engineering Environmental Management

Clint Meyer? Michael Brandman

George Visker, Geo Engineers

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Steve Jenkins, Michael Brandman

Dustin Marlow, Fugro West

Vida Wright, Vendico Group

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1 P R O C E E D I N G S

2 MS. SPURR: My name is Crystal Spurr. I'm a staff
3 environmental scientist with the California State Lands
4 Commission in their Environmental Planning and Management
5 Division. Eric Gillies is with the California State Lands
6 Commission as well, and we have someone from our Land
7 Management Division in the back, Joslyn Macomes (phonetic).
8 I'm going to talk a little bit about the CEQA
9 process. I guess, first of all, I'd like to see how many
10 are consultants? Raise your hand. And how many are from
11 the general public? So we have a couple of people.
12 So I'm going to explain the California
13 Environmental Act process. You got a notice in the mail of
14 the preparation of an Environmental Impact Report and we
15 prepare that in accordance with CEQA. The California State
16 Lands Commission is the lead agency and what we're going to
17 do is go out and take bids from consultants and we'll find
18 someone to prepare an EIR. And they will be doing
19 independent studies.
20 So those of you who have properties along this
21 route, you may be contacted for someone to access your
22 property. And we'll be working with PG&E on that. We don't
23 have a schedule right now for the EIR but we are planning to
24 maybe get started in October.
25 And it takes a little while to get through the

1 process of a direct EIR to get released to the public,
2 around four to six months. And then, that'll be released
3 for a 45 day public review period, at which time everyone
4 will receive a notice of availability of that draft EIR and
5 they'll get a chance to review that, either online at our
6 website or you can request a copy of it. And during that
7 time period, the 45 days, we'll also hold another public
8 hearing, where you can make comments verbally if you want
9 to, or you can send in your comments by mail or e-mail.
10 Once we receive all the comments, once that 45 day
11 period is up and we've received all the comments, we will
12 respond to those comments and anyone who responded to that
13 draft Environmental Impact Report will receive a copy of the
14 final in the mail with response to their comments.
15 And once that process is all done it will go to
16 our Commissioners and they will make a decision whether or
17 not to certify the EIR and whether or not to approve the
18 project. So this Scoping session now is to get comments,
19 what you might see in the content of the EIR, what you think
20 the issues might be environmentally.
21 We're also going to have, Chris Ellis is here from
22 PG&E and he's going to explain the project and then you can
23 ask questions or give him comments on the project itself.
24 So, right now I've explained the CEQA process, and does
25 anyone have questions on that particular process? If not,

1 then I'm going to let Chris Ellis go ahead and explain the
2 process.
3 MR. ELLIS: Okay, thanks, I'm Chris Ellis, I work
4 in PG&E's Land Department and I'm responsible for the
5 regulatory authorizations and permits for this project. And
6 we have made application to the State Lands Commission and,
7 as Crystal explained, they are embarking on their
8 environmental review process.
9 Today I'll just try to explain a little bit in
10 summary about what the project entails. As you know, PG&E
11 owns and operates natural gas facilities in northern and
12 central California and some of our existing transmission
13 lines are denoted on this map as the dashed yellow lines
14 here and here.
15 And there are two pipelines in this corridor that
16 come down from Canada and they are the backbone system of
17 how we get gas. As you also know, northern Sacramento
18 County, Placer County and Sutter County have been growing
19 like crazy and our system is nearing its capacity to serve
20 the customer load in all of these areas.
21 We've been doing a number of projects to keep up with
22 that and as part of that process we've determined that an
23 additional transmission line is required to continue to keep
24 ahead of the pace of development in this area.
25 So, how do we do that? We looked at a number of

1 alternatives. And that drawing over there depicts the
2 alternatives that we've analyzed to construct a pipeline.
3 Out of that analysis we came up with a preferred
4 alternative, and it is a 30 inch diameter pipeline. It's
5 roughly 40 miles in length.
6 We will be acquiring a 50 foot right-of-way where
7 that pipeline will be located. During the construction
8 phase we would also acquire a 50 foot temporary construction
9 area. So the work area will be approximately 100 feet, the
10 permanent right-of-way would be approximately 50 feet.
11 Industry standard construction techniques would be
12 used in installing the pipeline. We also expect to be
13 making application with any number of regulatory agencies to
14 make sure that we have authorization to impact what species
15 and resources may be out there. I would also add -- okay,
16 so this is a 30 inch pipeline.
17 We are also constructing a 10 inch pipeline that
18 will head south and serve the Metro Air Park area of
19 northern Sacramento County.
20 I will point out that we have a couple of major
21 crossings. We have 505; we have I-5; 113; we've got the
22 Sacramento River of course, and that's why we're here,
23 because State Lands owns that; 99; and any number of other
24 major streets within the project area.
25 We terminate, like I said, at 400 and 401 at the

1 west we terminate with our existing line 123 on the east,
2 and that's just inside the city of Roseville, the city
3 boundary.
4 So with that, I think that's all I'm going to say,
5 so if there's any questions out there, feel free to ask.
6 MS. SPURR: If anyone has any questions, from the
7 public, on the project, go ahead and ask them now? Or any
8 comments? And please give your first and last name before
9 you speak.
10 MR. CARPENTER: I have a question. I'm George
11 Carpenter. And, 50 foot permanent easement, is that going
12 to be exclusive or will other utilities be allowed into the
13 same thing?

CARPENTER 1-1

14 MR. ELLIS: It's not an exclusive easement but the
15 right-of-way we obtain does have some restrictions.
16 Typically they don't exclude all other utilities but it
17 presents boundaries, separation distances between our
18 pipeline and whatever additional utilities are looking to
19 get into that space. The exclusions tend to be for
20 permanent structures over the pipeline and then also deep
21 rooted plants within 15 feet either side of the pipeline.
22 FROM THE AUDIENCE: Where does the main line
23 start? From the middle of Baseline or --?
24 MR. ELLIS: What we're looking to acquire would be
25 from the edge of the roadway itself. So, in this situation

1 -- and we talked about it, it will be either six or eight
2 lanes at ultimate build-out. In addition to that there will
3 be substantial landscape strip and we're actually looking at
4 our right-of-way being located congruent with that,
5 possibly.
6 But that's something that the municipality and the
7 engineering firm and developers in certain cases will have
8 to be a part of that decision. So we're looking at the edge
9 of the roadway.
10 FROM THE AUDIENCE: Any compressors at the
11 stations?
12 MR. ELLIS: No compressor stations. There will be
13 several above-ground locations so there will be pressure
14 limited stations and valve lines. And I think there are,
15 yeah, five of those. And they range from approximately 100
16 feet to, let's just say 40 by 40, somewhere in those ranges.
17 FROM THE AUDIENCE: Within the Natomas Basin Area,
18 Reclamation District 1000 has a number of canals and the
19 water company also has canals. A lot of them go along Riego
20 Road. What would be the plan for location of the pipeline?
21 It looks like it goes along Riego Road. Would it be within
22 the road right-of-way or be north/south of those and be
23 relocated?
24 MR. ELLIS: We're not planning at this point on
25 any canals being relocated. So we're looking to locate

1 adjacent to a situation like that. Whether it's north or
2 south, I don't know for sure, but it would be either side of
3 a feature like that.
4 In some cases we're discovering that -- not
5 necessarily Rec 100 per se, but there are canal features
6 that may be culverted as a part of the road widening process
7 and so our location in relation to that, in the future, is
8 something that we would be working out with the property
9 owner and the owner of that particular facility.
10 MR. GAYLORD: Andrew Gaylord, Placer County
11 Transportation. We'd love to set up a meeting with you
12 folks to talk about Placer Vineyards that's going before the
13 board next week or so, it may be approved, so construction
14 of that sounds like, as a miniature pipeline.
15 We would want to coordinate with PCWA since it's
16 going to be running down Baseline and what have you. Are
17 you aware that your alternative going down the power lines
18 is going to be underneath -- corporation yard?
19 MR. ELLIS: The location --
20 MR. GAYLORD: The alternate alignment is going
21 down the power line, the alignment is going to be the
22 proposed corporation yard with dual tanks, CNG fueling
23 station?
24 MR. ELLIS: We did look at what the uses were on
25 the ground and in some cases those were reasons why the

GABER 2-1

1 preferred was selected. So, yeah, we -- yeah, that is part
2 of the process, yes.
3 MR. GAYLORD: Yeah, good. Any idea when you'd be
4 under construction on Baseline?
5 MR. ELLIS: Just, to sort of put parameters on it,
6 portions of the line we need to be constructing in 2009, but
7 those tend to be farther to the west. But in the Placer
8 County area we're looking at a timeframe of somewhere
9 between 2010 and 2013.
10 MR. GAYLORD: Is there a possible way to
11 accelerate that? We keep getting told by the developer that
12 they want to be under construction and one of their first
13 orders of work, before they do any other work on the site,
14 is to widen Baseline to four lanes and do a lot of other
15 roadwork out there. It's going to be difficult enough to,
16 you know, go through that construction. And if you're
17 coming through subsequent to that.
18 MR. ELLIS: Right. We are also in contact with
19 the developers' engineering firm and we are also discussing
20 schedule with them and our philosophy is to do what we can
21 to make it easy for them as well.
22 MR. GAYLORD: Okay. The -- is going to be a
23 nightmare.
24 MR. ELLIS: I can imagine.
25 MS. SPURR: Any other questions or comments on the

GABER 2-2

GABER 2-3

1 project? I'm going to open it up for any comments anyone
2 wants to make on scope and content of the draft EIR. What
3 you might like to see or what you think might be issues and
4 the lines in the EIR. I'll open it up for that and anyone
5 can comment on that at this time.
6 MR. GILLIES: I guess that's it. If no one else
7 has any other public comment we'll go ahead and adjourn the
8 Public Scoping for the 3:00 meeting and then we'll proceed
9 with the pre-proposal conference, which most of you are here
10 for. And we have Dave Brown, the head of our Contracts
11 Division, and he'll be here to talk about specifics of
12 submitting your proposals. Is the sign-in sheet available?
13 MS. SPURR: I want to make sure that everyone has
14 signed that, so if you haven't signed yet please sign in.
15 MR. GILLIES: And if people from the public want
16 to stay, you're welcome to stay for the conference. Once I
17 get the sign-in sheet I'll --
18
19 (Thereupon, at 3:20 p.m., the July 10, 2006, 3:00
20 p.m. Scoping Meeting concerning PG&E pipelines 406
21 and 407 was adjourned.)
22 --o0o--
23 **********
24

BIDDER'S CONFERENCE

FROM THE AUDIENCE: The sign-in sheet, will that be made available?

MR. GILLIES: Right. Once we get the attendance sheet we'll give it to our contracts folks and they'll just -- is that right?

MR. BROWN: Yes.

MR. GILLIES: We'll distribute it to everybody. That way, if you're going to be a sub-contractor you can maybe get in contact with the larger firm, so --. And then, also it becomes, once we get this list generated, any firm that did not attend the 3:00 meeting and the pre-bid conference will not be qualified to bid on the project.

So, if someone signed in and left then they won't, once they submit a proposal then they'll be disqualified because they --. Yes?

FROM THE AUDIENCE: Is that not only for the prime, but also the sub-contractor?

MR. GILLIES: The SOI went out the end of June and I'm' sure you all got it, that's why you're here. And the process is, you have 30 days to prepare a proposal, and the date to submit that is July 30th, 2:00 p.m., no later than that. And we expect the proposals to be no more than 50 pages, and that includes the resumes.

1 And it's a competitive based award so what we'll
2 do is, once we get the proposals we'll rank them. We'll
3 have a team within State Lands that reviews the proposals,
4 we'll rank them one, two, three to however many we get, and
5 then we'll select the top three for interviews.
6 And then once we go through the interviews we re-
7 rank them and select the top one to begin negotiations on
8 cost for their team to prepare the draft and final
9 environmental documents, all the way up to the Commission
10 certification.
11 After this meeting -- well, Crystal Spurr is the
12 project manager. I'm also working on the project as well,
13 assisting her. But, after this meeting, any questions you
14 have go through Annabelle Avelita -- her name is in the
15 SOI -- or Dave Brown.
16 MR. BROWN: Yes. And they can get me through that
17 number.
18 MR. GILLIES: And then once we select the top one
19 we'll go into cost negotiations. What we'll do is estimate
20 how much it's going to cost for the document and if the cost
21 is reasonable, at the negotiations we'll go with that firm.
22 If it's not, within the cost we estimate, then
23 we'll go ahead and go to the next firm. And we can't go
24 back to the first firm or - once we remove the first firm we
25 can't go back.

1 MR. BROWN: We've also put a 20 day limitation on
2 the negotiation period, so it has to happen within that
3 period of time.
4 FROM THE AUDIENCE: The top firm will be told
5 they've won --.
6 MR. GILLIES: Well, if the amounts are way beyond
7 the costs that we estimate for the project and we can't
8 negotiate to a fair price, then we go to the number two.
9 FROM THE AUDIENCE: So they will be given --
10 MR. GILLIES: Yes, right.
11 MR. BROWN: It's a competency based award.
12 MR. GILLIES: And that's why we asked you to come
13 to the public meeting. You received the NOP to get a scope
14 of the project. We expect you to have a firm team in the
15 issues that'll be involved.
16 You've got biological issues, cultural resources.
17 We had a public meeting yesterday in Yolo County in
18 Woodland and one of the big issues was the agriculture. So,
19 that's going to be a big issue to address in the document,
20 the socioeconomics with that.
21 And then of course we would expect expertise on
22 horizontal directional drilling, because that will be going
23 under the river as well as other waterways, to handle that.
24 So we want that addressed in the document.
25 MS. SPURR: There's one more person who needs to

1 sign up.

2 MR. BROWN: Has everybody pre-qualified with the
3 Commission? That you know of? Because if you haven't the
4 pre-qualification paperwork is on our website. If you got
5 this you're pre-qualified, but if you picked it up off the
6 General Services website or something like that you do need
7 to be pre-qualified. And that can be submitted concurrent
8 with the proposal.

9 After this hearing, as Eric said, Annabelle is the
10 only contact. We do this so we can field all questions and
11 make sure there is an even playing field and if the question
12 is germane, we think, to everybody's proposal, we will make
13 sure that the answers get back out to everybody.

14 We've made provisions in the proposal for a
15 technical editor and a web publisher. And these people need
16 to be identified. And there is also a requirement that some
17 kind of a quality assurance method or plan be submitted
18 along with the proposal as well.

19 The web's version standards are in the proposal.
20 It's very important that these standards are adhered to.
21 Even in a large document we are limited to one megabyte per
22 item, per file. That's to facilitate people with dial-up
23 downloading capability, so they can view the document.

24 There's a small business participation of 25
25 percent and a disabled veteran of five percent. You have to

1 either provide that, identify those sub-contractors, or if
2 you're one of those yourself all the better. Or, reasons
3 why you couldn't get there.
4 That will be in this part of the initial, you need
5 to identify those sub-contractors initially. We'll worry
6 about the percentages later, when the counter-proposal comes
7 in. And I think that's all I have.
8 MR. GILLIES: I'll go ahead and take roll. Is
9 Terry Wang, Nino and Mort (phonetic)? Okay.
10 Katie Simpson, Ceres Associates?
11 Anne-Marie McGraw with Opus Environmental?
12 Tom Herzog, Power Engineers?
13 Cindy Arrington, SWCA?
14 Stephanie Chun, Geo Engineers?
15 Emily Keller, EIP?
16 Somer Goulet, Aspen?
17 John Klemunes, and that's Stantec Consulting?
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19 John Rickenbach, Rincon Consultants?
20 Matt Fagjerdes, ESA?
21 Brett Moore, Stantec?
22 Carrie Andreotti, and that's NGO, Inc?
23 Walter Kim, Engineering Environmental Management?
24 Roy Skinner, Engineering Environmental Management?
25 Clint Meyer? Micheael Brandman.

1 George Visker, Geo Engineers?
2 Steve Jenkins, Michael Brandman?
3 Dustin Marlow, Fugro West?
4 Vida Wright, Vendico Group.
5 And I think that's everybody. I think that's
6 about it. Does anybody have any questions as far as our
7 process and contracting?
8 FROM THE AUDIENCE: I have just one question for
9 Mr. Brown. With the disabled veterans five percent, is that
10 mandatory?
11 MR. BROWN: It's mandatory unless you can prove
12 otherwise that you couldn't make it, so it's essentially, we
13 have to make that five percent.
14 FROM THE AUDIENCE: Okay, that's fine, thank you.
15 MR. GILLIES: Any other questions as far as
16 clarity of the SOI or the project? Yes, Steve?
17 FROM THE AUDIENCE: I have a question on the PEA
18 that was prepared for this project. Which firm prepared
19 that PEA and will they be contacted --?
20 MR. GILLIES: Do you know who that is, Chris?
21 MR. ELLIS: Yeah, it was prepared, a section of it
22 was prepared by CH2M Hill and a section of it was TRC
23 Solutions.
24 FROM THE AUDIENCE: Can you tell us what sections?
25 MR. ELLIS: Yeah, the 406 section, which is from

1 400/401 over to 172, was prepared by CH2M Hill. The
2 remainder by TRC Solutions. For the most part, there is
3 some mixing on some resources, but for the most part that's
4 the breakdown.
5 FROM THE AUDIENCE: The second question I have is
6 on PG&E 108. ESA was hired to do that. Can you tell us
7 what the anticipated approval date is by the Commission and
8 when the draft EIR will come out this year?
9 MS. SPURR: The draft EIR may be out in the street
10 in two months. That's what we're anticipating. And we're
11 hoping to take it to the Commission for certification and
12 project approval at our December meeting. That may or may
13 not happen.
14 FROM THE AUDIENCE: Thank you.
15 MR. GILLIES: Is there anything else you needed to
16 say, Dave?
17 MR. BROWN: Not unless they have more questions.
18 MR. GILLIES: Okay. Well, if no one else has any
19 more questions we'll go ahead and end the conference.
20 You're welcome to stay, we'll have a 5:30 meeting, again a
21 Public Scoping Meeting and you're welcome to stay for that.
22 MS. SPURR: But you don't have to.
23 MR. GILLIES: No, we didn't require that, we
24 required the 3:00 briefing and for you all to be here for
25 the Bidder's Conference. Sometimes it's good to be here to

listen to the public comments, what issues are coming about.

As I mentioned, Yolo County, the farming community, really came out and was vocal. So that's going to be an issue we want converted well, as well as biological issues, Giant Garter Snake and Swainson's Hawk, as well as cultural resources.

And then, as I mentioned before, after you leave here, all communications through Annabelle. And if there's a technical question she'll direct it to us and we'll give her the answer or provide her guidance and then she would distribute that to all the firms that are in attendance here. And we thank you for this big show out. We may have a lot of proposals to go through.

(Thereupon, at 3:35 p.m., the July 10, 2006, Bidder's Conference concerning PG&E pipelines 406 and 407 was adjourned.)

CERTIFICATE OF REPORTER

I, William Kleinhans, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing State Lands Commission public Scoping Meeting and Bidder's Conference on the proposed PG&E Pipeline 406/407; that thereafter the recording was transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said meeting, or in any way interested in the outcome of said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand this 23rd of July 2007.

Wm A. Kleinhans

William Kleinhans
Certified Shorthand Reporter

RESPONSE TO PUBLIC SCOPING MEETING SET 3

Commenter	Comment Number	Section of Draft EIR	Page Number(s)
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Andrew Gaber	2-1	2.0 - Project Description	Figures 2-3 to 2-6
		3.0 - Alternatives and Cumulative Projects	Entire Section
	2-2	2.0 - Project Description	2-80
	2-3	2.0 - Project Description	2-80

CALIFORNIA STATE LANDS COMMISSION

PUBLIC HEARING IN THE MATTER OF
PUBLIC SCOPING MEETING FOR
PG&E PIPELINES 406 and 407

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A P P E A R A N C E S

Crystal Spurr, State Lands Commission

Eric Gillies, State Lands Commission

Chris Ellis, PG&E

Joe Pennington, PG&E Manager

I N D E X

Page

SCOPING MEETING

PANEL COMMENTS

Eric Gillies 1

1 P R O C E E D I N G S

2 MR. GILLIES: This is PG&E 406/407 pipeline
3 project, and is anybody here from the public? No. We're
4 going to go ahead and just open and close the meeting since
5 no one is here from the public. It's 5:45, Tuesday, July
6 10th, and that adjourns it. Thank you.
7
8 (Thereupon, at 5:45 p.m., the 5:45 p.m. July 10,
9 2006, Scoping Meeting concerning PG&E pipelines
10 406 and 407 was adjourned.)
11
12
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I, William Kleinhans, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing State Lands Commission public Scoping Meeting on the proposed PG&E Pipeline 406/407; that thereafter the recording was transcribed into typewriting.

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IN WITNESS WHEREOF, I have hereunto set my hand this 23rd of July 2007.

Wm A. Kleinhans

William Kleinhans
Certified Shorthand Reporter

RESPONSE TO PUBLIC SCOPING MEETING SET 4

The public scoping meeting held on July 10, 2007 at the Roseville Public Library was not attended by any members of the public. Therefore, no comments regarding the project were made.

Appendix C: Additional Alternative Route Analysis Documentation

C-1: Line 407 Alternative Route Analysis

Pacific Gas and Electric Company

Line 406 and Line 407 Pipeline Project

California State Lands Commission Application

Line 407 Alternative Route Analysis

February 6, 2009

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LIST OF ATTACHMENTS

Attachment A: Alternative Route Maps
Attachment B: Photo Exhibit
Attachment C: School Site Buffer Maps

1 INTRODUCTION

The Pacific Gas and Electric (PG&E) Line 406 and Line 407 Pipeline Project includes installation of approximately 40 miles of new 30-inch diameter natural gas pipeline in Yolo, Sutter, Sacramento, and Placer Counties. The project is designed to provide greater capacity and service reliability to the existing natural gas transmission and distribution system and to extend natural gas service to planned residential and commercial developments in the region. A complete description of project construction and operation activities was provided in the *PG&E Line 406 and 407 Pipeline Project Preliminary Environmental Assessment* (PEA), which was submitted to the California State Lands Commission on March 8, 2007, with a supplemental filing submitted on October 17, 2007.

This supplement provides additional information regarding pipeline route alternatives to address issues raised by the Placer Vineyards Development Group regarding three sites that have been identified in the Placer Vineyards Specific Plan for the construction of schools in the Center Unified School District.

1.1 BACKGROUND

PG&E's alignment of Line 407 in southwestern Placer County follows along the north side of Base Line Road. The Placer Vineyards Specific Plan outlines development of over 5,000 acres generally to the south of Base Line Road, including the construction of three schools in the vicinity of PG&E's pipeline project. Although PG&E had previously provided information regarding the location of its pipeline, Placer Vineyards has moved forward with its development plans and has asked the California State Lands Commission to consider alternatives that could eliminate potential land use conflicts. In response to that request, PG&E has met with the Center Unified School District regarding potential conflicts at the following three sites:

1. Sierra Vista School. The existing alignment along Base Line Road is outside of the 1,500-foot buffer that has been established for this site, and as such, no additional action is proposed by PG&E.

2. Placer Vineyards Proposed School Site – ES3 (East of Palladay Road). The existing alignment along Base Line Road is within the 1,500-foot buffer that has been established for this school site. PG&E is considering a route approximately 0.4-mile-long (Alternative Route M) to the north of the 1,500-foot buffer zone. This route is offset approximately 100 feet to the north of the buffer around the school site and is within the study area for the original route along Base Line Road. It would pass through annual grassland and cross seasonal wetlands and a vernal swale. A vernal pool would be crossed for approximately 150 feet along the western part of the alternative route. Further analysis and design is required to confirm that the re-route is feasible. The reroute complicates the currently planned HDD that was proposed to avoid an environmental feature. The HDD would need to be shortened or relocated to intercept the alternative alignment on the western boundary of the buffer zone. Another alternative that PG&E is considering would include a horizontal directional drill through a portion of this buffer zone along Base Line Road. Based upon the discovery of the 1,500-ft buffer zone, PG&E would propose an Applicant Proposed Mitigation Measure (APM) be introduced to extend the

directional drill approximately 1,000 feet to the east. Installation via directional drill will increase the cover through the buffer zone to approximately 35-ft. The added cover, will likely result in sufficiently reducing risk to the school given that the pipeline is very near the edge of the buffer zone. PG&E further proposes that the APM include provisions for a risk analysis to be performed in accordance with the California Education Code Section 17213, Proximity to Pressurized Gas, Gasoline, or Sewer Pipeline, which reads:

Education Code, Section 17213, prohibits the acquisition of a school site by a school district if the site "contains one or more pipelines, situated underground or aboveground, which carries hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas line which is used only to supply natural gas to that school or neighborhood."

Public Resources Code, Section 21151.8, uses the same language with reference to approval of environmental impact reports or negative declarations (see California Code of Regulations (CCR), Title 5, Section 14010(h).)

CCR, Title 5, Section 14010(h) states:

(h) The site shall not be located near an above-ground water or fuel storage tank or within 1500 feet of the easement of an above ground or underground pipeline that can pose a safety hazard as determined by a risk analysis study, conducted by a competent professional, which may include certification from a local public utility commission.

3. Placer Vineyards Proposed School Site - HS1 (West of Palladay Road). PG&E is considering two alternatives to avoid the proposed high school site west of Palladay Road between South Brewer Road and Country Acres Lane, north of Base Line Road in Township 11N, Range 5E, Sections 31-33 (see Attachment A). Alternative Routes K and L are outside of the 1,500-foot buffer. This document is an analysis of these two alternatives. Two other routes, I and J, were rejected because they were within the 1,500-foot buffer. The following report outlines the setting of each of the proposed route alternatives and discusses potential impacts related to each alternative.

Several issues were raised during public comments on the draft Environmental Impact Report (EIR) of the Placer Vineyards Specific Plan relating to water supply, sewage treatment, stormwater/flood control, traffic, and biological resources. PG&E's proposed pipeline alternatives would have no effect on any of the main concerns raised by comments on Placer Vineyards Specific Plan relating to water supply, sewage treatment, stormwater/flood control, traffic, and biological resources. Pipeline construction will not create additional demand for water or sewage services and would not impact stormwater or flood control infrastructure. Additionally, while there may be potential impacts to vernal pools related to construction along some of the route alternatives, these impacts will be avoided to the extent feasible or mitigated to the full extent of the law and any applicable conservation plans.

1.2 METHODS

Alternative Routes K and L are outside of the study area of the original pipeline route along Base Line Road. Reconnaissance surveys of Routes K and L were conducted on January 13th, 2009 by

Madeleine van der Heyden and Okorie Puryear of TRC Solutions, and archaeologists Eric Wohlgemuth and Laura Brink of Far Western Anthropological Research Group, on behalf of PG&E. The survey methods consisted of walking the routes of the proposed alternatives. More detailed surveys to delineate wetlands and other waters were undertaken on January 20th and 21st, 2008 by Madeleine van der Heyden and Michael Farmer of TRC Solutions. The surveyors focused on raptor habitat, trees that could be used by raptors for nesting; sensitive species and/or evidence of their presence; wetlands and vernal pools; residences and other structures; and land usage. Potential nesting trees and other potential resources were marked on maps (see Attachment A) and photographs were taken of each of the route alternative locations in order to give a representative visual of the settings (see Attachment B). The school site buffer maps for ES3 and Sierra Vista School are provided in Attachment C.

2 ROUTE DESCRIPTIONS

The following narratives describe the general setting of each alternative to avoid the HS1 buffer zone. See Table 1 below for a summary of key resource issues for each route alternative discussed. Resource locations are plotted on maps in Attachment A.

Table 1: Summary of Key Resources for Line 407 Alternatives

Resource	Route Alternatives	
	Route K	Route L
Wetlands/water bodies crossed (Assuming 100-foot ROW on centerline)	5	5[1]
Residences within 1000 feet	4	5[1]
Residences within 500 feet	2	4[1]
Potential nesting trees within 500 feet	11	13[1]
Vernal pools within 250 feet	2[2]	3[1,2]

[1]Assumes pipeline would be along the east side of Country Acres Lane for the first 900 feet and cross to the west side beyond the developed property, thereby avoiding most seasonal wetlands and swales.
[2]Vernal pools located across Base Line Road have been excluded because harmful effects from runoff associated with project activities are unlikely.

2.1 ROUTES K AND L

Routes K and L deviate off of Base Line Road by routing further to the north away from the proposed school site. They differ primarily in how far north they would go before turning east to west. As shown in Map 1 of Attachment A, Routes K and L share similar alignments (although of different lengths) along Country Acres Lane and S. Brewer Road. From the eastern terminus at the corner of Country Acres Lane and Base Line Road, the pipeline would travel north along Country Acres Lane. A residence and partially developed property is located on the west side of Country Acres Lane near Base Line Road, so the pipeline would be routed through pasture / fallow agricultural fields along the east side of the road.

From the western terminus at the corner of S. Brewer Road and Base Line Road, there are also developed residential properties east of S. Brewer Road near Base Line Road; consequently, the pipeline would be routed through annual grasslands along the west side of S. Brewer Road. Further north on S. Brewer Road are scattered wetlands along both sides. Vernal pools are present west of S. Brewer Road.

2.1.1 Route K

From Country Acres Lane, Route K would turn west through rice fields and actively farmed land, crossing Steelhead Creek and two seasonal wetlands before reaching S. Brewer Road.

2.1.2 Route L

From Country Acres Lane, Route L would turn west through the same rice fields as Route K, but further to the north. A residence is located north of the route near this turning point. The route would continue west for approximately 0.5 mile before turning north for approximately 0.1 mile and then turning west again staying along the rice field edge for approximately 0.25 mile. The route would then continue for an additional approximately 0.25 mile through active agricultural land before reaching S. Brewer Road. A residence is located just north of the route at this location and seasonal wetlands are present in the field to the south.

3 COMPARISON OF IMPACTS OF ROUTE ALTERNATIVES

The following analysis describes the potential impacts resulting from each route alternative to various resources included in the California Environmental Quality Act (CEQA) checklist. Each resource is evaluated with respect to each route alternative individually. If the impacts on the resource are similar for all of the alternatives then they are presented as such. In addition, if impacts related to the alternative are of a similar nature to those already discussed in the 2007 PEA then that document is referenced as a source for the analysis.

3.1 AESTHETICS

None of the route alternatives would have appreciably different impacts on aesthetics from those that were outlined in the 2007 PEA.

3.2 AGRICULTURAL RESOURCES

The following is a discussion of the significance criteria, their method of evaluation and analysis of impacts for Routes K and Route L.

3.2.1 Significance Criteria

According to Section 15002(g) of the California Environmental Quality Act (CEQA) Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in the Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Standards of significance were derived from Appendix G of the CEQA Guidelines. Impacts to agricultural resources are considered significant if the project:

- converts substantial amounts of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use;

- substantially conflicts with existing zoning for agricultural use, or a Williamson Act contract; or

- involves other changes in the existing environment, which, due to their location or nature, could result in substantial conversion of Farmland to non-agricultural use.

3.2.2 Potential Impacts

3.2.2.1 Construction

As there would be no aboveground structures associated with this section of the pipeline, the project area would be returned to its previous uses after construction in accordance with all pre-arranged landowner requirements, and there would be no conversion of farmland to non-agricultural use.

3.2.2.1.1 Temporary Impacts

Where the routes traverse agricultural lands, the pipeline would be constructed at a sufficient depth that the land use conversion would only be temporary. The top of the pipeline would need to be deeper than any potential discing or deep-ripping activities that could subsequently occur over the pipeline right-of-way (ROW). Therefore, PG&E would install the pipeline with at least 5 feet of cover in agricultural lands. PG&E would remove, stockpile, and replace topsoil on all affected agricultural land as needed during excavation for re-use over the pipeline, which would allow any prior existing agricultural land use to continue after the pipeline is constructed.

Within the agriculture areas, the maximum impacts would occur to the crops in the construction ROW and to those fields that are flood-irrigated and bisected by the ROW. Impacts may include temporary loss of farmable land, and potentially a partial loss of crop if the fields have already been planted. In flood-irrigated fields that are bisected by the ROW, impacts may include a loss of the portion of the field downstream of the ROW and potentially a loss of that entire side of the crop if the fields have already been planted. The remainder of the crop would not be affected and could be harvested. Row crops would temporarily be precluded for one month within the ROW. Farmers would be compensated for any loss of crop, so no significant impacts would result.

Direct impacts to crop-related land uses would primarily be temporary. There would be no permanent conversion of agricultural lands; as such the potential impact to Important Farmlands from these routes is negligible.

3.2.2.1.2 Permanent Impacts

The route alternatives would not conflict with existing zoning for agriculture or parcels under the Williamson Act contract. Additionally, as all disturbed areas would be returned to pre-existing conditions, permanent impacts would be less than significant.

3.2.2.2 Operation and Maintenance

Permanent restrictions on agricultural land use within the 50-foot-wide permanent pipeline easement are necessary for the safe operation of the pipeline. Easement documents may restrict development within the easement area and also stipulate that the landowners may not diminish or substantially add to the cover over the pipe. However, the minimum 5 feet of cover over the pipeline in agricultural areas would preclude impacts to the plowing, ripping, or minor field-leveling practices of existing agricultural uses. Major field-leveling, such as the conversion of contour rice fields to leveled fields, could adversely affect the necessary cover over the pipe, increasing the possibility for agricultural contact with the pipe, and leading to pipeline damage and potential failure. To minimize this possibility, PG&E regularly patrols the pipelines to monitor land uses and activities such as grading that may affect the safe operation of the pipeline.

3.3 AIR QUALITY

None of the route alternatives would result in appreciably different impacts on air quality from those impacts outlined in the 2007 PEA.

3.4 BIOLOGICAL RESOURCES

Each of the route alternatives would have varying levels of potential impact on biological resources. Biological resources are similar to those previously described in the 2007 PEA, and no additional species or habitats were identified. A complete description of vegetation communities, habitats, and sensitive species is included in the 2007 PEA. See Attachment A for maps depicting the location of biological resources near each route alternative. The following discussion outlines the significance criteria used to evaluate the impacts related to each route alternative followed by a discussion of the potential impacts.

3.4.1 Significance Criteria

According to Section 15002(g) of the California Environmental Quality Act (CEQA) Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in the Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Standards of significance were derived from Appendix G of the CEQA Guidelines. Impacts to biological resources are considered significant if the project:

- causes a substantial adverse effect on designated species either directly or through substantial habitat modifications;
- substantially diminishes the amount or habitat value of riparian habitat or other state- or federally recognized sensitive natural communities through physical modification to such areas;
- directly removes, fills, or causes hydrologic interruption to wetlands such that wetland area functions and/or values are substantially reduced or diminished;
- interferes substantially with the movement of native resident or migratory fish and wildlife species, or with established migration corridors through the removal, obstruction, or physical modification of corridors so as to substantially diminish use;
- substantially obstructs access or diminishes the quantity or quality of native nursery habitat;
- substantially conflicts with applicable local policies or ordinances protecting biological resources; or
- hinders the implementation of an applicable Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved applicable habitat conservation plan.

3.4.2 Potential Impacts

3.4.2.1 Construction

3.4.2.1.1 Temporary Impacts

Construction of Routes K and L would require temporary disturbance to an approximate 100-foot-wide ROW. In certain areas, the ROW would need to be narrowed to avoid impacts to habitats and special-status species. Potential temporary construction impacts may result in loss of foraging and/or nesting habitat, disturbance of nesting sites, habitat fragmentation, and direct mortality. However, with the exception of direct mortality, these impacts would be temporary in nature as the ROW would be restored following construction. Temporary impacts resulting from construction would be reduced to less than significant levels by the implementation of the mitigation measures outlined in the 2007 PEA.

3.4.2.1.1.1 Habitat Types

Agricultural Lands

A large portion of the routes run through agricultural lands. Construction of Route K or L would directly impact approximately 18.5 or 16 acres of active agricultural lands, respectively, that may be utilized by numerous special-status species including rice fields that may represent habitat for giant garter snake, although there have been no confirmed sightings of a giant garter snake in this area. PG&E would implement the mitigation measures outlined in previously prepared CEQA document to minimize potential temporary construction impacts to agricultural habitat. Because the pipeline would be buried upon completion of construction and the ROW will be restored to its pre-construction uses, and due to the large amount of surrounding agricultural lands, impacts to agricultural lands would be less than significant.

Annual Grasslands

Grassland habitat exists on the western side of S. Brewer Road. Construction of Route K or L will directly impact approximately 5 or 7 acres of grassland habitat, respectively. PG&E will implement the mitigation measures outlined in the previously prepared CEQA document to minimize potential temporary construction impacts to annual grassland habitat. Because the pipeline will be buried upon completion of construction and the ROW will be restored to its preconstruction grade and reseeded as necessary, temporary impacts to annual grasslands would be less than significant.

Canal/Freshwater Emergent Wetland

Routes K and L would require crossing of several drainages and other waters. Crossings could be bored or trenched. Those features which cannot be bored would be trenched and restored to preconstruction conditions. As such it is expected that impacts to canals/freshwater emergent wetlands would be less than significant.

Seasonal Wetlands, Swales, and Vernal Pools

Seasonal wetlands and swales in the project area, including vernal pools, could be impacted by vegetation removal and/or grading and trenching activities. There are several seasonal wetland features located along these routes (refer to Table 1). In addition, several lengths of the routes as currently depicted are within 250 feet of a delineated vernal pool. However, PG&E would avoid

vernal pools and other seasonal wetlands during construction to the maximum extent feasible by narrowing the ROW, adjusting the route, or drilling under these features. Given the large diameter of the pipeline, HDD may not be feasible for all features. PG&E would avoid wetlands to the maximum extent practicable and would implement compensatory mitigation as necessary. Impacts to seasonal wetlands resulting from construction of the project would be mitigated based on the proper mitigation ratios developed in coordination with the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Services, and mitigation would likely include a combination of restoration of impacted wetlands and creation of new wetlands. With implementation of the planned mitigation, impacts to seasonal wetlands would be less than significant.

3.4.2.1.1.2 Special-Status Species

No occurrences of rare plant species were found in the survey of Routes K and L or in CNDDB records. Thus, no impacts to special-status plant species would be anticipated as a result from construction.

While there were no special status species observed during the most recent field visit, the impacts associated with construction of the alternatives would be similar to those for the rest of the project. As such, direct mortality of special-status wildlife species could occur during construction as a result of increased vehicular and foot traffic, use of heavy construction equipment, excavation, and other project activities. In addition, a limited amount of wildlife habitat would be temporarily lost due to excavation of the trench.

<u>Vernal Pool Invertebrates</u>
Vernal pool fairy shrimp (*Branchinecta lynchi*) and California fairy shrimp (*Linderiella occidentalis*) have the potential to occur in vernal pools found in the study area.

<u>Fish</u>
Central Valley steelhead (*Oncorhynchus mykiss*) and Central Valley fall- and late-fall-run Chinook salmon (*Oncorhynchus tshawytscha*) may occur in Steelhead Creek during times of suitable flows. Steelhead Creek would be crossed by Routes K and L. Suitable flows and/or habitat were not observed in Steelhead Creek during fisheries surveys conducted in 2007 or during the 2008 reconnaissance surveys, and thus the creek was determined to be highly unlikely to support these species in the project area during the dry months when construction would be scheduled. Suitable spawning or juvenile rearing habitat was likewise not observed in the upper reaches of Steelhead Creek.

<u>Giant Garter Snake</u>
Giant garter snake (*Thamnophis gigas*) has the potential to occur in rice fields crossed by Routes K and L. Giant garter snake have low potential to occur in the area as there are no records for this species east of the Natomas East Main Drainage Canal.

<u>Swainson's Hawk</u>
Nesting activity of Swainson's hawks and other raptors could be disrupted by construction noise and activities. Several large trees that are suitable for nesting are present within a half mile of

Routes K and L. Eleven and thirteen potential nesting trees are within 500 feet of Routes K and L respectively.

3.4.2.1.2 Permanent Impacts

There would not be permanent impacts to biological resources as a result of construction activities associated with Routes K and L.

3.4.2.2 Operation and Maintenance

Operation and maintenance would not have significant impacts to sensitive habitats or special-status species. There would be no aboveground facilities associated with Routes K and L, and any maintenance impacts would be temporary in nature.

3.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

This chapter addresses the existing cultural and paleontological resources in the vicinity of the project, and analyzes potential impacts to known and undocumented resources from construction and operation of the project. Complete cultural and paleontological resource surveys and reports were prepared in 2007 for Line 406 and Line 407 and summarized in the *PG&E Line 406 and 407 Pipeline Project Preliminary Environmental Assessment*, referred to below as the 2007 PEA.

Construction activities will comply with all applicable federal, state, and local regulatory requirements. Mitigation measures are recommended, where applicable. With implementation of the recommended mitigation measures, impacts to cultural and paleontological resources as a result of construction and operation of the project will be less than significant.

3.5.1 Cultural Resources

Far Western Anthropological Research Group conducted the cultural resources study for the school site pipeline alternatives as an addendum to the Line 407 study.

3.5.1.1 Methodology

The methods used for the cultural study included archival records searches, Native American consultations, field inventory, and preparation of a technical report.

3.5.1.1.1 Records Search

The records search was carried out at the North Central Information Center (California State University, Sacramento) of the California Historical Resources Information System (CHRIS), an adjunct of the State Office of Historic Preservation. The records search took place in January 2009, and included a review of the following documents:

- site records and reports of previous studies in or adjacent to the project area
- *California Inventory of Historical Resources* (Department of Parks and Recreation 1976)
- California Office of Historic Preservation's *Five Views: An Ethnic Historic Site Survey for California* (Department of Parks and Recreation 1988)

- *California Historical Landmarks* (Department of Parks and Recreation) through August, 2005
- *California Points of Historical Interest* (Department of Parks and Recreation 1992)
- *Historic Properties Directory Listing by City* (Department of Parks and Recreation 2003)
- Directory *of* Properties in the Historical Property Data File, Archaeological Determinations of Eligibility, *National Register of Historic Places - Listed Properties and Determined Eligible Properties*
- *California Register of Historical Resources.*
- Historic-era 7.5- and 15-minute U.S. Geological Survey (USGS) quadrangles and General Land Office (GLO) plat maps.

3.5.1.1.2 Native American Consultation

In July of 2006, a letter was sent for the Line 407 project to the Native American Heritage Commission (Commission), requesting a review of their Sacred Lands Inventory and a list of local Native American groups and individuals with particular ties to the project area. Letters and project maps were sent in January 2009 to five groups or individuals listed by the Commission for Placer County; and follow-up phone calls were made to all interested parties. No written responses were received; however one individual responded by telephone and was sent a copy of the technical report addendum at her request.

3.5.1.1.3 Field Inventory

The field work took place in January 2009. The survey was conducted by trained archaeologists meeting the Secretary of the Interior's standards. Any previously documented cultural resources within or immediately adjacent to the APE were re-visited during the surveys, to confirm their locations and present status.

3.5.1.2 Existing Conditions

The preliminary field records search, Native American consultation, and field survey provided the following information on the existing conditions for cultural resources in the project area as of January 2009. For detailed discussions of the prehistoric, ethnographic, and historic-period contexts of the area; and specifics of the Native American consultations, see the public versions of the cultural resources technical reports prepared for the Line 407 study.

3.5.1.2.1 Regional Setting

The 2007 PEA fully describes the regional prehistoric, ethnographic, and historic-era setting for project cultural resources.

3.5.1.2.2 Known or Potential Cultural Resources

The records search for this portion of the project area identified six documented or potential cultural resources, of which five lie within or immediately adjacent to the survey area. One of the five cultural resources (the location of the nineteenth-century Eagle Hotel) is known only from old General Land Office plats.

Survey of the school alternative routes confirmed the location of the five cultural resources identified by the records search in the project area, four of which were identified during field inventory of Line 407. Resources include a small bridge, an historic structure, two rural roads, and the presumed location of the Eagle Hotel. Below each is briefly described.

Site P-31-002683: This is a bridge over a small creek on Brewer Road. It was built in 1935. It was determined ineligible to the National Register (and hence the California Register) in a review of historic bridges in California (Caltrans 2008). It could be affected by project alternative Route L, but no further management is necessary.

Site P-31-002684: This is a historic-period structure that was recorded in 2002 by JRP Historical Consulting. It is an irregularly shaped Minimal Traditional house with a composition shingle roof, wooden board-and-batten walls with a brick skirt, and an attached garage. It has been recently modified, as evidenced by sliding aluminum windows and aluminum garage doors. The house was built just after World War II. It was recommended ineligible to the National and California Registers by historical archaeologist Mary Maniery. It could be affected by project alternative Routes K or L, but no further management is necessary.

Site P-31-003306 (Brewer Road): Brewer Road is a single-lane paved surface patched and maintained for current use. It runs north-south along the western edge of the project area. It has not been evaluated for the California Register. It could be affected by project alternative Routes K or L.

Site P-31-003308 (Country Acres Road): Country Acres Road is also a single-lane paved surface patched and maintained for current use. It runs north-south along the eastern edge of the project area. It has not been evaluated for the California Register. It could be affected by project alternative Routes K or L.

Site P-31-003309 (The Eagle Hotel): The Eagle Hotel and an adjacent barn are depicted on General Land Office plats from the 1850s. There are no references in either Sacramento or Sutter County history to an Eagle Hotel in this area. No trace of the hotel architecture or artifacts dating to this period could be found on the surface during the Far Western survey. Surface finds did include concrete rubble piles, a refuse pile dating to the 1950s-1970s, a concrete slab with a metal pipe, and planted fruit and shade trees. The only surface feature which may be associated with the Eagle Hotel is an eight-foot-wide, one-foot-deep depression, where recent concrete block fragments have been dumped. With the possible exception of the planted trees, all other artifacts and landscape features appear to date to the early to mid-twentieth century. It is quite possible, however, that subsurface features associated with the hotel (cellar, privies, dumps, wells, etc.) are present on the property. It has not been evaluated for the California Register. It could be affected by project alternative Routes K or L.

3.5.1.2.3 Other Potential Resources

Project area soils are old and shallow and have no potential for buried Native American archaeological sites not visible from the surface. Historic-era buried resources could exist in the

study area, however. Structures in use in the 1800s or early 1900s often had privies, trash dumps, or wells to the rear of the buildings that subsequently were filled in or buried. Such features often contribute to National Register- or California Register-eligibility. Within the survey area the most sensitive location is at P-31-003309, the site of the former Eagle Hotel as noted above.

3.5.1.2.4 Traditional Cultural Properties/Areas of Native American Concern

To date, no Traditional Cultural Properties or specific areas of Native American concern have been identified within the project area. However, consultations with the Commission and the local Native American community continue, and it is possible that traditional cultural properties or other areas of special concern will be identified. If so, they will need to be included in the impacts assessment and mitigation recommendations.

3.5.2 Paleontological Resources

Two paleontologically sensitive geologic units were identified in the 2007 PEA as the late Pleistocene Modesto and Riverbank Formations, which underlie a thin veneer of soils and Holocene alluvium in the flat central portion of California's Central Valley within the Line 407 project area. These same geological features underlie each of the route alternatives. None of the route alternatives would have impacts related to paleontological resources appreciably different from those outlined in the 2007 PEA.

3.5.3 Significance Criteria

The regulatory framework and methodology for determining impacts to cultural resources associated with the project include compliance with the requirements of the CEQA, as defined in Section 15064.5 of the CEQA Guidelines. CEQA calls for the identification of cultural resources that could be affected by the project, the evaluation of the significance or importance of such resources, an assessment of project impacts to significant or important resources, and the development of a treatment plan to avoid or address adverse effects to significant resources. The criteria for determining potential impacts to cultural resources associated with the project were developed from the CEQA Initial Study Checklist.

Under CEQA, effects to significant resources associated with the project must be considered. According to CEQA, a resource is unique or important if it:

- is associated with an event or person of recognized importance in California or American history or scientific importance in prehistory;
- can provide useful information of demonstrable public interest and is useful in addressing scientifically consequential and reasonable archaeological research questions;
- has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;
- is at least 100 years old and possesses substantial stratigraphic integrity; and/or
- involves important research questions that historical research has shown can only be answered with archaeological methods.

Construction related subsurface and surface disturbances could result in a loss of integrity of cultural deposits, a loss of scientific information, and the alteration of archaeological site setting. Potential indirect impacts, primarily vandalism, can result from increased access and use of the general area during construction and long-term maintenance and operational activities. There is also the potential for the inadvertent discovery of buried or masked archaeological materials during construction activities.

Impacts to cultural resources are considered significant if the project:

- causes a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines;
- causes a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines; and/or
- disturbs any human remains, including those interred outside of formal cemeteries.

"Substantial adverse change" means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired. Section 21084.1 stipulates that any resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR) is presumed to be historically or culturally significant. Section 21084.1 of the CEQA Guidelines requires treatment of any substantial adverse change in the significance of an historical resource listed in, or eligible to be listed in, the CRHR as a significant effect on the environment.

For the proposed project, a cultural resource impact would be considered significant if it:

- would cause damage to, disrupt, or adversely affect an important archaeological resource such that its integrity could be compromised or eligibility for future listing on the NRHP/CRHP diminished; or,
- would cause damage to or diminish the significance of an important historic resource such that its integrity could be compromised or eligibility for future listing on the NRHP/CRHP diminished (see CEQA Guidelines/36 CFR Part 800).

3.5.4 Potential Impacts

3.5.4.1 Construction

Routes K and L all similarly deviate off of Base Line Road by routing further to the north away from the proposed school site, and thus similarly impact documented and potential cultural and paleontological resources. Temporary and permanent impacts associated with construction along alternative Routes K and L could cause destruction, damage, alteration, or neglect to Sites P-31-002684 (historic structure), P-31-003306 (Brewer Road), P-31-003308 (Country Acres Road), and P-31-003309 (the Eagle Hotel). Route L could also cause damage to Site P-31-002683 (small bridge). These impacts would be reduced to less than significant levels with implementation of the mitigation measures listed in section 3.5.6 of this report.

Project ground-disturbing activities associated with construction of alternative Routes K and L could affect geologic units underlying the project area, some of which have elevated sensitivity for paleontological resources. Additionally, project construction could directly or indirectly destroy unique paleontological resources, sites, or unique geological features. Potential impacts from construction would be reduced to less-than-significant through mitigation.

3.5.4.2 Operation and Maintenance

Provided that all operation and maintenance are limited to the current project area of impacts (and mitigation), they will not create additional impacts to cultural or paleontological resources. As a result, impacts from operation and maintenance of the pipeline will be less-than-significant.

3.5.5 Mitigation Measures

3.5.5.1 Cultural Resources

Impacts to significant or potentially significant cultural resources as a result of project construction and/or operations and maintenance will be reduced to a less-than-significant level with the adoption of the following mitigation measures.

Mitigation Measure 3.5-1: All significant/eligible resources in the project Area of Potential Effect (APE) will be protected from project impacts. Where impacts cannot be avoided, a Finding of Effect (FOE) will be prepared for each significant/eligible resource. Where the FOE identifies an adverse impact to a significant/eligible resource, the impact(s) will be mitigated through data recovery excavations, archival research, or other means, as appropriate.

Mitigation Measure 3.5-2: The unevaluated rural roads in the project APE will be evaluated for their National Register or California Register eligibility through archival research or other means, as appropriate. Resources determined through evaluation to be ineligible will be dropped from further management; those determined eligible will be subject to Mitigation Measure 3.5-1.

Mitigation Measure 3.5-3: The reported location of the historic Eagle Hotel, identified as sensitive for buried archaeological remains, will be tested prior to construction by backhoe trenching. All trenching will be supervised by a qualified professional historical archaeologist, who will evaluate the site's eligibility to the National Register or California Register.

3.6 GEOLOGY

None of the route alternatives related to geology would have appreciably different impacts from those impacts outlined in the 2007 PEA.

3.7 HAZARDS AND HAZARDOUS MATERIALS

The Environmental Data Resources (EDR) report developed for the previously proposed alignment of Line 407 was consulted and found to be applicable to the current study region. None of the route alternatives would have impacts related to hazards and hazardous materials appreciably different from those outlined in the 2007 PEA.

3.8 HYDROLOGY

See Attachment A for maps depicting the location of water and wetland features in the vicinity of each of the alternative routes. Table 2 shows 303(d) waters in vicinity of the route alternatives.

Table 2: 303(d) Waters Within the Project Area

303(d)-listed Water	Pollutant	Potential Sources	Miles Affected
Steelhead Creek (Upstream of Arcade Creek)	Polychlorinated biphenyls	Industrial point sources, agriculture, urban runoff/storm sewers	12

3.8.1 Significance Criteria

According to Section 15002(g) of the California Environmental Quality Act (CEQA) Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in the Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Standards of significance were derived from Appendix G of the CEQA Guidelines. Impacts to hydrological resources are considered significant if the project:

- violates any water quality standards or waste discharge requirements;
- substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increases the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- creates or contributes runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provides substantial additional sources of polluted runoff;
- otherwise substantially degrades water quality;

- places housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map;
- places within a 100-year flood hazard area structures that would impede or redirect flood flows;
- exposes people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- causes inundation by seiche, tsunami, or mudflow.

3.8.2 Potential Impacts

3.8.2.1 Construction

3.8.2.1.1 Temporary Impacts

Routes K and L would require waterbody crossing over at least one part of Steelhead Creek, a 303(d) designated waterbody. While Steelhead Creek is not 303(d) listed for over-sedimentation, sediment loading can affect the streambed elevation and light penetration and, therefore, indirectly affect temperature and dissolved oxygen. Construction associated with crossing the creek could cause additional impacts on an already stressed ecosystem. In addition each of the routes, as currently planned, would cross or pass within 100 feet of several wetlands (refer to Table 2). As such there is a potential for impacts to surface water quality related to construction along these routes. Implementation of standard Best Management Practices during construction would reduce these impacts to less than significant levels, and restoration of the route to preconstruction conditions would ensure that drainage patterns are not substantially altered.

3.8.2.1.2 Permanent Impacts

There would be no permanent impacts related to hydrology and water quality as a result of construction along Routes K or L since each of the routes would be restored to preconstruction condition following construction.

3.8.2.2 Operations and Maintenance

Operation and maintenance would not have significant impacts to hydrological resources. There would be no aboveground facilities associated with Routes K or L, and any maintenance impacts would be temporary in nature.

3.9 LAND USE

The previous impact analysis performed in the 2007 PEA regarding land use found that the project would have less than significant impacts. According to the significance criteria laid out in the CEQA checklist and the review of applicable regulations performed in the 2007 PEA these route alternatives would have similar less than significant impacts on current land usage.

However, there is the potential for future land usage to be limited by the construction of the pipeline. As discussed in the Agricultural Resources section of the 2007 PEA, and in Section 3.1: Agricultural Resources, above, all agricultural land, with the exception of orchards, overlying the pipeline alignment will be returned to preconstruction conditions and the preconstruction land use can continue with some restrictions. Whereas the current alignment was placed along the north side of Base Line Road in order to avoid future conflicts with land use, moving the pipeline further north increases the risk that future land uses could be restricted in the vicinity of the pipeline. Due to restrictions regarding grading and other changes to the land surface and usage, it is possible that future development of theses parcels would be impacted by installation of the pipeline along Routes K or L.

3.10 NOISE

Impacts related to noise will vary among the route alternatives being considered. These differences are attributable to the difference in noise profile of a directional drilling operation in contrast to construction noise generated during open trench construction methods and the number of residences that would be in close proximity to the noise sources present during pipeline construction. See Attachment A for maps depicting the location of residences in the vicinity of the route alternatives. The following analysis presents relevant regulations relating to noise and evaluates potential impacts for each of the route alternatives based on these regulations.

3.10.1 Placer County

Placer County has published a general plan that includes a noise element. The following standards, summarized in Table 3, are applicable to operational noise associated with new projects and include non-transportation noise sources.

The Placer County Municipal Code (Chapter 9 Public Peace, Safety, and Welfare) has an article that pertains to noise (Article 9.36). In this article, sensitive noise receptors are defined as “land uses in which there is a reasonable degree of sensitivity to noise. Such uses include single-family and multi-family residential uses, frequently used outbuildings, schools, hospitals, churches, rest homes, cemeteries, public libraries, and other sensitive uses as determined by the enforcement officer.” The sound-level standards for operational noise for sensitive receptors are summarized in Table 4.

Noise from construction activities is considered exempt from Article 9.36 provided the noise occurs between the hours of 6 a.m. and 8 p.m. Monday though Friday and between the hours of 8 a.m. and 8 p.m. on Saturday and Sunday. For this exemption to be valid, all construction equipment must be fitted with a factory-installed muffling device and maintained in good working order.

The Placer County Municipal Code prohibits any person at any location from creating sound, or allowing the creation of any sound, on property owned, leased, occupied, or otherwise controlled by such person that:

- causes the exterior sound level when measured on the property line of any affected sensitive receptor to exceed the ambient sound level by 5 dBA; or
- exceeds the sound-level standards as set forth in Table 4, whichever is greater.

Placer County allows exceptions for the provisions of this article and the notice of that request for exception must be given to all the properties that would be affected by the exception. Factors considered for construction-related exceptions include but are not limited to the following:

- conformance with the intent of Article 9.36;
- uses of the property and existence of sensitive receptors within the area affected by sound;
- factors related to initiating and completing all remedial work;
- the time of the day or night the exception will occur;
- the duration of the exception; and
- the general public interest, welfare, and safety.

Table 3: Allowable L_{dn} Noise Levels within Specified Zone District[1]—Placer County

Zone District of Receptor	Property Line of Receiving Use	Interior Spaces[2]
Residential Adjacent to Industrial[3]	60	45
Other Residential[4]	50	45
Farm	(see footnote 1)	—
Agricultural Exclusive	(see footnote 1)	—

[1] Normally, agricultural uses are noise insensitive and will be treated this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within agricultural zone districts. Therefore, where effects of agricultural noise upon residences located in these agricultural zones are a concern, a Day-Night Average Level of 70 A-weighted decibels will be considered acceptable outdoor exposure at a residence.

[2] Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.

[3] In recognition of the fact that noise mitigation from industrial operations may be difficult or costly, the exterior noise standards for residential zone districts immediately adjacent to industry-related zone districts have been increased by 10 decibels as compared to residential districts adjacent to other land uses.

[4] Where a residential zone district is located within an –SP combining district, the exterior noise-level standards are applied at the outer boundary of the –SP district. If an existing industrial operation within an -0SP district is expanded or modified, the noise-levels standards at the outer boundary of the –SP district may be increased.

Table 4: On-site Sound Level Standards For Sensitive Receptors—Placer County

Sound-Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Equivalent Energy Noise Level	55	45
Maximum level, decibels	70	65

3.10.2 Significance Criteria

According to Section 15002(g) of the California Environmental Quality Act (CEQA) Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in the Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Standards of significance were derived from Appendix G of the CEQA Guidelines. Impacts noise are considered significant if the project:

- expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or
- for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

3.10.3 Potential Impacts

Potential impacts resulting from Routes K and L will be discussed together as they share significant portions of their routes and subsequently impacts would be very similar.

3.10.3.1 Construction

Refer to the 2007 PEA for a list of potential equipment required and their associated noise ratings.

Considered together each of the routes would pass within less than 500 feet of at least two residences (refer to Table 1 for total number of residences within 500 feet of each alternative). While construction related noise is accepted under Placer County regulations during daylight hours, any overnight or around the clock construction requires approval of affected landowners. Additionally, there are at least two active pastures located along Route K that could be adversely affected by construction noise altering cattle behavior and health.

3.10.3.2 Operations and Maintenance

There would be no impacts associated with the long term operation and maintenance of this pipeline. There would be no aboveground structures or other potential noise generators and no vibration as a result of pipeline operation.

3.11 POPULATION AND HOUSING

None of the route alternatives would have impacts on population and housing appreciably different from the impacts outlined in the 2007 PEA.

3.12 TRANSPORTATION AND TRAFFIC

None of the route alternatives would have impacts to transportation and traffic appreciably different from the impacts outlined in the 2007 PEA.

3.13 UTILITIES AND SERVICE SYSTEMS

None of the route alternatives would have impacts on utilities and service systems appreciably different from the impacts outlined in the 2007 PEA.

3.14 CUMULATIVE IMPACTS

None of the route alternatives will create cumulative impacts in the region. The project is being undertaken in order to meet projected demand in the region due to increased development in the Sacramento region. The pipeline's construction would not precipitate any additional projects nor would it be occurring at the same time as any other construction project that could potentially create significant impacts. Reference the 2007 PEA for additional analysis of cumulative impacts related to the pipeline construction.

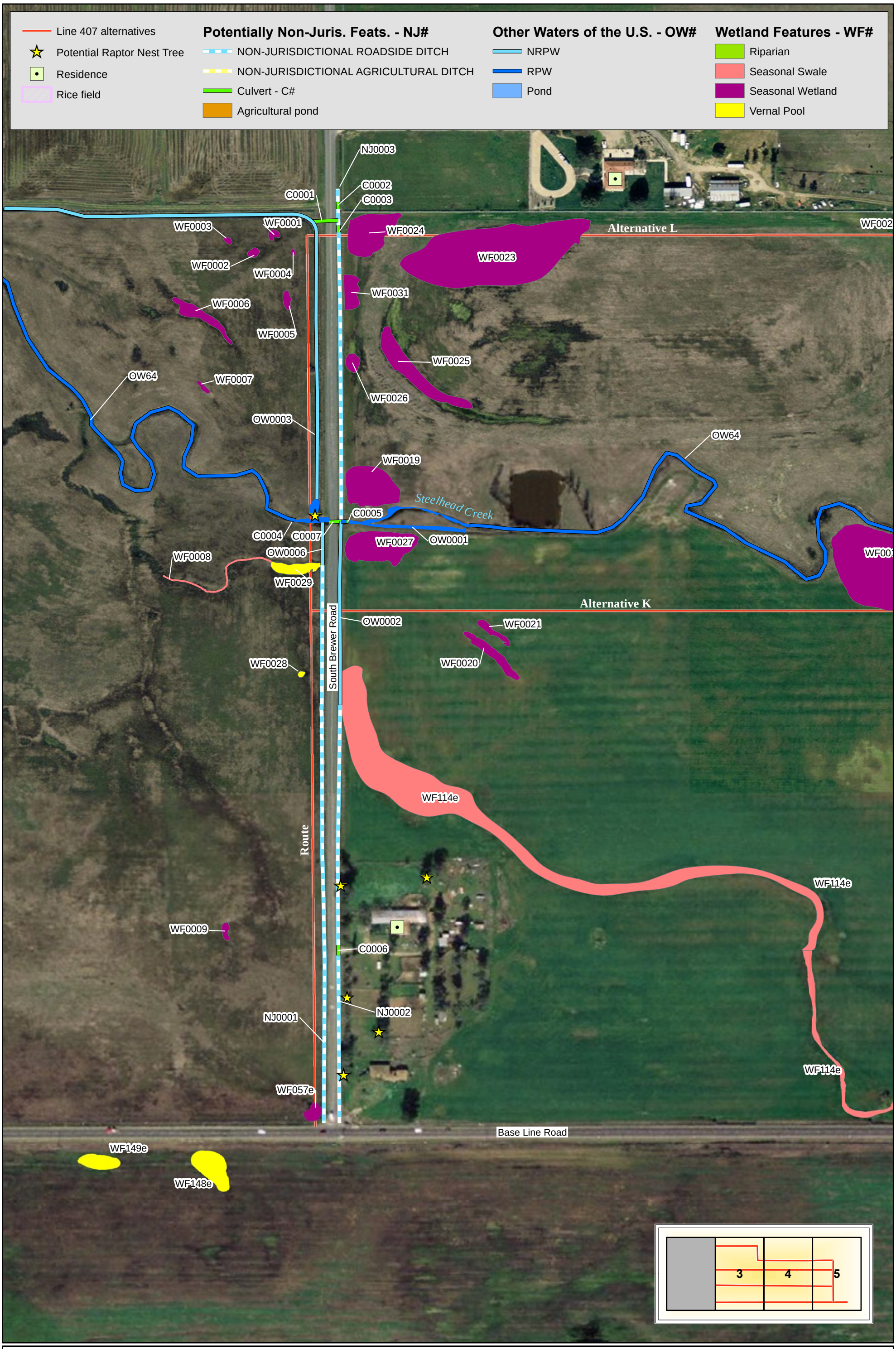
Attachment A: Alternative Route Maps

PG&E Line 407 Route Alternatives

Survey area derived from PG&E
School locations from MacKay and Somps
Aerial: 6/15/2006 Map Date: 2/4/2009.

0 200 400 600 800 1,000 Feet

Attachment A: Map 1 of 5



All features to remain preliminary until written verification from the USACE.
Survey area derived from PG&E
Surveyors: Madeleine van der Heyden, Mike Farmer
Aerial: 6/15/2006 Map Date: 2/4/2009

0 200 400 600 800 1,000 Feet

TRC

PG&E Line 407 Route Alternatives

Attachment A: Map 2 of 5

All features to remain preliminary until written verification from the USACE.
Survey area derived from PG&E
Surveyors: Madeleine van der Heyden, Mike Farmer
Aerial: 6/15/2006 Map Date: 2/4/2009

0 200 400 600 800 1,000 Feet

TRC

PG&E Line 407 Route Alternatives

Attachment A: Map 3 of 5

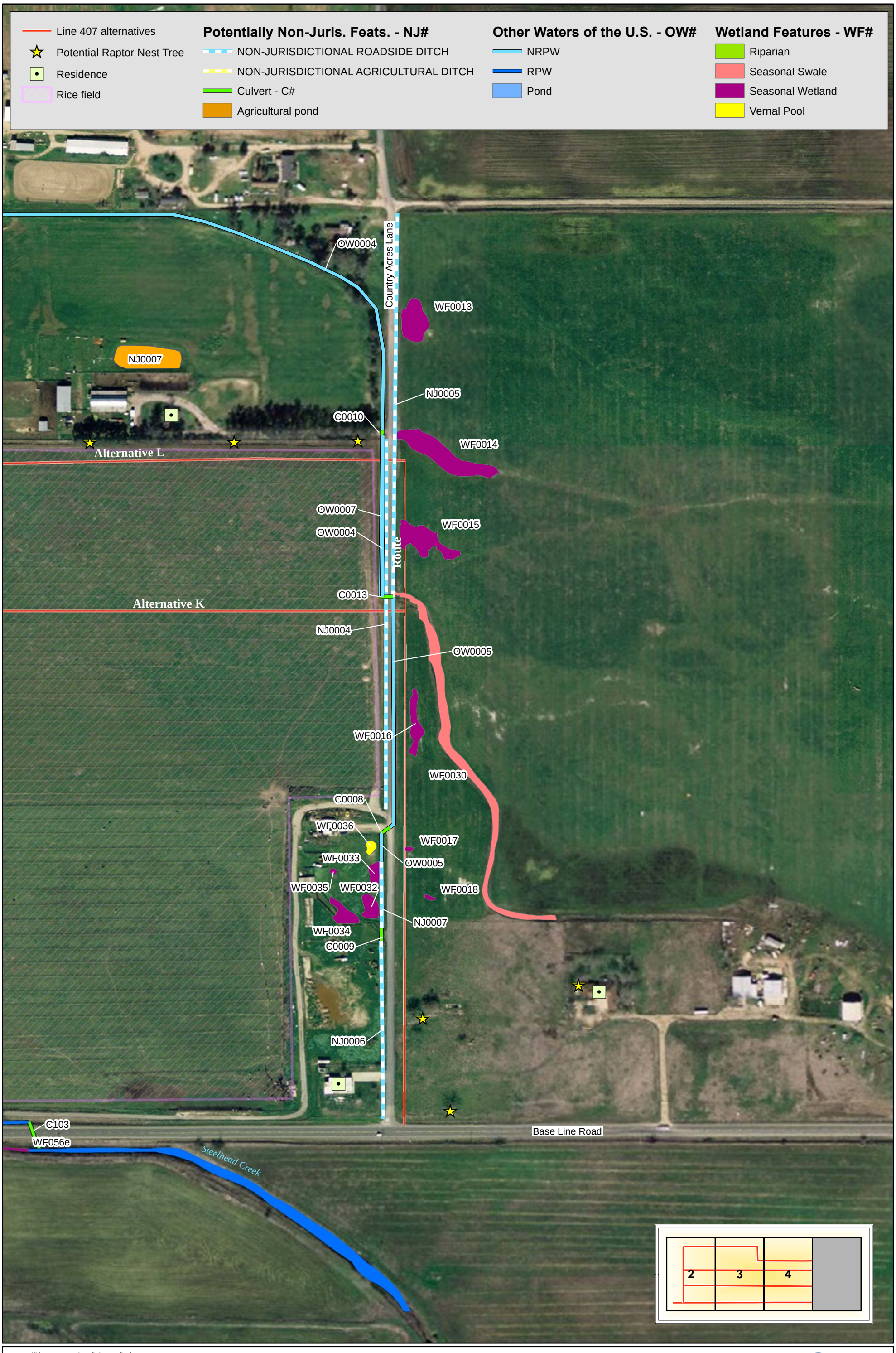
All features to remain preliminary until written verification from the USACE.
Survey area derived from PG&E
Surveyors: Madeleine van der Heyden, Mike Farmer
Aerial: 6/15/2006 Map Date: 2/4/2009

0 200 400 600 800 1,000 Feet

TRC

PG&E Line 407 Route Alternatives

Attachment A: Map 4 of 5



All features to remain preliminary until written verification from the USACE.
Survey area derived from PG&E
Surveyors: Madeleine van der Heyden, Mike Farmer
Aerial: 6/15/2006 Map Date: 2/4/2009

0 200 400 600 800 1,000 Feet

TRC

PG&E Line 407 Route Alternatives

Attachment A: Map 5 of 5

Attachment B: Photo Exhibit

Shared alignment along west side of S. Brewer Road 0.5 mile north of Base Line Road, facing east.

Shared alignment along west side of S. Brewer Road 0.4 mile north of Base Line Road, facing northwest.

Vernal pool west of S. Brewer Road 0.25 mile north of Base Line Road, facing west.

Shared alignment along west side of S. Brewer Road 0.5 mile north of Base Line Road, facing southeast.

Shared alignment along west side of S. Brewer Road 0.3 mile north of Base Line Road near Route K intersection, facing east.

Shared alignment along west side of S. Brewer Road north of Base Line Road, facing north.

Route K directly east of S. Brewer Road, facing east.

Tree with hawk nest north of Route K, 0.25 mile east of S. Brewer Road, facing north.

Drainage crossing Route K, 0.25 mile east of S. Brewer Road, facing south.

Route K 0.25 mile east of S. Brewer Road, facing north.

North side of Route L survey area, 0.3 mile west of Country Acres Lane, facing east.

North side of Route L survey area, 0.3 mile west of Country Acres Lane, facing west.

North of Route L survey area, 0.5 mile east of S. Brewer Road, facing southwest.

North of Route L survey area, 0.5 mile east of S. Brewer Road, facing west.

Route L survey area, 0.35 mile of east of S. Brewer Rd., facing east.

North of Route L survey area, 400 feet west of Country Acres Lane south of trees, facing east.

North of Route L survey area, 400 feet of west of Country Acres Lane south of trees, facing west.

Shared alignment along east side of Country Acres Lane, 0.3 mile north of Base Line Road, facing east.

Roadside ditch east of the shared alignment along west side of Country Acres Lane 0.3 mile north of Base Line Road, facing west.

Drainage east of and crossing the shared alignment on the east side of Country Acres Lane, 0.3 mile north of Base Line Road, facing southeast.

Shared alignment along east side of Country Acres Lane 0.3 mile north of Base Line Road, facing southwest.

Drainage crossing the shared alignment along east side of Country Acres Lane 0.2 mile north of Base Line Road, facing north.

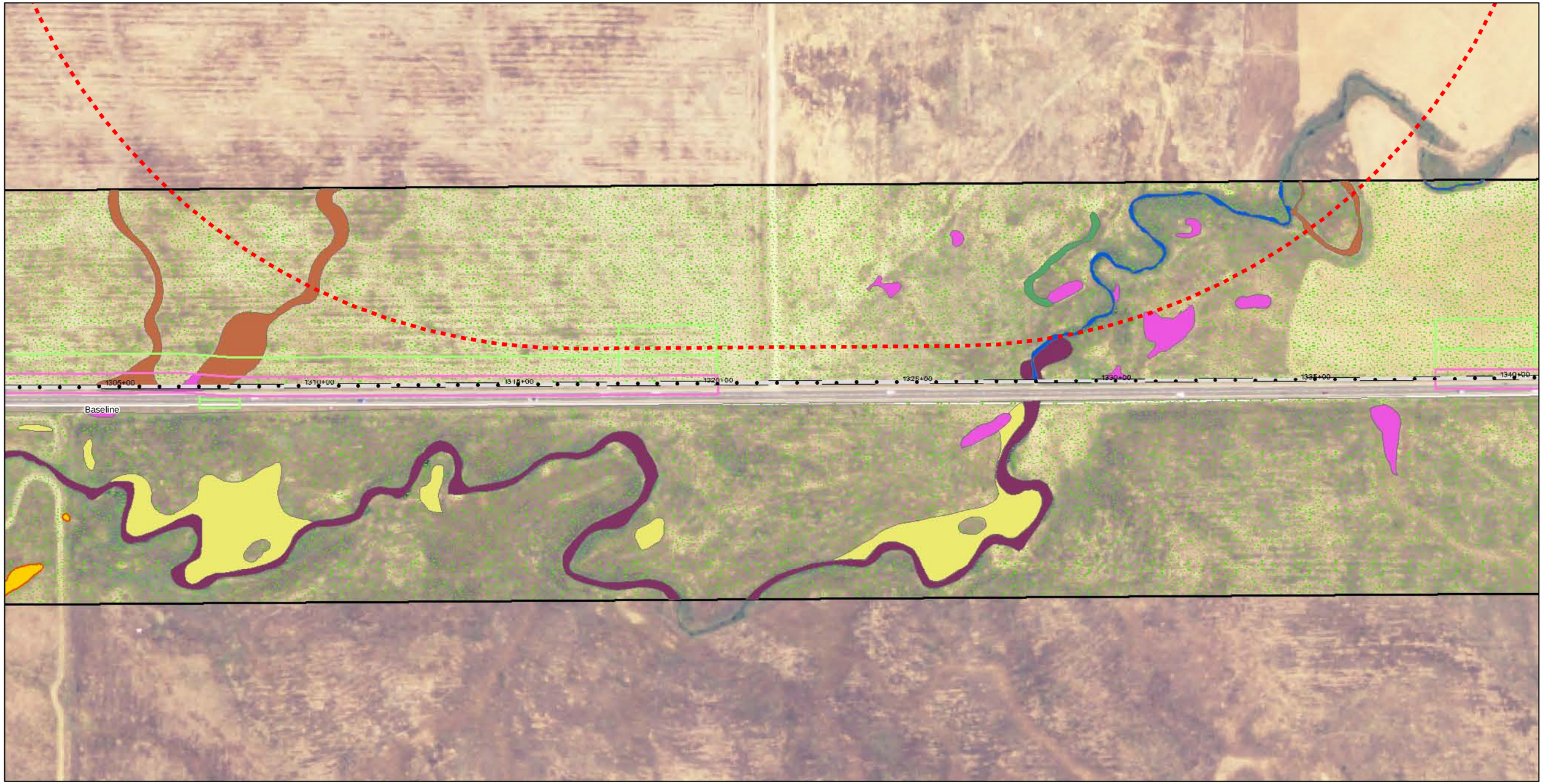
Shared alignment along east side of Country Acres Lane, 0.12 mile north of Base Line Road, facing north.

Shared alignment along east side of Country Acres Lane and north of Base Line Road, facing north.

Route K and L with two options for the shared alignment along the east and west side of Country Acres Lane and 0.35 mile north of Base Line Road, facing south.

Shared alignment along west side of Country Acres Lane and Route K near vernal pool and seasonal wetlands, facing southwest.

Attachment C: School Site Buffer Maps



PG&E Line 407 -
Sierra Vista School Site

1:2,800
0 300 Feet

TRC

- Stations
- Centerline
- Permanent Easement
- Temporary Workspace
- Survey Boundary
- Natomas Basin
- school buffer 1500ft

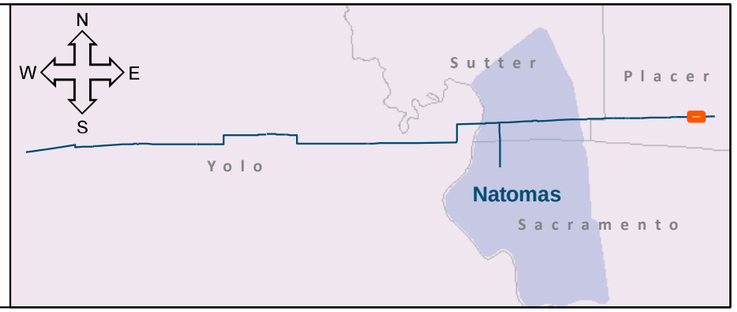
source: school locations - Mackay & Somps

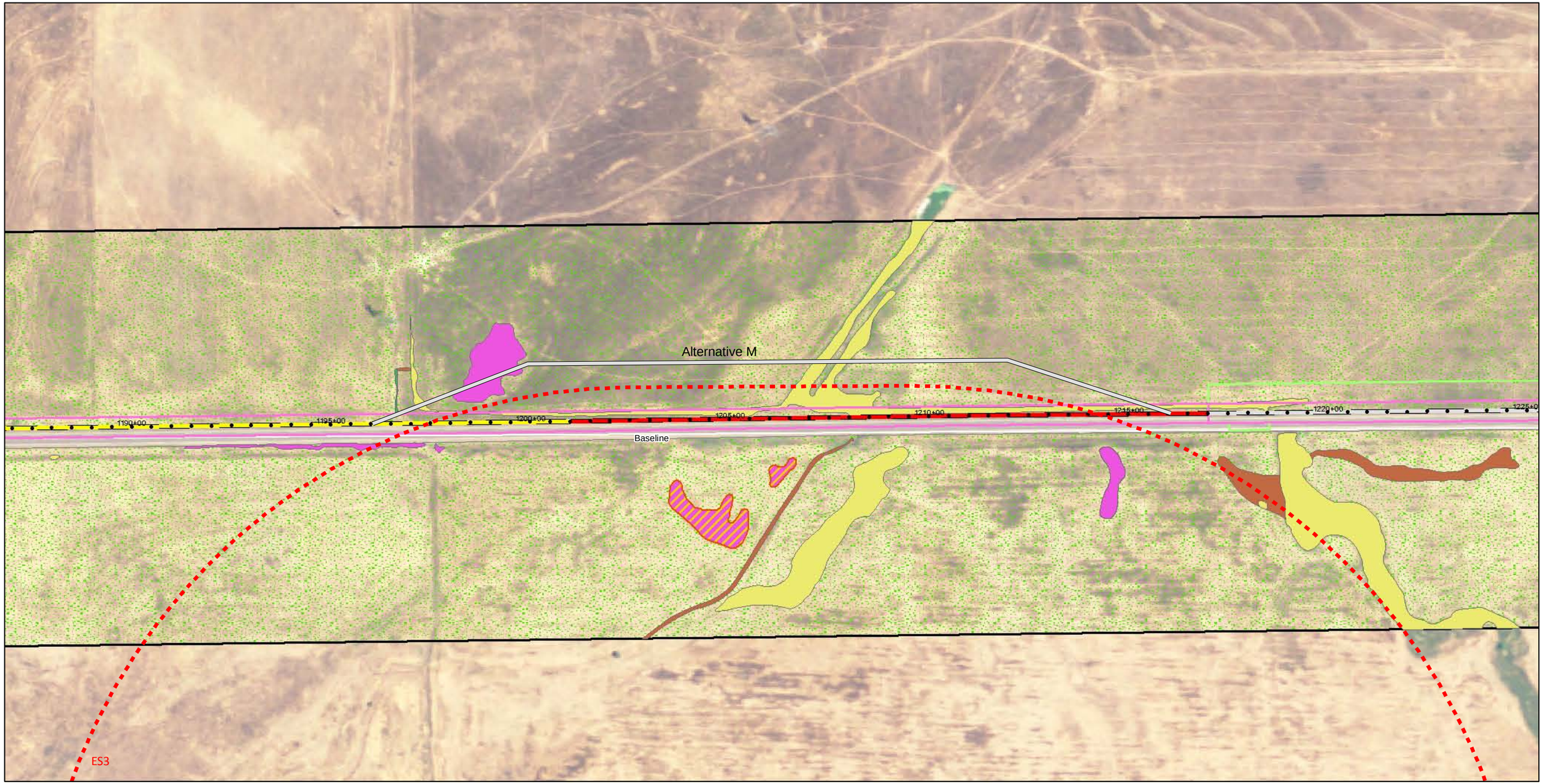
Habitat

- VELB
- VELB 20' buffer
- VELB 100' buffer
- Annual Grassland
- Oak Woodlands
- Yellow-Billed Cuckoo
- GGS Upland
- GGS Aquatic
- CTS Upland
- L. occidentalis
- L. occidentalis & B. lynchi

Wetland & Water Features

- Fresh Emergent
- Riparian
- Seasonal Swale
- Seasonal Wetland
- Vernal Pool
- Vernal Swale
- Other Waters





PG&E Line 407 Pipeline - ES3 School Site

1:2,800

0 300 Feet

TRC

- Stations
- Centerline
- Original HDD
- Extended HDD
- Permanent Easement
- Temporary Workspace
- Survey Boundary
- school buffer, 1500ft

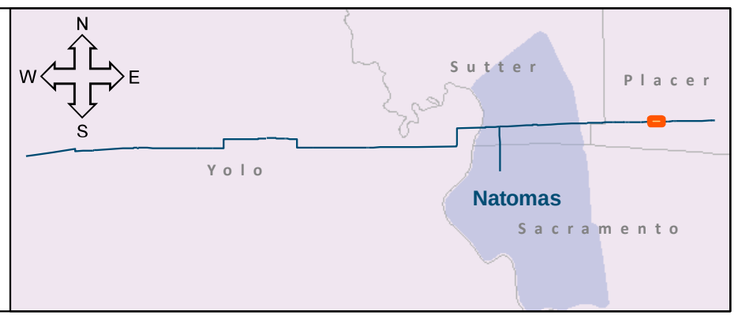
source: school locations - Mackay & Somps

Habitat

- VELB
- VELB 20' buffer
- VELB 100' buffer
- Annual Grassland
- Oak Woodlands
- Yellow-Billed Cuckoo
- GGS Upland
- GGS Aquatic
- CTS Upland
- L. occidentalis
- L. occidentalis & B. lynchi

Wetland & Water Features

- Fresh Emergent
- Riparian
- Seasonal Swale
- Seasonal Wetland
- Vernal Pool
- Vernal Swale
- Other Waters



C-2: Memorandum Regarding Line 407 Alternative Route M

TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Main 650.726.8320
Fax 650.712.1190

Memorandum

To: Chris Ellis
PG&E
From: Mark Cassady
Project Manager
Subject: Line 407 Alternative Route M
Date: 2/12/09
CC:

Project No.: 122078

PG&E recently submitted a report to the State Lands Commission detailing the potential impacts of route alternatives being considered in order to bring the proposed Line 406/407 pipeline construction project in line with existing regulations regarding buffers for proposed schools. Route alternatives K and L were located outside of the original study area and required additional field work and analysis of impacts associated with their construction. Alternative Route M is a minor deviation from the proposed route and, therefore, would have similar effects.

Alternative Route M is within 150 feet of the proposed pipeline route along Base Line Road and is within the study area conducted for the previous field surveys and research described in the 2007 Preliminary Environmental Assessment (PEA). Based on our review of the previous analysis, potential impacts to aesthetics, agricultural resources, air quality, cultural resources, geology, hazards and hazardous materials, hydrology, land use, noise, population and housing, transportation and traffic, and utilities and service systems as a result of pipeline construction along Alternative Route M would not change. There are no important cultural resources along the route, and there is no potential for buried sites. Potential impacts to biological resources as a result of construction along Alternative Route M would be different due to bisection of a vernal pool, which offers potential habitat for vernal pool fairy shrimp (*Branchinecta lynchi*) and California fairy shrimp (*Linderiella occidentalis*). While this vernal pool is within 250 ft of the original alignment, it was not physically crossed and was up-gradient. There would be direct impacts to this vernal pool as a result of construction. However, PG&E would incorporate the same mitigation measures outlined in the 2007 PEA regarding vernal pools to ensure that the vernal pool would be avoided, or PG&E will obtain mitigation credits to compensate for the impacts.

Please contact me if you need any additional information.

Appendix D: Air Quality Data

D-1: Emissions Calculation Methodology

Air Pollutant Emissions Methodology and Calculations

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SECTION 1: INTRODUCTION

1.1 - Analysis Tools

This analysis used the following tools that perform project-level air quality assessments. These tools included:

- The California Air Resources Board (ARB) EMFAC2007 model emission rates for on-road mobile sources
- The ARB OFFROAD2007 model emission rates for off-road mobile sources
- The ARB-Approved URBEMIS2007 v.9.2.4 land use model for construction employee-trip, on-road hauling, grading, and earth-disturbing PM_{10} emissions, as well as operational employee-trip emissions.

The above models and their assumptions are described in subsequent sections of this appendix.

1.2 - Considerations

Construction emission can vary substantially from day to day, depending on the level of activity, the specific type of activity, and the prevailing weather conditions. The methodology developed for the purposes of quantitative air quality analysis was based on information available at the time of analysis; actual equipment and activity intensity at the time of construction may vary from that analyzed in this document. However, a methodology must be developed to provide CEQA-appropriate emissions analysis.

There were two main considerations for development of the methodology for this air quality analysis. The first consideration was the linear nature of the Project's construction. Each pipeline's construction results in the following:

- Many construction activities will be occurring concurrently, as multiple crews move down the pipeline completing their respective tasks in assembly-line fashion; and,
- Non-concurrent completion of Horizontal Directional Drilling (HDD) and Jack and Bore crossings, as construction crews will address these crossings in a sequential fashion.

The second consideration was the regional air pollutant thresholds recommended by the four air districts. Although differing in quantity, all four air district's regional thresholds are in units of a pounds per day (lbs/day) – not in total tons per year. Therefore, the analysis includes emissions estimates from all phases of the project's construction, and determines the maximum daily emissions that may occur.

1.3 - Applicant Proposed Measures/Regulatory Compliance

Implementation of Applicant Proposed Measures (APMs) and compliance with required regulations are included in the emissions analysis as the 'unmitigated' Project emissions. The measures that are incorporated into the Project that reduce air quality impacts are discussed below:

APM AQ-1. PG&E will compile a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment having 50 horsepower or greater that will be used an aggregate of 40 or more hours for construction and apply the following mitigation measure: The contractor shall provide a plan demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road equipment to be used in the construction project will achieve a project-wide fleet-average 20 percent NOX reduction and 45 percent particulate reduction compared to the most recent ARB fleet average at time of construction.

APM AQ-2. PG&E will ensure that construction equipment exhaust emissions will not exceed Visible Emission limitations (40 percent opacity or Ringelmann 2.0). Operators of vehicles and equipment found to exceed opacity limits will take action to repair the equipment within 72 hours or remove the equipment from service. Failure to comply may result in a Notice of Violation.

APM AQ-3. PG&E will prepare and implement a fugitive dust mitigation plan.

APM AQ-4. The primary contractor will be responsible to ensure that all construction equipment is properly tuned and maintained.

APM AQ-5. PG&E will minimize equipment and vehicle idling time to five minutes.

APM AQ-6. PG&E will ensure that an operational water truck will be on-site at all times, and will apply water to control dust three times daily, or as needed, to prevent dust impacts off-site.

APM AQ-7. PG&E will utilize existing power sources (e.g., available electric power) or clean fuel generators, rather than temporary power generators.

APM AQ-8. PG&E will develop a traffic plan to minimize traffic flow interference from construction activities, as appropriate.

APM AQ-9. PG&E will not allow open burning of removed vegetation.

APM AQ-10. PG&E will ensure that all portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor

vehicles, comply with ARB Portable Equipment Registration with the State or a local district permit.

APM AQ-11. Contractors will limit operation on "spare the air" days within each County.

1.3.1 - Impact of Measures on Potential Emissions.

Off-road vehicle exhaust emissions will be reduced through implementation of APM AQ-1, APM AQ-2, APM AQ-4, APM AQ-5, APM AQ-7 and APM AQ-10.

Fugitive dust emissions will be reduced through implementation of APM AQ-3 and APM AQ-6.

Measure APM AQ-8 reduces potential idling emissions resulting from traffic impacts on nearby roadways.

Measure APM AQ-9 eliminates burning vegetation as a potential emissions source.

Measure APM AQ-11 reduces the Project's contribution to ambient air pollution on Spare the Air days – days where ozone concentrations are categorized as 'unhealthy' or worse on the Air Quality Index during the ozone season of May through October.

1.3.2 - Inclusion of Measures in Analysis

Of the measures discussed above, only two have readily quantifiable emissions reductions. The emissions reductions from APM AQ-1 are quantifiable, and were applied as an off-model calculation. Implementation of APM AQ-6 is included in the emissions analysis as an unmitigated control measure in the URBEMIS model. When reviewing the URBEMIS printouts in the appendixes, please note that the URBEMIS output identifies any measure that reduces emissions as "mitigation" regardless if the measure fulfills a requirement or is considered mitigation by CEQA standards.

SECTION 2: CONSTRUCTION METHODOLOGY

2.1 - Base Information

The main construction activities that generate air pollutant emissions are identified in Table 1. The methodology for each construction activity is addressed in the following subsections. Table 2 contains the estimated construction timeline for each pipeline route. Construction of Line 406 is estimated to take 7 months. Line 407W, 407E and the DFM are each expected to be constructed within 6 months.

Table 1: Construction Activities

Activity	Air Pollutant Sources
Grading	Equipment Exhaust, Dust Generation
Trenching	Equipment Exhaust, Dust Generation
Horizontal Directional Drilling (HDD)	Equipment Exhaust, Dust Generation
Jack and Bore	Equipment Exhaust, Dust Generation
Soil Hauling	Vehicle Exhaust, Entrained Road Dust, Dust from soils transport
Pipe Hauling	Vehicle Exhaust, Entrained Road Dust
Construction Employee Trips	Vehicle Exhaust, Entrained Road Dust
Soil Decompaction	Vehicle Exhaust, Dust Generation

Table 2: Construction Timeline by Pipeline and Air District.

Air District	Pipe Segment	Construction Timeline
YSAQMD	406	September/October 2009 – February 2010
	407W (p)	May 2012 - Sept 2012
FRAQMD	407 W (p)	May 2012 - Sept 2012
	DFM (p)	May 2010 - Sept 2010
	407E (p)	May 2010 - Sept 2010
PCAPCD	407E (p)	May 2010 - Sept 2010
SMAQMD	DFM (p)	May 2010 - Sept 2010

PG&E provided the estimated fleet mix for the three main construction activities for the pipeline: Trenching, HDD and Jack and Bore. Because of the equipment naming convention in URBEMIS, assumptions were made regarding the type of equipment to be modeled as compared to the equipment list provided by PG&E.

The URBEMIS program was used to estimate dust generation, employee trips and exhaust emissions from a water truck, consistent with APM AQ-6. In addition, the soil hauling trips and pipe hauling trips, as discussed below, were incorporated in the URBEMIS run for each pipeline.

2.1.1 - Grading

Per information provided by PG&E, the majority of the Right of Way (ROW) is suitable for construction without grading. However, approximately 30.6 acres of the Dunnigan Hills area (Line 406 in YSAQMD) will require grading. Grading emissions were estimated using URBEMIS v9.2.4 default grading assumptions for 30.6 acres to be disturbed, with one fourth of the total acreage the maximum acreage that may be disturbed on any one day.

2.1.2 - Trenching

Equipment Exhaust Emissions

The estimated construction fleet for trenching was provided by PG&E. Off-road vehicle emission calculated using the EMFAC2007 emission factors, as presented in URBEMIS v9.2.4 for the year of construction activities, the construction equipment mix, and the estimated hours of equipment use day of trenching. URBEMIS contains exhaust emission factors in discrete horsepower ranges for each type of equipment. Therefore, the analysis used emission factors for the closest horsepower range for each piece of equipment. The trenching equipment mix analyzed is listed in Table 3 below. It was assumed that all 18-day crews would operate concurrently.

Table 3: Trenching Equipment

URBEMIS Equivalent	Quantity	Peak Hours/Day	Horsepower	Horsepower Range*
Environmental, Fence & Pothole Crew (60 Days)				
Pump	1	9	325	250
Off-Highway Truck	1	9	230	250
Grade Crew (18 Days)				
Crawler Tractor	3	8	265	250
Tractors/Loaders/Backhoes	1	8	250	250
Grader	1	8	295	250
Ditch Crew (18 Days)				
Tractors/Loaders/Backhoes	5	8	250	250
Trencher	1	8	200	250
Stringing Crew (18 days)				
Tractors/Loaders/Backhoes	1	8	250	250
Other Material Handling Equipment	1	8	310	250
Other Material Handling Equipment	4	8	425	500
Crawler Tractor	1	8	265	250

URBEMIS Equivalent	Quantity	Peak Hours/Day	Horsepower	Horsepower Range*
Bending Crew (18 days)				
Other Material Handling Equipment	2	8	310	250
Other Material Handling Equipment	1	8	110	120
Pipe Gang (Bead Welders) (18 days)				
Other Material Handling Equipment	1	8	310	250
Crawler Tractor	1	8	225	250
Other Material Handling Equipment	1	8	250	250
Off-Highway Truck	1	8	250	250
Welder	8	8	15	15
Joint Coating Crew (18 days)				
Other Material Handling Equipment	1	8	310	250
Air Compressor	1	8	8	15
Lower-In Crew (18 days)				
Other Material Handling Equipment	3	8	310	250
Tractors/Loaders/Backhoes	1	8	250	250
Rubber Tired Dozer	1	8	265	250
Tractors/Loaders/Backhoes	1	8	250	250
Tie-In Crew (30 days)				
Other Material Handling Equipment	3	9	310	250
Tractors/Loaders/Backhoes	1	9	250	250
Rubber Tired Dozer	1	9	265	250
Hydro-Testing Crew (39 days)				
Air Compressor	2	9	10	15
Other Material Handling Equipment	1	9	310	250
Pumps	2	9	8	15
Pumps	1	9	8	15
Clean Up Crew (24 days)				
Rubber Tired Dozer	3	9	265	250
Tractors/Loaders/Backhoes	2	9	250	250
Grader	1	9	300	250
Tractors/Loaders/Backhoes	1	9	150	175
Off-Highway Truck	1	9	350	500

Notes:
* The emission factor for this horsepower range was used.

Dust Generation, Water Truck, Employee Trips, Soil Hauling

As stated above, there will be little grading required for construction of the pipelines, excepting for a portion of the Dunnigan Hills, which is included However, the excavation, stockpiling, and replacement of soils will generate fugitive PM_{10} and $PM_{2.5}$ emissions.

Based on typical area of disturbance, 0.25 acre is assumed that the maximum acreage to be disturbed on any one day. As detailed in the project description of the DEIR, trenches will typically be 8 to 9 feet deep and 4 feet wide. It is reasonable to assume that the approximately 600 cubic yards could be moved on-site on any one day.

2.1.3 - HDD

Equipment Exhaust Emissions

The estimated construction fleet for HDD operations was provided by PG&E. Off-road vehicle emission calculated using the OFFROAD2007 emission factors, the construction equipment mix, and the hours of equipment use per day. The size of the light plants discussed in the project description was used to estimate the diesel generator horsepower. Two 15 horsepower generator are sufficient to generate the required 8,000-watt capacity (2 light stations at 4,000 watts each). The equipment mix used for the HDD emissions estimate is provided in Table 4.

Table 4: HDD Equipment

URBEMIS Equivalent	Quantity	Hours/Day	Horsepower	Horsepower Range*
Bore/Drill Rig	1	10	625	750
Bore/Drill Rig	1	10	400	500
Excavator	1	10	198	250
Off-Highway Truck	1	10	300	250
Crane	1	10	262	250
Generator	2	10	15	15
Other Material Handling Equipment	3	10	310	250

Notes:
* The emission factor for this horsepower range was used.

Dust Generation

The amount of soil excavated per HDD is approximately 446 cubic yards, based on the average HDD length, two sumps and a 42 inch ream. It was assumed that 0.25 acres would be the maximum acreage of disturbance on any one day. The URBEMIS program was used to estimate dust generation, employee trips, and an exhaust emissions from a water truck, consistent with APM AQ-6.

2.1.4 - Jack and Bore

Equipment Exhaust Emissions

The estimated construction fleet for jack and bore construction was provided by PG&E. Off-road vehicle emission calculated using the OFFROAD2007 emission factors, the construction equipment mix, and the hours of equipment use per day of construction.

Table 5: Jack and Bore Equipment

Equipment	Quantity	Hours/Day	Horsepower	Horsepower Range*
Bore/Drill Rig	1	10	120	120
Excavator	1	10	198	250
Other Material Handling Equipment	1	10	310	250
Notes: * The emission factor for this horsepower range was used.				

Dust Generation

Approximately 120 cubic yards will be removed and backfilled per bore. Each bore will take approximately 2 days to complete. It was assumed that 0.25 acres would be the maximum acreage of disturbance on any one day. The URBEMIS program was used to estimate dust generation, employee trips and exhaust emissions from a water truck, consistent with APM AQ-6.

2.1.5 - Soil Hauling

The total number of soil hauling trips per line was provided by PG&E, as well as the average length of trips and number of trips per day. A 'trip' is considered the one-way travel between the origin and the destination ends. A 'round trip' accounts for the trip out from the origin end to the destination end, and then back again to the origin.

The average number of soil hauling trips per day and average length of trips is provided in Table 6, as well as the inputs into the URBEMIS model. The roundtrip length and the number of round trips per day are used to calculate the vehicle miles traveled (VMT). The emissions resulting from soil hauling was generated using the URBEMIS model. The soil-hauling component of URBEMIS is dependant on the volume of soil export and import. Therefore, the volume of soil export and import in the modeling output does not necessarily reflect the actual amount of soil that will be exported.

Table 6: Soil Hauling Trips

Line	Provided by PG&E			URBEMIS Input		
	Total Trips	Average Trip Length*	Number of Trips per Day	Round Trip Length*	Round Trips per Day	Daily VMT
L-406	89	10	2	20	1	20
L-407 E	200	10	5	20	2.5	50

Line	Provided by PG&E			URBEMIS Input		
	Total Trips	Average Trip Length*	Number of Trips per Day	Round Trip Length*	Round Trips per Day	Daily VMT
DFM	45	10	1	20	0.5	10
L-407 W	372	10	5	20	2.5	50
* Miles						

2.1.6 - Pipe Hauling

The total number of pipe hauling trips per line was provided by PG&E, as well as the average length of trips and number of trips per day. The average number trips per day and average length of trips is provided in Table 7. The emissions resulting from pipe hauling was generated using the URBEMIS model. The soil-hauling component of URBEMIS was used to estimate the on-road emissions resulting from pipe hauling. As with soil hauling, the volume of soils export was entered into the model in order to modify the number of round trips per day to reflect the information in Table 6.

Table 7: Pipe Hauling Trips

Line	Provided by PG&E			URBEMIS Input		
	Total Trips	Average Trip Length*	Number of Trips per Day	Round Trip Length*	Round Trips per Day	Daily VMT
L-406	256	30	9	60	4.5	270
L-407 E	254	52	10	104	5	520
DFM	14	52	3	104	1.5	156
L-407 W	307	20	10	40	5	200
Notes: * Miles						

2.1.7 - Construction Employee Trips

As described in the DEIR, there may be between 90 and 130 construction employees working during construction of the pipelines. Construction employee trip emissions were generated using the URBEMIS program. The URBEMIS output incorporates the construction employee trips into the emissions analysis. Therefore, construction employee trips are not specified as a line item in this analysis.

2.1.8 - Paving Emissions

Per information provided by PG&E, approximately 0.14 acre of paving will be replaces as a result of open cut road crossings. The expected paving activities include:

- 5 crossings on L-406

- 11 crossings on L-407 E

Each paving operation will consist of approximately 0.0875 acre of pavement replacement, or approximately 380 square feet of paving per crossing.

2.1.9 - Soils Decompaction

PG&E estimates that it will take approximately 2 hours per acres to decompact soils at the construction sites. Assuming an 8 hour workday, approximately 4 acres may be decompacted in any one day. However, it was assumed that soils decompaction would occur following all other emissions generating activities. An emissions estimate for soils decompaction was not generated, as the equipment activity is far less than during other construction activities and the significance analysis is based on a worst-case day input, as the threshold is a daily rate.

SECTION 3: OPERATIONAL METHODOLOGY

Based on the Project description in the EIR, the Project will likely have up to thirteen inspections/testings per year. PG&E estimates a that maintenance and operational activity will result in approximately 39 round trips per year, at 150 miles traveled per round trip. For the purposes of analyzing the maximum daily operational emissions associated with the Project, it was assumed that trips would be made in a 'Light-Heavy Truck' (8,501 – 10,000 lbs). In addition, it was assumed that operational emissions would begin in 2010.

SECTION 4: EMISSIONS CALCULATIONS

4.1 - Maximum Daily Construction Emissions

Emissions were generated for the main construction activities associated with the Project. Based on the emissions output, the worst-day scenario for each line was developed. The emissions output for Line 406, Line 407-E, Line 407-W, and the DFM are provided below in Table 8, Table 9, Table 10, and Table 11, respectively. Not all construction activity will be occurring concurrently. Of the activities for each pipeline, the Trenching-18 Day Crew, Trenching-Remaining, and Pipe Hauling may occur at the same time. Therefore, the maximum daily emissions would be the summation of Trenching – 18 Day Crew, Trenching – Remaining, and Pipe Hauling emissions.

Construction of Line 406 is expected to begin in 2009 and end in early 2010. The worst-day scenario is applicable to activities occurring in 2009 and 2010. However, because emission factors for on-road and off-road equipment are higher in 2009 than 2010, emissions for construction of Line 406 were only estimated for the 2009 model year. Air pollutant emissions resulting from Line 406 construction activities in 2010 would not be greater than the 2009 modeling estimates.

Table 8: Daily Construction Emissions for Line 406 (2009)

Construction Activity	Pollutant (lbs/day)				
	NO_X	ROG	CO	PM_{10}	$PM_{2.5}$
Grading – Dunnigan Hills	35.73	4.47	19.71	61.60	14.23
Trenching – Environmental Crew	29.52	2.56	7.40	0.96	—
Trenching – 18 Day Crews	357.82	35.14	101.28	13.43	—
Trenching – Tie-In Crew	16.71	6.15	16.71	2.31	—
Trenching – Hydro Test Crew	4.91	1.72	4.91	0.66	—
Trenching – Clean Up Crew	25.68	9.01	25.68	3.43	—
Trenching – Remaining*	6.31	0.63	2.05	66.50	14.05
Pipe Hauling	9.18	0.71	3.74	0.45	0.39
HDD - Off-Road Emissions	121.13	11.04	33.45	4.22	—
HDD - URBEMIS Output**	5.63	0.58	1.77	49.71	10.52
Paving	12.69	2.16	9.22	1.10	1.01
Jack and Bore - Off-Road Emissions	31.24	3.16	11.29	1.39	—
Jack and Bore - URBEMIS Output**	5.63	0.58	1.77	14.22	3.12
Maximum Daily Emissions	373.31	36.48	107.07	80.38	14.44
YSAQMD Threshold	82	82	NA	150	NA
Exceed Significance Threshold?	Yes	No	No	No	No

Construction Activity	Pollutant (lbs/day)				
	NO_X	ROG	CO	PM_{10}	$PM_{2.5}$

Notes:
* Employee Trips, Water Truck Emissions, Fugitive Dust Emissions, Soil Hauling
** Employee Trips, Water Truck Emissions, Fugitive Dust
Calculated Off-Road Emissions did not differentiate $PM_{2.5}$ emissions.
The maximum daily emissions refer to the maximum emissions that would occur in one day; it was assumed that the activities do not occur at the same time; therefore, the maximum emissions are not a straight summation of all emissions.

Table 9: Daily Construction Emissions for Line 407-E (2010)

Construction Activity	Pollutant (lbs/day)				
	NO_X	ROG	CO	PM_{10}	$PM_{2.5}$
Trenching – Environmental Crew	27.90	2.40	6.98	0.89	—
Trenching – 18 Day Crews	338.03	33.37	95.60	12.62	—
Trenching – Tie-In Crew	60.41	5.84	15.83	2.16	—
Trenching – Hydro Test Crew	15.65	1.63	4.69	0.62	—
Trenching – Clean Up Crew	82.12	8.61	24.45	3.24	—
Trenching – URBEMIS Output*	6.70	0.64	2.16	66.51	14.06
Pipe Hauling	15.13	0.99	5.10	0.65	0.56
HDD - Off-Road Emissions	114.79	10.61	32.45	4.02	
HDD - URBEMIS Output**	5.24	0.54	1.67	49.69	10.51
Paving	20.16	2.75	11.56	67.61	15.07
Jack and Bore - Off-Road Emissions	29.16	2.90	10.91	1.26	—
Jack and Bore - URBEMIS Output**	5.24	0.54	1.67	14.22	3.10
Maximum Daily Emissions	359.86	35.00	102.86	79.78	14.62
FRAQMD Threshold	25.00	25.00	NA	80.00	NA
Exceed Significance Threshold?	**Yes**	**Yes**	No	No	No
PCAPCD Threshold	82.00	82.00	550.00	82.00	NA
Exceed Significance Threshold?	**Yes**	No	No	No	No

Notes:
* Employee Trips, Water Truck Emissions, Fugitive Dust Emissions, Soil Hauling
** Employee Trips, Water Truck Emissions, Fugitive Dust
Calculated Off-Road Emissions did not differentiate $PM_{2.5}$ emissions.
The maximum daily emissions refer to the maximum emissions that would occur in one day; it was assumed that the activities do not occur at the same time; therefore, the maximum emissions are not a straight summation of all emissions.

Table 10: Daily Construction Emissions for Line 407-W (2012)

Construction Activity	Pollutant (lbs/day)				
	NO_X	ROG	CO	PM_{10}	$PM_{2.5}$
Trenching – Environmental Crew	23.95	2.08	6.30	0.72	—
Trenching – 18 Day Crews	290.45	29.69	86.04	10.44	—
Trenching – Tie-In Crew	52.21	5.19	14.31	1.79	—
Trenching – Hydro Test Crew	13.59	1.44	4.28	0.51	—
Trenching – Clean Up Crew	71.15	7.81	22.37	2.73	—
Trenching – URBEMIS Output*	5.56	0.57	1.92	66.46	14.02
Pipe Hauling	4.68	0.32	1.62	0.20	0.17
HDD - Off-Road Emissions	94.09	9.42	30.48	3.13	—
HDD - URBEMIS Output**	4.39	0.49	1.52	49.66	10.48
Jack and Bore - Off-Road Emissions	24.58	2.42	10.26	0.98	—
Jack and Bore - URBEMIS Output**	4.39	0.49	1.52	14.18	3.07
Maximum Daily Emissions	300.69	30.58	89.58	77.10	14.19
FRAQMD Threshold	82	82	NA	150	NA
Exceed Significance Threshold?	**Yes**	No	No	No	No
FRAQMD Threshold	25.00	25.00	NA	80.00	NA
Exceed Significance Threshold?	**Yes**	**Yes**	No	No	No

Notes:
* Employee Trips, Water Truck Emissions, Fugitive Dust Emissions, Soil Hauling
** Employee Trips, Water Truck Emissions, Fugitive Dust
Calculated Off-Road Emissions did not differentiate $PM_{2.5}$ emissions.
The maximum daily emissions refer to the maximum emissions that would occur in one day; it was assumed that the activities do not occur at the same time; therefore, the maximum emissions are not a straight summation of all emissions.

Table 11: Daily Construction Emissions for DFM (2010)

Construction Activity	Pollutant (lbs/day)				
	NO_X	ROG	CO	PM_{10}	$PM_{2.5}$
Trenching – Environmental Crew	27.90	2.40	6.98	0.89	—
Trenching – 18 Day Crews	338.03	33.37	95.60	12.62	—
Trenching – Tie-In Crew	60.41	5.84	15.83	2.16	—
Trenching – Hydro Test Crew	15.65	1.63	4.69	0.62	—
Trenching – Clean Up Crew	82.12	8.61	24.45	3.24	—
Trenching – URBEMIS Output*	5.53	0.56	1.77	66.46	14.02

Construction Activity	Pollutant (lbs/day)				
	NO_X	ROG	CO	PM_{10}	$PM_{2.5}$
Pipe Hauling	4.54	0.30	1.53	0.20	0.17
Jack and Bore - Off-Road Emissions	29.16	2.90	10.91	1.26	—
Jack and Bore - URBEMIS Output**	5.24	0.54	1.67	14.22	3.10
Maximum Daily Emissions	348.10	34.23	98.90	79.28	14.19
FRAQMD Threshold	25.00	25.00	NA	80.00	NA
Exceed Significance Threshold?	**Yes**	**Yes**	No	No	No
SMAQMD Threshold	85.00	NA	NA	CAAQS/ NAAQS	NA
Exceed Significance Threshold?	**Yes**	No	No	No	No

Notes:
* Employee Trips, Water Truck Emissions, Fugitive Dust Emissions, Soil Hauling
** Employee Trips, Water Truck Emissions, Fugitive Dust
Calculated Off-Road Emissions did not differentiate $PM_{2.5}$ emissions.
The maximum daily emissions refer to the maximum emissions that would occur in one day; it was assumed that the activities do not occur at the same time; therefore, the maximum emissions are not a straight summation of all emissions.

4.2 - Maximum Daily Operational Emissions

The URBEMIS output for operational emissions are presented in Table 12.

Table 12: Daily Operational Emissions (2010)

Activity	Pollutant (lbs/day)				
	NO_X	ROG	CO	PM_{10}	$PM_{2.5}$
Maintenance and Operation	0.38	0.08	0.69	0.26	0.05

Notes:
URBEMIS Output

4.3 - Carbon Dioxide Emissions

4.3.1 - Project Construction

Carbon dioxide (CO_2) is the main Greenhouse Gas (GHG) generated during construction. The emission inventory of CO_2 was generated using the estimated construction equipment and activity provided by PG&E. An inventory for each pipeline was generated in total tons of emissions, using the total number of HDD and Jack and Bore Crossings, and the length of pipeline to be trenched and the equipment mix and activity levels provided by PG&E. The Soil Hauling and Pipe Hauling emissions for each pipeline was calculated using the daily activity output from URBEMIS and the

trips lengths and total trips shown in Table 6 and Table 7, respectively. Paving emissions similarly used the URBEMIS output and the known activity for Line 406 and 407-E, as described in section 1.4.8 above. This analysis assumed a 22 working days per month, consistent with the construction assumptions of the URBEMIS model. Emissions from employee trips for the construction of each phase was developed using the known construction length, the assumed construction days per month, and the URBEMIS daily emission rate for employee trips. Table 13 shows the total Project construction GHG generation.

Table 13: All Construction Greenhouse Gas Generation

Year of Construction (Line)	CO_2	
	Total Tons	$MTCO_2e$
2009 (Line 406)	790.33	716.99
2010 (Line 407E)	970.45	880.40
2010 (DFM)	199.85	181.30
2012 (Line 407W)	995.64	903.25
total	2,956.28	2,681.94

Notes:
Emissions converted from tons per year to metric tons of carbon dioxide equivalents ($MTCO_2e$) per year by using the formula: (tons of gas) x (global warming potential) x (0.9072 metric tons)

4.3.2 - Project Operations

Greenhouse gas emissions from Project operations were generated from employee trips as described in the methodology above.

D-2: Off-Road Calculations

Trenching			2009 EF						2010 EF					
Equipment	**Max HP**	**Multiplier**	lbs/hp/hr						lbs/hp/hr					
Environmental, Fence & Pot Hole Crew	**(60 days)**		**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**	**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**
Pump	250	2164.5	1.69	5.10	20.75	0.02	0.64	576.50	1.57	4.80	19.73	0.02	0.60	2006.79
Off-Highway Truck	250	1179.9	0.87	2.29	8.77	0.01	0.31	842.62	0.83	2.18	8.17	0.01	0.29	842.62
			2.56	*7.40*	*29.52*	*0.03*	*0.96*	*1,419.12*	*2.40*	*6.98*	*27.90*	*0.03*	*0.89*	*2849.41*
Grade Crew (18 Days)														
Crawler Tractor	250	4070.4	4.23	11.86	40.31	0.04	1.63	3,263.84	4.03	11.28	38.19	0.04	1.54	3,263.84
Tractors/Loaders/Backhoes	250	1100	0.66	1.87	7.36	0.01	0.25	758.00	0.63	1.78	6.84	0.01	0.23	758.00
Grader	250	1439.6	1.19	3.32	12.16	0.01	0.45	1,100.23	1.13	3.16	11.45	0.01	0.42	1,100.23
			6.08	*17.05*	*59.83*	*0.06*	*2.33*	*5,122.07*	*5.79*	*16.21*	*56.48*	*0.06*	*2.20*	*5,122.07*
Ditch Crew (18 Days)														
Tractors/Loaders/Backhoes	250	5500	3.31	9.33	36.78	0.05	1.24	3,789.98	3.13	8.90	34.19	0.05	1.15	3,789.98
Trencher	250	1200	1.47	4.33	14.23	0.01	0.59	1,127.60	1.40	4.13	13.56	0.01	0.56	1,127.60
			4.78	*13.66*	*51.01*	*0.06*	*1.83*	*4,917.58*	*4.53*	*13.03*	*47.75*	*0.06*	*1.71*	*4,917.58*
Stringing Crew (18 Days)														
Tractors/Loaders/Backhoes	250	1100	0.66	1.87	7.36	0.01	0.25	758.00	0.63	1.78	6.84	0.01	0.23	758.00
Other Material Handling Equipment	250	1463.2	1.16	3.08	12.50	0.01	0.43	1,081.60	1.10	2.90	11.86	0.01	0.40	1,081.60
Other Material Handling Equipment	500	8024	5.74	19.42	60.75	0.05	2.16	5,931.36	5.46	17.74	57.53	0.05	2.03	5,931.36
Crawler Tractor	250	1356.8	1.41	3.95	13.44	0.01	0.54	1,087.95	1.34	3.76	12.73	0.01	0.51	1,087.95
			8.97	*28.33*	*94.03*	*0.09*	*3.38*	*8,858.91*	*8.53*	*26.19*	*88.95*	*0.09*	*3.18*	*8,858.91*
Bending Crew (18 Days)														
Other Material Handling Equipment	250	2926.4	2.31	6.17	24.99	0.03	0.86	2,163.20	2.19	5.81	23.71	0.03	0.80	2,163.20
Other Material Handling Equipment	120	519.2	0.94	2.88	5.28	0.00	0.50	383.79	0.89	2.85	5.04	0.00	0.48	383.79
			3.25	*9.05*	*30.27*	*0.03*	*1.36*	*2,547.00*	*3.08*	*8.66*	*28.75*	*0.03*	*1.28*	*2,547.00*
Pipe Gang (Bead Welders) (18 Days)														
Other Material Handling Equipment	250	1463.2	1.16	3.08	12.50	0.01	0.43	1,081.60	1.10	2.90	11.86	0.01	0.40	1,081.60
Crawler Tractor	250	1152	1.20	3.36	11.41	0.01	0.46	923.73	1.14	3.19	10.81	0.01	0.44	923.73
Other Material Handling Equipment	250	1180	0.93	2.49	10.08	0.01	0.35	872.26	0.88	2.34	9.56	0.01	0.32	872.26
Off-Highway Truck	250	1140	0.84	2.22	8.47	0.01	0.30	814.13	0.80	2.10	7.89	0.01	0.28	814.13
Welder	15	518.4	0.61	2.11	3.50	0.00	0.26	292.27	0.58	2.07	3.37	0.00	0.24	292.27
			4.74	*13.25*	*45.95*	*0.05*	*1.80*	*3,983.99*	*4.50*	*12.61*	*43.49*	*0.05*	*1.68*	*3,983.99*
Joint Coating Crew (18 Days)														
Other Material Handling Equipment	250	1463.2	1.16	3.08	12.50	0.01	0.43	1,081.60	1.10	2.90	11.86	0.01	0.40	1,081.60
Air Compressor	15	30.72	0.04	0.13	0.22	0.00	0.02	18.47	0.04	0.13	0.21	0.00	0.02	18.47
			1.20	*3.22*	*12.72*	*0.01*	*0.45*	*1,100.08*	*1.13*	*3.03*	*12.07*	*0.01*	*0.42*	*1,100.08*
Lower-in Crew (18 Days)														
Other Material Handling Equipment	250	4389.6	3.47	9.25	37.49	0.04	1.29	3,244.80	3.29	8.71	35.57	0.04	1.20	3,244.80
Tractors/Loaders/Backhoes	250	1100	0.66	1.87	7.36	0.01	0.25	758.00	0.63	1.78	6.84	0.01	0.23	758.00
Rubber Tired Dozer	250	1144.8	1.33	3.74	11.81	0.01	0.52	846.24	1.28	3.58	11.29	0.01	0.49	846.24
Tractors/Loaders/Backhoes	250	1100	0.66	1.87	7.36	0.01	0.25	758.00	0.63	1.78	6.84	0.01	0.23	758.00
			6.13	*16.72*	*64.01*	*0.07*	*2.30*	*5,607.04*	*5.82*	*15.85*	*60.54*	*0.07*	*2.15*	*5,607.04*
Tie-In Crew (30 Days)														
Other Material Handling Equipment	250	4938.3	3.90	10.41	42.17	0.04	1.45	3,650.40	3.70	9.80	40.02	0.04	1.35	3,650.40
Tractors/Loaders/Backhoes	250	1237.5	0.74	2.10	8.28	0.01	0.28	852.75	0.70	2.00	7.69	0.01	0.26	852.75
Rubber Tired Dozer	250	1287.9	1.50	4.20	13.29	0.01	0.58	952.02	1.44	4.03	12.70	0.01	0.56	952.02
			6.15	*16.71*	*63.74*	*0.07*	*2.31*	*5,455.17*	*5.84*	*15.83*	*60.41*	*0.07*	*2.16*	*5,455.17*
Hydro-Test Crew (39 Days)														
Air Compressor	15	86.4	0.11	0.37	0.62	0.00	0.05	51.96	0.10	0.37	0.60	0.00	0.04	51.96
Other Material Handling Equipment	250	1646.1	1.30	3.47	14.06	0.01	0.48	1,216.80	1.23	3.27	13.34	0.01	0.45	1,216.80
Pumps	15	106.56	0.20	0.71	1.18	0.00	0.09	98.80	0.20	0.70	1.14	0.00	0.08	98.80
Pumps	15	53.28	0.10	0.36	0.59	0.00	0.04	49.40	0.10	0.35	0.57	0.00	0.04	49.40
			1.72	*4.91*	*16.45*	*0.02*	*0.66*	*1,416.95*	*1.63*	*4.69*	*15.65*	*0.02*	*0.62*	*1,416.95*
Clean Up Crew (24 Days)														
Rubber Tired Dozer	250	3863.7	4.49	12.61	39.87	0.03	1.75	2,856.06	4.32	12.08	38.11	0.03	1.67	2,856.06
Tractors/Loaders/Backhoes	250	2475	1.49	4.20	16.55	0.02	0.56	1,705.49	1.41	4.01	15.38	0.02	0.52	1,705.49
Grader	250	1647	1.36	3.80	13.92	0.01	0.52	1,258.74	1.29	3.61	13.10	0.01	0.49	1,258.74
Tractors/Loaders/Backhoes	175	742.5	0.45	1.26	4.97	0.01	0.17	511.65	0.42	1.20	4.62	0.01	0.16	511.65
Off-Highway Truck	500	1795.5	1.23	3.82	11.69	0.01	0.44	1,282.25	1.17	3.55	10.92	0.01	0.41	1,282.25
			9.01	*25.68*	*86.99*	*0.09*	*3.43*	*7,614.18*	*8.61*	*24.45*	*82.12*	*0.09*	*3.24*	*7,614.18*

	2009 EF						2010 EF					
	lbs/hp/hr						lbs/hp/hr					
	ROG	**CO**	**NOx**	**SOx**	**PM**	**CO2**	**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**
Environmental Crew	2.56	7.40	29.52	0.03	0.96	1,419.12	2.40	6.98	27.90	0.03	0.89	2,849.41
All 18-Day Crews	35.14	101.28	357.82	0.37	13.43	32,136.66	33.37	95.60	338.03	0.37	12.62	32,136.66
Tie-In Crew	6.15	16.71	63.74	0.07	2.31	5,455.17	5.84	15.83	60.41	0.07	2.16	5,455.17
Hydro Test Crew	1.72	4.91	16.45	0.02	0.66	1,416.95	1.63	4.69	15.65	0.02	0.62	1,416.95
Clean Up Crew	9.01	25.68	86.99	0.09	3.43	7,614.18	8.61	24.45	82.12	0.09	3.24	7,614.18
Total	54.58	155.98	554.53	0.57	20.78	48,042.08	51.85	147.53	524.12	0.57	19.53	49,472.37

HDD			2009 EF lbs/hp/hr						2010 EF lbs/hp/hr					
Equipment	**Max HP**	**Multiplier**	**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**	**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**
	500	3,000.00	1.37	5.07	16.72	0.03	0.57	2,819.00	1.43	5.19	17.76	0.03	0.57	2,819.00
Bore/Drill Rigs	750	4,687.50	2.21	7.92	27.20	0.04	0.90	4,404.68	2.11	7.88	24.13	0.04	0.87	4,404.68
Cranes	250	1,126.60	0.71	1.98	7.09	0.01	0.27	606.95	0.67	1.87	6.70	0.01	0.25	606.95
Excavator	250	1,128.60	0.78	2.10	8.15	0.01	0.28	805.98	0.74	2.01	7.59	0.01	0.26	805.98
Off-Highway	250	1,710.00	1.27	3.33	12.71	0.02	0.45	1,221.19	1.20	3.15	11.84	0.02	0.42	1,221.19
Other Material Handling Equipment	250	5,487.00	4.34	11.57	46.86	0.05	1.61	4,056.00	4.11	10.89	44.46	0.05	1.50	4,056.00
			10.68	*31.96*	*118.73*	*0.15*	*4.08*	*13,913.80*	*10.26*	*30.99*	*112.47*	*0.16*	*3.88*	*13,913.80*

J/B			2009 EF lbs/hp/hr						2010 EF lbs/hp/hr					
Equipment	**Max HP**	**Multiplier**	**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**	**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**
Bore/Drill Rigs	120	900.00	0.94	5.34	7.47	0.01	0.57	845.70	0.79	5.28	6.75	0.01	0.50	845.70
Excavator	250	1,128.60	0.78	2.10	8.15	0.01	0.28	805.98	0.74	2.01	7.59	0.01	0.26	805.98
Other Material Handling Equipment	250	1,829.00	1.45	3.86	15.62	0.02	0.54	1,352.00	1.37	3.63	14.82	0.02	0.50	1,352.00
			3.16	*11.29*	*31.24*	*0.04*	*1.39*	*3,003.68*	*2.90*	*10.91*	*29.16*	*0.04*	*1.26*	*3,003.68*

Trenching			2012 EF					
Equipment	**Max HP**	**Multiplier**	lbs/hp/hr					
Environmental, Fence & Pot Hole Crew	**(60 days)**		**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**
Pump	250	2164.5	1.33	4.31	17.11	0.02	0.49	2006.79
Off-Highway Truck	250	1179.9	0.74	2.00	6.84	0.01	0.23	842.62
			2.08	*6.30*	*23.95*	*0.03*	*0.72*	*2849.41*
Grade Crew (18 Days)								
Crawler Tractor	250	4070.4	3.64	10.27	33.49	0.04	1.31	3,263.84
Tractors/Loaders/Backhoes	250	1100	0.56	1.66	5.66	0.01	0.18	758.00
Grader	250	1439.6	1.01	2.88	9.81	0.01	0.35	1,100.23
			5.20	*14.81*	*48.95*	*0.06*	*1.84*	*5,122.07*
Ditch Crew (18 Days)								
Tractors/Loaders/Backhoes	250	5500	2.79	8.29	28.28	0.05	0.92	3,789.98
Trencher	250	1200	1.26	3.75	12.07	0.01	0.48	1,127.60
			4.04	*12.04*	*40.34*	*0.06*	*1.40*	*4,917.58*
Stringing Crew (18 Days)								
Tractors/Loaders/Backhoes	250	1100	0.56	1.66	5.66	0.01	0.18	758.00
Other Material Handling Equipment	250	1463.2	0.96	2.59	10.20	0.01	0.33	1,081.60
Other Material Handling Equipment	500	8024	4.86	14.95	49.22	0.05	1.66	5,931.36
Crawler Tractor	250	1356.8	1.21	3.42	11.16	0.01	0.44	1,087.95
			7.59	*22.62*	*76.24*	*0.09*	*2.61*	*8,858.91*
Bending Crew (18 Days)								
Other Material Handling Equipment	250	2926.4	1.92	5.18	20.41	0.03	0.65	2,163.20
Other Material Handling Equipment	120	519.2	0.77	2.79	4.45	0.00	0.43	383.79
			2.69	*7.97*	*24.85*	*0.03*	*1.08*	*2,547.00*
Pipe Gang (Bead Welders) (18 Days)								
Other Material Handling Equipment	250	1463.2	0.96	2.59	10.20	0.01	0.33	1,081.60
Crawler Tractor	250	1152	1.03	2.91	9.48	0.01	0.37	923.73
Other Material Handling Equipment	250	1180	0.77	2.09	8.23	0.01	0.26	872.26
Off-Highway Truck	250	1140	0.72	1.93	6.61	0.01	0.23	814.13
Welder	15	518.4	0.52	1.99	3.09	0.00	0.21	292.27
			4.00	*11.51*	*37.60*	*0.05*	*1.39*	*3,983.99*
Joint Coating Crew (18 Days)								
Other Material Handling Equipment	250	1463.2	0.96	2.59	10.20	0.01	0.33	1,081.60
Air Compressor	15	30.72	0.03	0.13	0.20	0.00	0.01	18.47
			0.99	*2.72*	*10.40*	*0.01*	*0.34*	*1,100.08*
Lower-in Crew (18 Days)								
Other Material Handling Equipment	250	4389.6	2.88	7.77	30.61	0.04	0.98	3,244.80
Tractors/Loaders/Backhoes	250	1100	0.56	1.66	5.66	0.01	0.18	758.00
Rubber Tired Dozer	250	1144.8	1.18	3.29	10.14	0.01	0.43	846.24
Tractors/Loaders/Backhoes	250	1100	0.56	1.66	5.66	0.01	0.18	758.00
			5.17	*14.37*	*52.06*	*0.07*	*1.78*	*5,607.04*
Tie-In Crew (30 Days)								
Other Material Handling Equipment	250	4938.3	3.24	8.75	34.44	0.04	1.10	3,650.40
Tractors/Loaders/Backhoes	250	1237.5	0.63	1.86	6.36	0.01	0.21	852.75
Rubber Tired Dozer	250	1287.9	1.32	3.70	11.41	0.01	0.49	952.02
			5.19	*14.31*	*52.21*	*0.07*	*1.79*	*5,455.17*
Hydro-Test Crew (39 Days)								
Air Compressor	15	86.4	0.09	0.35	0.55	0.00	0.04	51.96
Other Material Handling Equipment	250	1646.1	1.08	2.92	11.48	0.01	0.37	1,216.80
Pumps	15	106.56	0.18	0.67	1.04	0.00	0.07	98.80
Pumps	15	53.28	0.09	0.34	0.52	0.00	0.04	49.40
			1.44	*4.28*	*13.59*	*0.02*	*0.51*	*1,416.95*
Clean Up Crew (24 Days)								
Rubber Tired Dozer	250	3863.7	3.97	11.09	34.22	0.03	1.46	2,856.06
Tractors/Loaders/Backhoes	250	2475	1.25	3.73	12.72	0.02	0.41	1,705.49
Grader	250	1647	1.15	3.30	11.22	0.01	0.40	1,258.74
Tractors/Loaders/Backhoes	175	742.5	0.38	1.12	3.82	0.01	0.12	511.65
Off-Highway Truck	500	1795.5	1.06	3.14	9.16	0.01	0.33	1,282.25
			7.81	*22.37*	*71.15*	*0.09*	*2.73*	*7,614.18*

	2012 EF					
	lbs/hp/hr					
	ROG	**CO**	**NOx**	**SOx**	**PM**	**CO2**
Environmental Crew	2.08	6.30	23.95	0.03	0.72	2,849.41
All 18-Day Crews	29.69	86.04	290.45	0.37	10.44	32,136.66
Tie-In Crew	5.19	14.31	52.21	0.07	1.79	5,455.17
Hydro Test Crew	1.44	4.28	13.59	0.02	0.51	1,416.95
Clean Up Crew	7.81	22.37	71.15	0.09	2.73	7,614.18
Total	46.21	133.29	451.35	0.57	16.20	49,472.37

HDD			2012 EF lbs/hp/hr					
Equipment	**Max HP**	**Multiplier**	**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**
	500	3,000.00	1.26	5.15	13.07	0.03	0.40	2,819.00
Bore/Drill Rigs	750	4,687.50	1.91	7.82	18.61	0.04	0.62	4,404.68
Cranes	250	1,126.60	0.60	1.66	5.80	0.01	0.21	606.95
Excavator	250	1,128.60	0.66	1.84	6.32	0.01	0.21	805.98
Off-Highway	250	1,710.00	1.08	2.89	9.91	0.02	0.34	1,221.19
Other Material Handling Equipment	250	5,487.00	3.60	9.72	38.26	0.05	1.22	4,056.00
			9.10	*29.07*	*91.97*	*0.16*	*3.00*	*13,913.80*

J/B			2012 EF lbs/hp/hr					
Equipment	**Max HP**	**Multiplier**	**ROG**	**CO**	**NOx**	**SOx**	**PM**	**CO2**
Bore/Drill Rigs	120	900.00	0.56	5.18	5.51	0.01	0.36	845.70
Excavator	250	1,128.60	0.66	1.84	6.32	0.01	0.21	805.98
Other Material Handling Equipment	250	1,829.00	1.20	3.24	12.75	0.02	0.41	1,352.00
			2.42	*10.26*	*24.58*	*0.04*	*0.98*	*3,003.68*

D-3: URBEMIS Output

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\23440005 PG&E Pipeline AQ\Modeling\PG&E Line 406.urb924

Project Name: Line 406

Project Location: Yolo-Solano AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	6.62	48.42	28.93	0.02	169.91	3.02	170.17	35.48	2.78	35.72	4,295.85
2009 TOTALS (lbs/day mitigated)	6.62	48.42	28.93	0.02	66.27	3.02	66.53	13.84	2.78	15.24	4,295.85

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 5/4/2009-5/8/2009 Active Days: 5	**6.62**	**48.42**	**28.93**	0.00	153.02	**3.02**	156.03	31.96	**2.78**	34.73	**4,295.85**
Asphalt 05/04/2009-05/08/2009	2.16	12.69	9.22	0.00	0.01	1.09	1.10	0.00	1.01	1.01	1,160.55
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.08	12.55	7.05	0.00	0.00	1.09	1.09	0.00	1.00	1.00	979.23
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37
Paving Worker Trips	0.07	0.12	2.17	0.00	0.01	0.01	0.01	0.00	0.00	0.01	178.95
Mass Grading 05/04/2009-05/22/2009	4.47	35.73	19.71	0.00	153.01	1.93	154.93	31.95	1.77	33.73	3,135.30
Mass Grading Dust	0.00	0.00	0.00	0.00	153.00	0.00	153.00	31.95	0.00	31.95	0.00
Mass Grading Off Road Diesel	4.42	35.65	18.16	0.00	0.00	1.92	1.92	0.00	1.77	1.77	3,007.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.55	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.82
Time Slice 5/11/2009-5/22/2009 Active Days: 10	4.47	35.73	19.71	0.00	153.01	1.93	154.93	31.95	1.77	33.73	3,135.30
Mass Grading 05/04/2009-05/22/2009	4.47	35.73	19.71	0.00	153.01	1.93	154.93	31.95	1.77	33.73	3,135.30
Mass Grading Dust	0.00	0.00	0.00	0.00	153.00	0.00	153.00	31.95	0.00	31.95	0.00
Mass Grading Off Road Diesel	4.42	35.65	18.16	0.00	0.00	1.92	1.92	0.00	1.77	1.77	3,007.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.55	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.82

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Time Slice 6/1/2009-7/31/2009 Active Days: 45	0.68	6.99	2.33	0.00	169.91	0.26	170.17	35.48	0.24	35.72	726.50
Fine Grading 06/01/2009-07/31/2009	0.68	6.99	2.33	0.00	169.91	0.26	170.17	35.48	0.24	35.72	726.50
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.57	5.61	1.47	0.00	0.00	0.20	0.20	0.00	0.18	0.18	539.89
Fine Grading On Road Diesel	0.11	1.36	0.55	0.00	0.01	0.06	0.07	0.00	0.06	0.06	161.04
Fine Grading Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56
Time Slice 8/3/2009-8/18/2009 Active Days: 12	0.58	5.63	1.77	0.00	126.94	0.20	127.14	26.51	0.18	26.69	565.46
Fine Grading 08/03/2009-08/18/2009	0.58	5.63	1.77	0.00	126.94	0.20	127.14	26.51	0.18	26.69	565.46
Fine Grading Dust	0.00	0.00	0.00	0.00	126.93	0.00	126.93	26.51	0.00	26.51	0.00
Fine Grading Off Road Diesel	0.57	5.61	1.47	0.00	0.00	0.20	0.20	0.00	0.18	0.18	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56
Time Slice 8/24/2009-8/25/2009 Active Days: 2	0.58	5.63	1.77	0.00	35.98	0.20	36.18	7.51	0.18	7.70	565.46
Fine Grading 08/24/2009-08/25/2009	0.58	5.63	1.77	0.00	35.98	0.20	36.18	7.51	0.18	7.70	565.46
Fine Grading Dust	0.00	0.00	0.00	0.00	35.98	0.00	35.98	7.51	0.00	7.51	0.00
Fine Grading Off Road Diesel	0.57	5.61	1.47	0.00	0.00	0.20	0.20	0.00	0.18	0.18	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56

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Time Slice 8/27/2009-8/28/2009 Active Days: 2	1.42	18.35	7.49	**0.02**	0.08	0.81	0.89	0.02	0.75	0.77	2,174.04
Fine Grading 08/27/2009-08/28/2009	1.42	18.35	7.49	0.02	0.08	0.81	0.89	0.02	0.75	0.77	2,174.04
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	1.42	18.35	7.49	0.02	0.08	0.81	0.89	0.02	0.75	0.77	2,174.04
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2009 - 7/31/2009 - Trenching Dust

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 300 cubic yards/day; Offsite Cut/Fill: 300 cubic yards/day

On Road Truck Travel (VMT): 40

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/3/2009 - 8/18/2009 - HDD Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 223 cubic yards/day; Offsite Cut/Fill: 223 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/24/2009 - 8/25/2009 - Jack and Bore Crossing

Total Acres Disturbed: 1

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Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 60 cubic yards/day; Offsite Cut/Fill: 60 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/27/2009 - 8/28/2009 - Pipe Hauling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 540

Off-Road Equipment:

Phase: Mass Grading 5/4/2009 - 5/22/2009 - Dunnigan Hills

Total Acres Disturbed: 30.6

Maximum Daily Acreage Disturbed: 7.65

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 5/4/2009 - 5/8/2009 - Minimal Repaving

Acres to be Paved: 0.01

Off-Road Equipment:

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4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 5/4/2009-5/8/2009 Active Days: 5	**6.62**	**48.42**	**28.93**	0.00	59.69	**3.02**	62.70	12.47	**2.78**	15.24	**4,295.85**
Asphalt 05/04/2009-05/08/2009	2.16	12.69	9.22	0.00	0.01	1.09	1.10	0.00	1.01	1.01	1,160.55
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.08	12.55	7.05	0.00	0.00	1.09	1.09	0.00	1.00	1.00	979.23
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37
Paving Worker Trips	0.07	0.12	2.17	0.00	0.01	0.01	0.01	0.00	0.00	0.01	178.95
Mass Grading 05/04/2009-05/22/2009	4.47	35.73	19.71	0.00	59.68	1.93	61.60	12.46	1.77	14.23	3,135.30
Mass Grading Dust	0.00	0.00	0.00	0.00	59.67	0.00	59.67	12.46	0.00	12.46	0.00
Mass Grading Off Road Diesel	4.42	35.65	18.16	0.00	0.00	1.92	1.92	0.00	1.77	1.77	3,007.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.55	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.82

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Time Slice 5/11/2009-5/22/2009 Active Days: 10	4.47	35.73	19.71	0.00	59.68	1.93	61.60	12.46	1.77	14.23	3,135.30
Mass Grading 05/04/2009-05/22/2009	4.47	35.73	19.71	0.00	59.68	1.93	61.60	12.46	1.77	14.23	3,135.30
Mass Grading Dust	0.00	0.00	0.00	0.00	59.67	0.00	59.67	12.46	0.00	12.46	0.00
Mass Grading Off Road Diesel	4.42	35.65	18.16	0.00	0.00	1.92	1.92	0.00	1.77	1.77	3,007.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.08	1.55	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.82
Time Slice 6/1/2009-7/31/2009 Active Days: 45	0.68	6.99	2.33	0.00	66.27	0.26	66.53	13.84	0.24	14.08	726.50
Fine Grading 06/01/2009-07/31/2009	0.68	6.99	2.33	0.00	66.27	0.26	66.53	13.84	0.24	14.08	726.50
Fine Grading Dust	0.00	0.00	0.00	0.00	66.26	0.00	66.26	13.84	0.00	13.84	0.00
Fine Grading Off Road Diesel	0.57	5.61	1.47	0.00	0.00	0.20	0.20	0.00	0.18	0.18	539.89
Fine Grading On Road Diesel	0.11	1.36	0.55	0.00	0.01	0.06	0.07	0.00	0.06	0.06	161.04
Fine Grading Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56
Time Slice 8/3/2009-8/18/2009 Active Days: 12	0.58	5.63	1.77	0.00	49.51	0.20	49.71	10.34	0.18	10.52	565.46
Fine Grading 08/03/2009-08/18/2009	0.58	5.63	1.77	0.00	49.51	0.20	49.71	10.34	0.18	10.52	565.46
Fine Grading Dust	0.00	0.00	0.00	0.00	49.50	0.00	49.50	10.34	0.00	10.34	0.00
Fine Grading Off Road Diesel	0.57	5.61	1.47	0.00	0.00	0.20	0.20	0.00	0.18	0.18	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56

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Time Slice 8/24/2009-8/25/2009 Active Days: 2	0.58	5.63	1.77	0.00	14.03	0.20	14.23	2.93	0.18	3.12	565.46
Fine Grading 08/24/2009-08/25/2009	0.58	5.63	1.77	0.00	14.03	0.20	14.23	2.93	0.18	3.12	565.46
Fine Grading Dust	0.00	0.00	0.00	0.00	14.03	0.00	14.03	2.93	0.00	2.93	0.00
Fine Grading Off Road Diesel	0.57	5.61	1.47	0.00	0.00	0.20	0.20	0.00	0.18	0.18	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56
Time Slice 8/27/2009-8/28/2009 Active Days: 2	1.42	18.35	7.49	**0.02**	0.08	0.81	0.89	0.02	0.75	0.77	2,174.04
Fine Grading 08/27/2009-08/28/2009	1.42	18.35	7.49	0.02	0.08	0.81	0.89	0.02	0.75	0.77	2,174.04
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	1.42	18.35	7.49	0.02	0.08	0.81	0.89	0.02	0.75	0.77	2,174.04
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2009 - 7/31/2009 - Trenching Dust

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/3/2009 - 8/18/2009 - HDD Crossing

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/24/2009 - 8/25/2009 - Jack and Bore Crossing

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For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Mass Grading 5/4/2009 - 5/22/2009 - Dunnigan Hills

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\23440005 PG&E Pipeline AQ\Modeling\PG&E Line 407E.urb924

Project Name: Line 407-E

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	2.75	30.26	11.56	0.04	169.92	1.33	171.25	35.49	1.22	36.71	4,187.05
2010 TOTALS (lbs/day mitigated)	2.75	30.26	11.56	0.04	66.29	1.33	67.61	13.85	1.22	15.07	4,187.05

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 6/1/2010-6/8/2010 Active Days: 6	**2.75**	20.16	**11.56**	0.01	**169.92**	**1.33**	**171.25**	**35.49**	**1.22**	**36.71**	2,128.03
Asphalt 06/01/2010-06/08/2010	2.02	12.01	8.91	0.00	0.01	1.03	1.04	0.00	0.95	0.95	1,159.99
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.95	11.89	6.98	0.00	0.00	1.03	1.03	0.00	0.94	0.94	979.23
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Paving Worker Trips	0.06	0.11	1.92	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.78
Fine Grading 06/01/2010-07/30/2010	0.73	8.15	2.65	0.00	169.92	0.29	170.21	35.49	0.27	35.76	968.03
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.19	2.91	0.98	0.00	0.01	0.11	0.13	0.00	0.10	0.11	402.60
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 6/9/2010-7/30/2010 Active Days: 38	0.73	8.15	2.65	0.00	169.92	0.29	170.21	35.49	0.27	35.76	968.03
Fine Grading 06/01/2010-07/30/2010	0.73	8.15	2.65	0.00	169.92	0.29	170.21	35.49	0.27	35.76	968.03
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.19	2.91	0.98	0.00	0.01	0.11	0.13	0.00	0.10	0.11	402.60
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

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Time Slice 8/2/2010-8/18/2010 Active Days: 13	0.54	5.24	1.67	0.00	126.94	0.18	127.12	26.51	0.17	26.68	565.43
Fine Grading 08/01/2010-08/18/2010	0.54	5.24	1.67	0.00	126.94	0.18	127.12	26.51	0.17	26.68	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	126.93	0.00	126.93	26.51	0.00	26.51	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	35.98	0.00	35.98	7.51	0.00	7.51	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/23/2010-8/25/2010 Active Days: 3	1.97	**30.26**	10.20	**0.04**	0.15	1.15	1.30	0.05	1.06	1.11	**4,187.05**
Fine Grading 08/22/2010-08/25/2010	1.97	30.26	10.20	0.04	0.15	1.15	1.30	0.05	1.06	1.11	4,187.05
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	1.97	30.26	10.20	0.04	0.15	1.15	1.30	0.05	1.06	1.11	4,187.05
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

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Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 300 cubic yards/day; Offsite Cut/Fill: 300 cubic yards/day

On Road Truck Travel (VMT): 100

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/1/2010 - 8/18/2010 - HDD Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 223 cubic yards/day; Offsite Cut/Fill: 223 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 60 cubic yards/day; Offsite Cut/Fill: 60 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/22/2010 - 8/25/2010 - Pipe Hauling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1040

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Off-Road Equipment:

Phase: Paving 6/1/2010 - 6/8/2010 - Minimal Paving Activity

Acres to be Paved: 0.01

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2010-6/8/2010 Active Days: 6	**2.75**	20.16	**11.56**	0.01	66.29	**1.33**	67.61	13.85	**1.22**	15.07	2,128.03
Asphalt 06/01/2010-06/08/2010	2.02	12.01	8.91	0.00	0.01	1.03	1.04	0.00	0.95	0.95	1,159.99
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.95	11.89	6.98	0.00	0.00	1.03	1.03	0.00	0.94	0.94	979.23
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Paving Worker Trips	0.06	0.11	1.92	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.78
Fine Grading 06/01/2010-07/30/2010	0.73	8.15	2.65	0.00	66.28	0.29	66.57	13.84	0.27	14.11	968.03
Fine Grading Dust	0.00	0.00	0.00	0.00	66.26	0.00	66.26	13.84	0.00	13.84	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.19	2.91	0.98	0.00	0.01	0.11	0.13	0.00	0.10	0.11	402.60
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

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Time Slice 6/9/2010-7/30/2010 Active Days: 38	0.73	8.15	2.65	0.00	66.28	0.29	66.57	13.84	0.27	14.11	968.03
Fine Grading 06/01/2010-07/30/2010	0.73	8.15	2.65	0.00	66.28	0.29	66.57	13.84	0.27	14.11	968.03
Fine Grading Dust	0.00	0.00	0.00	0.00	66.26	0.00	66.26	13.84	0.00	13.84	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.19	2.91	0.98	0.00	0.01	0.11	0.13	0.00	0.10	0.11	402.60
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/2/2010-8/18/2010 Active Days: 13	0.54	5.24	1.67	0.00	49.51	0.18	49.69	10.34	0.17	10.51	565.43
Fine Grading 08/01/2010-08/18/2010	0.54	5.24	1.67	0.00	49.51	0.18	49.69	10.34	0.17	10.51	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	49.50	0.00	49.50	10.34	0.00	10.34	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	14.03	0.18	14.22	2.93	0.17	3.10	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	14.03	0.18	14.22	2.93	0.17	3.10	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	14.03	0.00	14.03	2.93	0.00	2.93	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

9/9/2008 7:06:15 PM

Time Slice 8/23/2010-8/25/2010 Active Days: 3	1.97	**30.26**	10.20	**0.04**	0.15	1.15	1.30	0.05	1.06	1.11	**4,187.05**
Fine Grading 08/22/2010-08/25/2010	1.97	30.26	10.20	0.04	0.15	1.15	1.30	0.05	1.06	1.11	4,187.05
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	1.97	30.26	10.20	0.04	0.15	1.15	1.30	0.05	1.06	1.11	4,187.05
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/1/2010 - 8/18/2010 - HDD Crossing

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

9/9/2008 7:04:16 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\23440005 PG&E Pipeline AQ\Modeling\DFM.urb924

Project Name: DFM

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	0.59	9.08	3.06	0.01	169.90	0.35	170.11	35.48	0.32	35.67	1,256.11
2010 TOTALS (lbs/day mitigated)	0.59	9.08	3.06	0.01	66.27	0.35	66.47	13.84	0.32	14.03	1,256.11

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

9/9/2008 7:04:16 PM

Time Slice 6/1/2010-7/30/2010 Active Days: 44	0.58	5.83	1.87	0.00	**169.90**	0.21	**170.11**	**35.48**	0.19	**35.67**	645.95
Fine Grading 06/01/2010-07/30/2010	0.58	5.83	1.87	0.00	169.90	0.21	170.11	35.48	0.19	35.67	645.95
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.04	0.58	0.20	0.00	0.00	0.02	0.03	0.00	0.02	0.02	80.52
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	35.98	0.00	35.98	7.51	0.00	7.51	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/23/2010-8/25/2010 Active Days: 3	**0.59**	**9.08**	**3.06**	**0.01**	0.04	**0.35**	0.39	0.01	**0.32**	0.33	**1,256.11**
Fine Grading 08/22/2010-08/25/2010	0.59	9.08	3.06	0.01	0.04	0.35	0.39	0.01	0.32	0.33	1,256.11
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.59	9.08	3.06	0.01	0.04	0.35	0.39	0.01	0.32	0.33	1,256.11
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

9/9/2008 7:04:16 PM

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 300 cubic yards/day; Offsite Cut/Fill: 300 cubic yards/day

On Road Truck Travel (VMT): 20

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 60 cubic yards/day; Offsite Cut/Fill: 60 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/22/2010 - 8/25/2010 - Pipe Hauling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 312

Off-Road Equipment:

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

9/9/2008 7:04:16 PM

Time Slice 6/1/2010-7/30/2010 Active Days: 44	0.58	5.83	1.87	0.00	66.27	0.21	66.47	13.84	0.19	14.03	645.95
Fine Grading 06/01/2010-07/30/2010	0.58	5.83	1.87	0.00	66.27	0.21	66.47	13.84	0.19	14.03	645.95
Fine Grading Dust	0.00	0.00	0.00	0.00	66.26	0.00	66.26	13.84	0.00	13.84	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.04	0.58	0.20	0.00	0.00	0.02	0.03	0.00	0.02	0.02	80.52
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	14.03	0.18	14.22	2.93	0.17	3.10	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	14.03	0.18	14.22	2.93	0.17	3.10	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	14.03	0.00	14.03	2.93	0.00	2.93	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/23/2010-8/25/2010 Active Days: 3	**0.59**	**9.08**	**3.06**	**0.01**	0.04	**0.35**	0.39	0.01	**0.32**	0.33	**1,256.11**
Fine Grading 08/22/2010-08/25/2010	0.59	9.08	3.06	0.01	0.04	0.35	0.39	0.01	0.32	0.33	1,256.11
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.59	9.08	3.06	0.01	0.04	0.35	0.39	0.01	0.32	0.33	1,256.11
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

9/9/2008 7:04:16 PM

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

9/9/2008 7:14:49 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\23440005 PG&E Pipeline AQ\Modeling\PG&E Line 407W.urb924

Project Name: Line 407-W

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	0.65	9.36	3.24	0.01	169.92	0.35	170.15	35.49	0.32	35.71	1,610.40
2012 TOTALS (lbs/day mitigated)	0.65	9.36	3.24	0.01	66.28	0.35	66.51	13.84	0.32	14.06	1,610.40

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

9/9/2008 7:14:49 PM

Time Slice 6/1/2012-7/30/2012 Active Days: 42	0.65	6.73	2.33	0.00	169.92	0.24	170.15	35.49	0.22	35.71	968.05
Fine Grading 06/01/2012-07/30/2012	0.65	6.73	2.33	0.00	169.92	0.24	170.15	35.49	0.22	35.71	968.05
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.48	4.38	1.28	0.00	0.00	0.15	0.15	0.00	0.14	0.14	539.89
Fine Grading On Road Diesel	0.16	2.34	0.81	0.00	0.01	0.09	0.10	0.00	0.08	0.09	402.60
Fine Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56
Time Slice 8/1/2012-8/17/2012 Active Days: 13	0.49	4.39	1.52	0.00	126.94	0.15	127.09	26.51	0.14	26.65	565.45
Fine Grading 08/01/2012-08/18/2012	0.49	4.39	1.52	0.00	126.94	0.15	127.09	26.51	0.14	26.65	565.45
Fine Grading Dust	0.00	0.00	0.00	0.00	126.93	0.00	126.93	26.51	0.00	26.51	0.00
Fine Grading Off Road Diesel	0.48	4.38	1.28	0.00	0.00	0.15	0.15	0.00	0.14	0.14	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56
Time Slice 8/20/2012-8/21/2012 Active Days: 2	0.49	4.39	1.52	0.00	35.98	0.15	36.13	7.51	0.14	7.65	565.45
Fine Grading 08/19/2012-08/21/2012	0.49	4.39	1.52	0.00	35.98	0.15	36.13	7.51	0.14	7.65	565.45
Fine Grading Dust	0.00	0.00	0.00	0.00	35.98	0.00	35.98	7.51	0.00	7.51	0.00
Fine Grading Off Road Diesel	0.48	4.38	1.28	0.00	0.00	0.15	0.15	0.00	0.14	0.14	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56

9/9/2008 7:14:49 PM

Time Slice 8/22/2012-8/24/2012 Active Days: 3	0.65	9.36	3.24	0.01	0.06	0.35	0.41	0.02	0.32	0.34	1,610.40
Fine Grading 08/22/2012-08/25/2012	0.65	9.36	3.24	0.01	0.06	0.35	0.41	0.02	0.32	0.34	1,610.40
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.65	9.36	3.24	0.01	0.06	0.35	0.41	0.02	0.32	0.34	1,610.40
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2012 - 7/30/2012 - Trenching - Remaining

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 300 cubic yards/day; Offsite Cut/Fill: 300 cubic yards/day

On Road Truck Travel (VMT): 100

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/1/2012 - 8/18/2012 - HDD Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 223 cubic yards/day; Offsite Cut/Fill: 223 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/19/2012 - 8/21/2012 - Jack and Bore Crossing

Total Acres Disturbed: 1

9/9/2008 7:14:49 PM

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 60 cubic yards/day; Offsite Cut/Fill: 60 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/22/2012 - 8/25/2012 - Pipe Hauling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 400

Off-Road Equipment:

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2012-7/30/2012 Active Days: 42	0.65	6.73	2.33	0.00	66.28	0.24	66.51	13.84	0.22	14.06	968.05
Fine Grading 06/01/2012-07/30/2012	0.65	6.73	2.33	0.00	66.28	0.24	66.51	13.84	0.22	14.06	968.05
Fine Grading Dust	0.00	0.00	0.00	0.00	66.26	0.00	66.26	13.84	0.00	13.84	0.00
Fine Grading Off Road Diesel	0.48	4.38	1.28	0.00	0.00	0.15	0.15	0.00	0.14	0.14	539.89
Fine Grading On Road Diesel	0.16	2.34	0.81	0.00	0.01	0.09	0.10	0.00	0.08	0.09	402.60
Fine Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56

9/9/2008 7:14:49 PM

Time Slice 8/1/2012-8/17/2012 Active Days: 13	0.49	4.39	1.52	0.00	49.51	0.15	49.66	10.34	0.14	10.48	565.45
Fine Grading 08/01/2012-08/18/2012	0.49	4.39	1.52	0.00	49.51	0.15	49.66	10.34	0.14	10.48	565.45
Fine Grading Dust	0.00	0.00	0.00	0.00	49.50	0.00	49.50	10.34	0.00	10.34	0.00
Fine Grading Off Road Diesel	0.48	4.38	1.28	0.00	0.00	0.15	0.15	0.00	0.14	0.14	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56
Time Slice 8/20/2012-8/21/2012 Active Days: 2	0.49	4.39	1.52	0.00	14.03	0.15	14.18	2.93	0.14	3.07	565.45
Fine Grading 08/19/2012-08/21/2012	0.49	4.39	1.52	0.00	14.03	0.15	14.18	2.93	0.14	3.07	565.45
Fine Grading Dust	0.00	0.00	0.00	0.00	14.03	0.00	14.03	2.93	0.00	2.93	0.00
Fine Grading Off Road Diesel	0.48	4.38	1.28	0.00	0.00	0.15	0.15	0.00	0.14	0.14	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.56
Time Slice 8/22/2012-8/24/2012 Active Days: 3	0.65	9.36	3.24	0.01	0.06	0.35	0.41	0.02	0.32	0.34	1,610.40
Fine Grading 08/22/2012-08/25/2012	0.65	9.36	3.24	0.01	0.06	0.35	0.41	0.02	0.32	0.34	1,610.40
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.65	9.36	3.24	0.01	0.06	0.35	0.41	0.02	0.32	0.34	1,610.40
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2012 - 7/30/2012 - Trenching - Remaining

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

9/9/2008 7:14:49 PM

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/1/2012 - 8/18/2012 - HDD Crossing

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/19/2012 - 8/21/2012 - Jack and Bore Crossing

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

9/10/2008 8:36:50 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\23440005 PG&E Pipeline AQ\Modeling\PG&E Line 407E_Mitigated.urb924

Project Name: Line 407-E - Mitigated

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	2.75	30.26	11.56	0.04	169.92	1.33	171.25	35.49	1.22	36.71	4,187.05
2010 TOTALS (lbs/day mitigated)	2.75	30.26	11.56	0.04	16.19	1.33	17.52	3.38	1.22	4.60	4,187.05

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 6/1/2010-6/8/2010 Active Days: 6	**2.75**	20.16	**11.56**	0.01	**169.92**	**1.33**	**171.25**	**35.49**	**1.22**	**36.71**	2,128.03
Asphalt 06/01/2010-06/08/2010	2.02	12.01	8.91	0.00	0.01	1.03	1.04	0.00	0.95	0.95	1,159.99
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.95	11.89	6.98	0.00	0.00	1.03	1.03	0.00	0.94	0.94	979.23
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Paving Worker Trips	0.06	0.11	1.92	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.78
Fine Grading 06/01/2010-07/30/2010	0.73	8.15	2.65	0.00	169.92	0.29	170.21	35.49	0.27	35.76	968.03
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.19	2.91	0.98	0.00	0.01	0.11	0.13	0.00	0.10	0.11	402.60
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 6/9/2010-7/30/2010 Active Days: 38	0.73	8.15	2.65	0.00	169.92	0.29	170.21	35.49	0.27	35.76	968.03
Fine Grading 06/01/2010-07/30/2010	0.73	8.15	2.65	0.00	169.92	0.29	170.21	35.49	0.27	35.76	968.03
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.19	2.91	0.98	0.00	0.01	0.11	0.13	0.00	0.10	0.11	402.60
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

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Time Slice 8/2/2010-8/18/2010 Active Days: 13	0.54	5.24	1.67	0.00	126.94	0.18	127.12	26.51	0.17	26.68	565.43
Fine Grading 08/01/2010-08/18/2010	0.54	5.24	1.67	0.00	126.94	0.18	127.12	26.51	0.17	26.68	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	126.93	0.00	126.93	26.51	0.00	26.51	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	35.98	0.00	35.98	7.51	0.00	7.51	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/23/2010-8/25/2010 Active Days: 3	1.97	**30.26**	10.20	**0.04**	0.15	1.15	1.30	0.05	1.06	1.11	**4,187.05**
Fine Grading 08/22/2010-08/25/2010	1.97	30.26	10.20	0.04	0.15	1.15	1.30	0.05	1.06	1.11	4,187.05
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	1.97	30.26	10.20	0.04	0.15	1.15	1.30	0.05	1.06	1.11	4,187.05
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

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Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 300 cubic yards/day; Offsite Cut/Fill: 300 cubic yards/day

On Road Truck Travel (VMT): 100

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/1/2010 - 8/18/2010 - HDD Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 223 cubic yards/day; Offsite Cut/Fill: 223 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 60 cubic yards/day; Offsite Cut/Fill: 60 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/22/2010 - 8/25/2010 - Pipe Hauling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1040

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Off-Road Equipment:

Phase: Paving 6/1/2010 - 6/8/2010 - Minimal Paving Activity

Acres to be Paved: 0.01

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2010-6/8/2010 Active Days: 6	**2.75**	20.16	**11.56**	0.01	16.19	**1.33**	17.52	3.38	**1.22**	4.60	2,128.03
Asphalt 06/01/2010-06/08/2010	2.02	12.01	8.91	0.00	0.01	1.03	1.04	0.00	0.95	0.95	1,159.99
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.95	11.89	6.98	0.00	0.00	1.03	1.03	0.00	0.94	0.94	979.23
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Paving Worker Trips	0.06	0.11	1.92	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.78
Fine Grading 06/01/2010-07/30/2010	0.73	8.15	2.65	0.00	16.18	0.29	16.48	3.38	0.27	3.65	968.03
Fine Grading Dust	0.00	0.00	0.00	0.00	16.17	0.00	16.17	3.38	0.00	3.38	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.19	2.91	0.98	0.00	0.01	0.11	0.13	0.00	0.10	0.11	402.60
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

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Time Slice 6/9/2010-7/30/2010 Active Days: 38	0.73	8.15	2.65	0.00	16.18	0.29	16.48	3.38	0.27	3.65	968.03
Fine Grading 06/01/2010-07/30/2010	0.73	8.15	2.65	0.00	16.18	0.29	16.48	3.38	0.27	3.65	968.03
Fine Grading Dust	0.00	0.00	0.00	0.00	16.17	0.00	16.17	3.38	0.00	3.38	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.19	2.91	0.98	0.00	0.01	0.11	0.13	0.00	0.10	0.11	402.60
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/2/2010-8/18/2010 Active Days: 13	0.54	5.24	1.67	0.00	12.08	0.18	12.26	2.52	0.17	2.69	565.43
Fine Grading 08/01/2010-08/18/2010	0.54	5.24	1.67	0.00	12.08	0.18	12.26	2.52	0.17	2.69	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	12.08	0.00	12.08	2.52	0.00	2.52	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	3.43	0.18	3.61	0.72	0.17	0.88	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	3.43	0.18	3.61	0.72	0.17	0.88	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	3.42	0.00	3.42	0.72	0.00	0.72	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

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Time Slice 8/23/2010-8/25/2010 Active Days: 3	1.97	**30.26**	10.20	**0.04**	0.15	1.15	1.30	0.05	1.06	1.11	**4,187.05**
Fine Grading 08/22/2010-08/25/2010	1.97	30.26	10.20	0.04	0.15	1.15	1.30	0.05	1.06	1.11	4,187.05
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	1.97	30.26	10.20	0.04	0.15	1.15	1.30	0.05	1.06	1.11	4,187.05
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/1/2010 - 8/18/2010 - HDD Crossing

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

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PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/22/2010 - 8/25/2010 - Pipe Hauling

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: Operational Trips

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.03	0.15	0.29	0.00	0.10	0.02	66.65

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.03	0.15	0.29	0.00	0.10	0.02	66.65

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Operational Trips	0.03	0.15	0.29	0.00	0.10	0.02	66.65
TOTALS (lbs/day, unmitigated)	0.03	0.15	0.29	0.00	0.10	0.02	66.65

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Operational Trips		1.00	acres	1.00	1.00	60.00
					1.00	60.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	1.2	98.4	0.4
Light Truck < 3750 lbs	0.0	2.8	91.7	5.5
Light Truck 3751-5750 lbs	0.0	0.9	98.6	0.5
Med Truck 5751-8500 lbs	0.0	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	100.0	0.0	76.5	23.5
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	68.6	31.4	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	60.0	60.0	60.0	60.0	60.0	60.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Operational Trips				2.0	1.0	97.0

D-4: Line 407 East Mitigated

10/27/2008 12:22:56 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: S:\Projects\23440005 PG&E Line 406-407\AQ Work\Modeling\PG&E Line 407E_Mitigated.urb924

Project Name: Line 407-E - Mitigated

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	2.65	18.71	11.07	0.02	169.92	1.27	171.19	35.49	1.17	36.66	2,093.52
2010 TOTALS (lbs/day mitigated)	2.65	18.71	11.07	0.02	16.18	1.27	17.46	3.38	1.17	4.55	2,093.52

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

10/27/2008 12:22:56 PM

Time Slice 6/1/2010-6/8/2010 Active Days: 6	**2.65**	**18.71**	**11.07**	0.00	**169.92**	**1.27**	**171.19**	**35.49**	**1.17**	**36.66**	1,926.72
Asphalt 06/01/2010-06/08/2010	2.02	12.01	8.91	0.00	0.01	1.03	1.04	0.00	0.95	0.95	1,159.99
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.95	11.89	6.98	0.00	0.00	1.03	1.03	0.00	0.94	0.94	979.23
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Paving Worker Trips	0.06	0.11	1.92	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.78
Fine Grading 06/01/2010-07/30/2010	0.64	6.70	2.16	0.00	169.91	0.24	170.15	35.48	0.22	35.70	766.73
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.09	1.45	0.49	0.00	0.01	0.06	0.06	0.00	0.05	0.05	201.30
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 6/9/2010-7/30/2010 Active Days: 38	0.64	6.70	2.16	0.00	169.91	0.24	170.15	35.48	0.22	35.70	766.73
Fine Grading 06/01/2010-07/30/2010	0.64	6.70	2.16	0.00	169.91	0.24	170.15	35.48	0.22	35.70	766.73
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.09	1.45	0.49	0.00	0.01	0.06	0.06	0.00	0.05	0.05	201.30
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

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Time Slice 8/2/2010-8/18/2010 Active Days: 13	0.54	5.24	1.67	0.00	126.94	0.18	127.12	26.51	0.17	26.68	565.43
Fine Grading 08/01/2010-08/18/2010	0.54	5.24	1.67	0.00	126.94	0.18	127.12	26.51	0.17	26.68	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	126.93	0.00	126.93	26.51	0.00	26.51	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	35.98	0.00	35.98	7.51	0.00	7.51	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/23/2010-8/25/2010 Active Days: 3	0.99	15.13	5.10	**0.02**	0.07	0.58	0.65	0.02	0.53	0.56	**2,093.52**
Fine Grading 08/22/2010-08/25/2010	0.99	15.13	5.10	0.02	0.07	0.58	0.65	0.02	0.53	0.56	2,093.52
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.99	15.13	5.10	0.02	0.07	0.58	0.65	0.02	0.53	0.56	2,093.52
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

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Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 300 cubic yards/day; Offsite Cut/Fill: 300 cubic yards/day

On Road Truck Travel (VMT): 50

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/1/2010 - 8/18/2010 - HDD Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 223 cubic yards/day; Offsite Cut/Fill: 223 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 60 cubic yards/day; Offsite Cut/Fill: 60 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/22/2010 - 8/25/2010 - Pipe Hauling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 520

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Off-Road Equipment:

Phase: Paving 6/1/2010 - 6/8/2010 - Minimal Paving Activity

Acres to be Paved: 0.01

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2010-6/8/2010 Active Days: 6	**2.65**	**18.71**	**11.07**	0.00	16.18	**1.27**	17.46	3.38	**1.17**	4.55	1,926.72
Asphalt 06/01/2010-06/08/2010	2.02	12.01	8.91	0.00	0.01	1.03	1.04	0.00	0.95	0.95	1,159.99
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.95	11.89	6.98	0.00	0.00	1.03	1.03	0.00	0.94	0.94	979.23
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Paving Worker Trips	0.06	0.11	1.92	0.00	0.01	0.00	0.01	0.00	0.00	0.01	178.78
Fine Grading 06/01/2010-07/30/2010	0.64	6.70	2.16	0.00	16.18	0.24	16.42	3.38	0.22	3.60	766.73
Fine Grading Dust	0.00	0.00	0.00	0.00	16.17	0.00	16.17	3.38	0.00	3.38	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.09	1.45	0.49	0.00	0.01	0.06	0.06	0.00	0.05	0.05	201.30
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

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Time Slice 6/9/2010-7/30/2010 Active Days: 38	0.64	6.70	2.16	0.00	16.18	0.24	16.42	3.38	0.22	3.60	766.73
Fine Grading 06/01/2010-07/30/2010	0.64	6.70	2.16	0.00	16.18	0.24	16.42	3.38	0.22	3.60	766.73
Fine Grading Dust	0.00	0.00	0.00	0.00	16.17	0.00	16.17	3.38	0.00	3.38	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.09	1.45	0.49	0.00	0.01	0.06	0.06	0.00	0.05	0.05	201.30
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/2/2010-8/18/2010 Active Days: 13	0.54	5.24	1.67	0.00	12.08	0.18	12.26	2.52	0.17	2.69	565.43
Fine Grading 08/01/2010-08/18/2010	0.54	5.24	1.67	0.00	12.08	0.18	12.26	2.52	0.17	2.69	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	12.08	0.00	12.08	2.52	0.00	2.52	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	3.43	0.18	3.61	0.72	0.17	0.88	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	3.43	0.18	3.61	0.72	0.17	0.88	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	3.42	0.00	3.42	0.72	0.00	0.72	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54

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Time Slice 8/23/2010-8/25/2010 Active Days: 3	0.99	15.13	5.10	**0.02**	0.07	0.58	0.65	0.02	0.53	0.56	**2,093.52**
Fine Grading 08/22/2010-08/25/2010	0.99	15.13	5.10	0.02	0.07	0.58	0.65	0.02	0.53	0.56	2,093.52
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.99	15.13	5.10	0.02	0.07	0.58	0.65	0.02	0.53	0.56	2,093.52
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/1/2010 - 8/18/2010 - HDD Crossing

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

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PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/22/2010 - 8/25/2010 - Pipe Hauling

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

D-5: DFM Mitigated

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: S:\Projects\23440005 PG&E Line 406-407\AQ Work\Modeling\DFM_Mitigated.urb924

Project Name: DFM Mitigated

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	0.56	5.53	1.77	0.01	169.90	0.19	170.10	35.48	0.18	35.66	628.06
2010 TOTALS (lbs/day mitigated)	0.56	5.53	1.77	0.01	16.17	0.19	16.37	3.38	0.18	3.56	628.06

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

10/27/2008 12:22:08 PM

Time Slice 6/1/2010-7/30/2010 Active Days: 44	**0.56**	**5.53**	**1.77**	0.00	**169.90**	**0.19**	**170.10**	**35.48**	**0.18**	**35.66**	605.69
Fine Grading 06/01/2010-07/30/2010	0.56	5.53	1.77	0.00	169.90	0.19	170.10	35.48	0.18	35.66	605.69
Fine Grading Dust	0.00	0.00	0.00	0.00	169.90	0.00	169.90	35.48	0.00	35.48	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.02	0.29	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	40.26
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	35.98	0.18	36.17	7.51	0.17	7.68	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	35.98	0.00	35.98	7.51	0.00	7.51	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/23/2010-8/25/2010 Active Days: 3	0.30	4.54	1.53	**0.01**	0.02	0.17	0.20	0.01	0.16	0.17	**628.06**
Fine Grading 08/22/2010-08/25/2010	0.30	4.54	1.53	0.01	0.02	0.17	0.20	0.01	0.16	0.17	628.06
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.30	4.54	1.53	0.01	0.02	0.17	0.20	0.01	0.16	0.17	628.06
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

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Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 300 cubic yards/day; Offsite Cut/Fill: 300 cubic yards/day

On Road Truck Travel (VMT): 10

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

Total Acres Disturbed: 1

Maximum Daily Acreage Disturbed: 0.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 60 cubic yards/day; Offsite Cut/Fill: 60 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/22/2010 - 8/25/2010 - Pipe Hauling

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 156

Off-Road Equipment:

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

10/27/2008 12:22:08 PM

Time Slice 6/1/2010-7/30/2010 Active Days: 44	**0.56**	**5.53**	**1.77**	0.00	16.17	**0.19**	16.37	3.38	**0.18**	3.56	605.69
Fine Grading 06/01/2010-07/30/2010	0.56	5.53	1.77	0.00	16.17	0.19	16.37	3.38	0.18	3.56	605.69
Fine Grading Dust	0.00	0.00	0.00	0.00	16.17	0.00	16.17	3.38	0.00	3.38	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.02	0.29	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	40.26
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/19/2010-8/20/2010 Active Days: 2	0.54	5.24	1.67	0.00	3.43	0.18	3.61	0.72	0.17	0.88	565.43
Fine Grading 08/19/2010-08/21/2010	0.54	5.24	1.67	0.00	3.43	0.18	3.61	0.72	0.17	0.88	565.43
Fine Grading Dust	0.00	0.00	0.00	0.00	3.42	0.00	3.42	0.72	0.00	0.72	0.00
Fine Grading Off Road Diesel	0.53	5.23	1.40	0.00	0.00	0.18	0.18	0.00	0.17	0.17	539.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.54
Time Slice 8/23/2010-8/25/2010 Active Days: 3	0.30	4.54	1.53	**0.01**	0.02	0.17	0.20	0.01	0.16	0.17	**628.06**
Fine Grading 08/22/2010-08/25/2010	0.30	4.54	1.53	0.01	0.02	0.17	0.20	0.01	0.16	0.17	628.06
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.30	4.54	1.53	0.01	0.02	0.17	0.20	0.01	0.16	0.17	628.06
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2010 - 7/30/2010 - Trenching - Remaining

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

10/27/2008 12:22:08 PM

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/19/2010 - 8/21/2010 - Jack and Bore Crossing

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Fine Grading 8/22/2010 - 8/25/2010 - Pipe Hauling

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

D-6: Proposed Project Greenhouse Gas Calculations

Line 406 CO2 Emissions

Trenching Emissions			
Trenching			Total lbs
Equipment	**Max HP**	**Multiplier**	
Environmental, Fence & Pot Hole Crew	**(60 days)**		**CO2**
Pump	250	417	110.99
Off-Highway Truck	250	321	229.23
			340.22
Grade Crew (18 Days)			
Crawler Tractor	250	811	650.23
Tractors/Loaders/Backhoes	250	77	53.36
Grader	250	86	65.63
			769.22
Ditch Crew (18 Days)			
Tractors/Loaders/Backhoes	250	1936	1,333.92
Trencher	250	106	99.22
			1,433.13
Stringing Crew (18 Days)			
Tractors/Loaders/Backhoes	250	77	53.36
Other Material Handling Equipment	250	83	61.40
Other Material Handling Equipment	500	1329	982.40
Crawler Tractor	250	90	72.25
			1,169.40
Bending Crew (18 Days)			
Other Material Handling Equipment	250	332	245.60
Other Material Handling Equipment	120	83	61.40
			307.00
Pipe Gang (Bead Welders) (18 Days)			
Other Material Handling Equipment	250	83	61.40
Crawler Tractor	250	90	72.25
Other Material Handling Equipment	250	83	61.40
Off-Highway Truck	250	80	57.31
Welder	15	4055	2,285.96
			2,538.32
Joint Coating Crew (18 Days)			
Other Material Handling Equipment	250	83	61.40
Air Compressor	15	68	40.64
			102.04
Lower-in Crew (18 Days)			
Other Material Handling Equipment	250	748	552.60
Tractors/Loaders/Backhoes	250	77	53.36
Rubber Tired Dozer	250	76	56.20
Tractors/Loaders/Backhoes	250	77	53.36
			715.51
Tie-In Crew (30 Days)			
Other Material Handling Equipment	250	1495	1,105.20
Tractors/Loaders/Backhoes	250	155	106.71
Rubber Tired Dozer	250	152	112.39
			1,324.30

Line 406 CO2 Emissions

Hydro-Test Crew (39 Days)			
Air Compressor	15	676	406.39
Other Material Handling Equipment	250	208	153.50
Pumps	15	1042	965.89
Pumps	15	260	241.47
			1,767.25
Clean Up Crew (24 Days)			
Rubber Tired Dozer	250	1026	758.65
Tractors/Loaders/Backhoes	250	465	320.14
Grader	250	129	98.45
Tractors/Loaders/Backhoes	175	116	80.04
Off-Highway Truck	500	120	85.96
			1,343.24

	2009
	CO2
Environmental Crew	340.22
All 18-Day Crews	7,034.62
Tie-In Crew	1,324.30
Hydro Test Crew	1,767.25
Clean Up Crew	1,343.24
Total	11,809.63

HDD			
Equipment	**Max HP**	**Multiplier**	**CO2**
	500	90,000.00	84,569.87
Bore/Drill Rigs	750	140,625.00	132,140.42
Cranes	250	4,506.40	2,427.79
Excavator	250	4,514.40	3,223.94
Off-Highway	250	51,300.00	36,635.66
Other Material Handling Equipment	250	21,948.00	16,224.02
			275,221.69

J/B			
Equipment	**Max HP**	**Multiplier**	**CO2**
Bore/Drill Rigs	120	7,200.00	6,765.59
Excavator	250	18,057.60	12,895.75
Other Material Handling Equipment	250	29,264.00	21,632.03
			41,293.37

Line 407E CO2 Emissions

Trenching			Total lbs
Equipment	**Max HP**	**Multiplier**	
Environmental, Fence & Pot Hole Crew	**(60 days)**		**CO2**
Pump	250	309	286.33
Off-Highway Truck	250	238	169.88
			456.22
Grade Crew (18 Days)			
Crawler Tractor	250	601	481.89
Tractors/Loaders/Backhoes	250	57	39.54
Grader	250	64	48.64
			570.07
Ditch Crew (18 Days)			
Tractors/Loaders/Backhoes	250	1435	988.58
Trencher	250	78	73.53
			1,062.11
Stringing Crew (18 Days)			
Tractors/Loaders/Backhoes	250	57	39.54
Other Material Handling Equipment	250	62	45.50
Other Material Handling Equipment	500	985	728.06
Crawler Tractor	250	67	53.54
			866.65
Bending Crew (18 Days)			
Other Material Handling Equipment	250	246	182.02
Other Material Handling Equipment	120	62	45.50
			227.52
Pipe Gang (Bead Welders) (18 Days)			
Other Material Handling Equipment	250	62	45.50
Crawler Tractor	250	67	53.54
Other Material Handling Equipment	250	62	45.50
Off-Highway Truck	250	59	42.47
Welder	15	3005	1,694.14
			1,881.17
Joint Coating Crew (18 Days)			
Other Material Handling Equipment	250	62	45.50
Air Compressor	15	50	30.12
			75.62
Lower-in Crew (18 Days)			
Other Material Handling Equipment	250	554	409.54
Tractors/Loaders/Backhoes	250	57	39.54
Rubber Tired Dozer	250	56	41.65
Tractors/Loaders/Backhoes	250	57	39.54
			530.27
Tie-In Crew (30 Days)			
Other Material Handling Equipment	250	1108	819.07
Tractors/Loaders/Backhoes	250	115	79.09
Rubber Tired Dozer	250	113	83.30
			981.45
Hydro-Test Crew (39 Days)			
Air Compressor	15	501	301.18

Line 407E CO2 Emissions

Other Material Handling Equipment	250	154	113.76
Pumps	15	772	715.83
Pumps	15	193	178.96
			1,309.73
Clean Up Crew (24 Days)			
Rubber Tired Dozer	250	761	562.24
Tractors/Loaders/Backhoes	250	344	237.26
Grader	250	95	72.96
Tractors/Loaders/Backhoes	175	86	59.31
Off-Highway Truck	500	89	63.71
			995.49

	2010
	CO2
Environmental Crew	456.22
All 18-Day Crews	5,213.41
Tie-In Crew	981.45
Hydro Test Crew	1,309.73
Clean Up Crew	995.49
Total	8,956.29

HDD

Equipment	**Max HP**	**Multiplier**	**CO2**
	500	225,000.00	211,424.67
Bore/Drill Rigs	750	351,562.50	330,351.05
Cranes	250	11,266.00	6,069.47
Excavator	250	11,286.00	8,059.84
Off-Highway	250	128,250.00	91,589.14
Other Material Handling Equipment	250	54,870.00	40,560.05
			688,054.22

J/B

Equipment	**Max HP**	**Multiplier**	**CO2**
Bore/Drill Rigs	120	9,900.00	9,302.69
Excavator	250	24,829.20	17,731.66
Other Material Handling Equipment	250	40,238.00	29,744.04
			56,778.38

DFM CO2 Emissions

Trenching Emissions

Trenching			Total lbs
Equipment	**Max HP**	**Multiplier**	2010
Environmental, Fence & Pot Hole Crew	**(60 days)**		**CO2**
Pump	250	71	65.59
Off-Highway Truck	250	54	38.91
			104.50
Grade Crew (18 Days)			
Crawler Tractor	250	138	110.38
Tractors/Loaders/Backhoes	250	13	9.06
Grader	250	15	11.14
			130.58
Ditch Crew (18 Days)			
Tractors/Loaders/Backhoes	250	329	226.44
Trencher	250	18	16.84
			243.29
Stringing Crew (18 Days)			
Tractors/Loaders/Backhoes	250	13	9.06
Other Material Handling Equipment	250	14	10.42
Other Material Handling Equipment	500	226	166.77
Crawler Tractor	250	15	12.26
			198.52
Bending Crew (18 Days)			
Other Material Handling Equipment	250	56	41.69
Other Material Handling Equipment	120	14	10.42
			52.12
Pipe Gang (Bead Welders) (18 Days)			
Other Material Handling Equipment	250	14	10.42
Crawler Tractor	250	15	12.26
Other Material Handling Equipment	250	14	10.42
Off-Highway Truck	250	14	9.73
Welder	15	688	388.06
			430.90
Joint Coating Crew (18 Days)			
Other Material Handling Equipment	250	14	10.42
Air Compressor	15	11	6.90
			17.32
Lower-in Crew (18 Days)			
Other Material Handling Equipment	250	127	93.81
Tractors/Loaders/Backhoes	250	13	9.06
Rubber Tired Dozer	250	13	9.54
Tractors/Loaders/Backhoes	250	13	9.06
			121.46
Tie-In Crew (30 Days)			
Other Material Handling Equipment	250	254	187.62
Tractors/Loaders/Backhoes	250	26	18.12
Rubber Tired Dozer	250	26	19.08
			224.81

DFM CO2 Emissions

Hydro-Test Crew (39 Days)			
Air Compressor	15	115	68.99
Other Material Handling Equipment	250	35	26.06
Pumps	15	177	163.97
Pumps	15	44	40.99
			300.01
Clean Up Crew (24 Days)			
Rubber Tired Dozer	250	174	128.79
Tractors/Loaders/Backhoes	250	79	54.35
Grader	250	22	16.71
Tractors/Loaders/Backhoes	175	20	13.59
Off-Highway Truck	500	20	14.59
			228.03

	2010
	CO2
Environmental Crew	104.50
All 18-Day Crews	1,194.19
Tie-In Crew	224.81
Hydro Test Crew	300.01
Clean Up Crew	228.03
Total	2,051.54

HDD			
Equipment	**Max HP**	**Multiplier**	**CO2**
	500	45,000	42,284.93
Bore/Drill Rigs	750	70,313	66,070.21
Cranes	250	2,253	1,213.89
Excavator	250	2,257	1,611.97
Off-Highway	250	25,650	18,317.83
Other Material Handling Equipment	250	10,974	8,112.01
			137,610.84

J/B			
Equipment	**Max HP**	**Multiplier**	**CO2**
Bore/Drill Rigs	120	3,600	3,382.79
Excavator	250	9,029	6,447.88
Other Material Handling Equipment	250	14,632	10,816.01
			20,646.68

Line 407W CO2 Emissions

Equipment	Max HP	Multiplier		
Environmental, Fence & Pot Hole Crew	**(60 days)**			**CO2**
Pump	250	406		376.86
Off-Highway Truck	250	313		223.60
				600.46
Grade Crew (18 Days)				
Crawler Tractor	250	791		634.25
Tractors/Loaders/Backhoes	250	76		52.05
Grader	250	84		64.02
				750.32
Ditch Crew (18 Days)				
Tractors/Loaders/Backhoes	250	1888		1,301.14
Trencher	250	103		96.78
				1,397.92
Stringing Crew (18 Days)				
Tractors/Loaders/Backhoes	250	76		52.05
Other Material Handling Equipment	250	81		59.89
Other Material Handling Equipment	500	1296		958.26
Crawler Tractor	250	88		70.47
				1,140.67
Bending Crew (18 Days)				
Other Material Handling Equipment	250	324		239.56
Other Material Handling Equipment	120	81		59.89
				299.46
Pipe Gang (Bead Welders) (18 Days)				
Other Material Handling Equipment	250	81		59.89
Crawler Tractor	250	88		70.47
Other Material Handling Equipment	250	81		59.89
Off-Highway Truck	250	78		55.90
Welder	15	3955		2,229.79
				2,475.94
Joint Coating Crew (18 Days)				
Other Material Handling Equipment	250	81		59.89
Air Compressor	15	66		39.64
				99.53
Lower-in Crew (18 Days)				
Other Material Handling Equipment	250	729		539.02
Tractors/Loaders/Backhoes	250	76		52.05
Rubber Tired Dozer	250	74		54.82
Tractors/Loaders/Backhoes	250	76		52.05
				697.93
Tie-In Crew (30 Days)				
Other Material Handling Equipment	250	1458		1,078.04
Tractors/Loaders/Backhoes	250	151		104.09
Rubber Tired Dozer	250	148		109.63
				1,291.76
Hydro-Test Crew (39 Days)				
Air Compressor	15	659		396.41
Other Material Handling Equipment	250	203		149.73

Line 407W CO2 Emissions

Pumps	15	1016	942.15
Pumps	15	254	235.54
			1,723.83
Clean Up Crew (24 Days)			
Rubber Tired Dozer	250	1001	740.01
Tractors/Loaders/Backhoes	250	453	312.27
Grader	250	126	96.03
Tractors/Loaders/Backhoes	175	113	78.07
Off-Highway Truck	500	117	83.85
			1,310.23

	2012
	CO2
Environmental Crew	600.46
All 18-Day Crews	6,861.76
Tie-In Crew	1,291.76
Hydro Test Crew	1,723.83
Clean Up Crew	1,310.23
Total	11,788.04

HDD

Equipment	**Max HP**	**Multiplier**	**CO2**
	500	180,000.00	169,139.74
Bore/Drill Rigs	750	281,250.00	264,280.84
Cranes	250	9,012.80	4,855.58
Excavator	250	9,028.80	6,447.88
Off-Highway	250	9,028.80	6,447.88
Other Material Handling Equipment	250	43,896.00	32,448.04
			483,619.94

J/B

Equipment	**Max HP**	**Multiplier**	**CO2**
Bore/Drill Rigs	120	8,100.00	7,611.29
Excavator	250	20,314.80	14,507.72
Other Material Handling Equipment	250	32,922.00	24,336.03
			46,455.04

D-7: Alternatives Greenhouse Gas Calculations

Trenching Construction Hours

Trenching Construction Timeline / Activity

Alternatives

Hours/Alterantive Difference

Equipment List by Phase	Horsepower	Hours Per Foot	HP Max	HP Min	HP Avg	Pipeline Route	A	B	C	D	E	F	G	H	I	J	K	L
Environmental, Fence & Pot Hole Crew (60 days)						Trench length	2,214	2,640	1,150	860	3,480.00	0	0	(2,943.00)	2,927.00	5,254.00	71.50	-1000
1 Vacuum Suck Pump (Other Equipment)	300-350	0.008	350	300	325		18	21	9	7	28	-	-	(24)	23	42	1	-8
1 Flatbed	200 -260	0.008	260	200	230		18	21	9	7	28	-	-	(24)	23	42	1	(8)
Grade Crew (18 Days)																		-
3 D-8 Dozers	230-300	0.002	300	230	265		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Cat Backhoe	200-300	0.002	300	200	250		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Motor Grader	240-350	0.002	350	240	295		4	5	2	2	7	-	-	(6)	6	11	0	(2)
Ditch Crew (18 Days)																		
5 Backhoes	200-300	0.002	300	200	250		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Ditching Machine	150-250	0.002	250	150	200		4	5	2	2	7	-	-	(6)	6	11	0	(2)
Stringing Crew (18 Days)																		
1 Cat Backhoe	200-300	0.002	300	200	250		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Cat Sideboom	310	0.002	310	310	310		4	5	2	2	7	-	-	(6)	6	11	0	(2)
4 Stringing Trucks	380-470	0.002	470	380	425		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Cat Dozer	230-300	0.002	300	230	265		4	5	2	2	7	-	-	(6)	6	11	0	(2)
Bending Crew (18 Days)																		
2 Sidebooms	310	0.002	310	310	310		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Bending Machine	110	0.002	110	110	110		4	5	2	2	7	-	-	(6)	6	11	0	(2)
Pipe Gang (Bead Welders) (18 Days)																		
1 Sideboom	310	0.002	310	310	310		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Tack Rig	200-250	0.002	250	200	225		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Tow Cat	200-300	0.002	300	200	250		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Skid Truck	200-300	0.002	300	200	250		4	5	2	2	7	-	-	(6)	6	11	0	(2)
8 Gas power welding units	18	0.002	18	18	18		4	5	2	2	7	-	-	(6)	6	11	0	(2)
Joint Coating Crew (18 Days)																		
1 Sideboom	310	0.002	310	310	310		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Air Compressor	8	0.002	8	8	8		4	5	2	2	7	-	-	(6)	6	11	0	(2)
Lower-in Crew (18 Days)																		
3 Sidebooms	310	0.002	310	310	310		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Backhoe	200-300	0.002	300	200	250		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Dozer	230-300	0.002	300	230	265		4	5	2	2	7	-	-	(6)	6	11	0	(2)
1 Backhoe w/ Clam attachment	200-300	0.002	300	200	250		4	5	2	2	7	-	-	(6)	6	11	0	(2)
Tie-In Crew (30 Days)																		
3 Sidebooms	310	0.004	310	310	310		9	11	5	3	14	-	-	(12)	12	21	0	(4)
1 Backhoe	200-300	0.004	300	200	250		9	11	5	3	14	-	-	(12)	12	21	0	(4)
1 Dozer	230-300	0.004	300	230	265		9	11	5	3	14	-	-	(12)	12	21	0	(4)
Hydro-Test Crew (39 Days)																		
2 Air Compressors	10	0.005	10	10	10		11	13	6	4	17	-	-	(15)	15	26	0	(5)
1 Cat Sideboom	310	0.005	310	310	310		11	13	6	4	17	-	-	(15)	15	26	0	(5)
2 Fill Pumps	8	0.005	8	8	8		11	13	6	4	17	-	-	(15)	15	26	0	(5)
1 Test Pump	8	0.005	8	8	8		11	13	6	4	17	-	-	(15)	15	26	0	(5)
Clean Up Crew (24 Days)																		-
3 Dozers	230-300	0.003	300	230	265		7	8	3	3	10	-	-	(9)	9	16	0	(3)
2 Backhoes	200-300	0.003	300	200	250		7	8	3	3	10	-	-	(9)	9	16	0	(3)
1 Motor Grader	250-350	0.003	350	250	300		7	8	3	3	10	-	-	(9)	9	16	0	(3)
1 Tractor	100-200	0.003	200	100	150		7	8	3	3	10	-	-	(9)	9	16	0	(3)
1 Dump Truck	300-400	0.003	400	300	350		7	8	3	3	10	-	-	(9)	9	16	0	(3)

HDD Hours

Equip Mix (including horsepower) Per HDD

By Phase

Hours/Alterantive Difference

HDD Equipmnet List	Hours per Day	Days of Operation			Horse Power		A	B	C	D	E	F	G	H	I	J	K	L
						No.	0	0	0	0	0	0	0	0	0	0	0	1
Drill Rig	10	15			625		0	0	0	0	0	0	0	0	0	0	0	150
Mud Rig	10	15			400		0	0	0	0	0	0	0	0	0	0	0	150
Excavator	10	2			148 - 248		0	0	0	0	0	0	0	0	0	0	0	20
Dump Truck	10	15			300		0	0	0	0	0	0	0	0	0	0	0	150
Crane	10	2			262		0	0	0	0	0	0	0	0	0	0	0	20
Generator	10	15			15		0	0	0	0	0	0	0	0	0	0	0	150
3 Side Booms	10	2			310		0	0	0	0	0	0	0	0	0	0	0	20

Total Tons

Emissions Analysis

URB Equivalent		Equation Factors			Total Hours												Multiplier											
					2009				2012				2010				2009				2012				2010			
Equip	Max HP	No	HP	Load Factor	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L
Pump	250	1	325	0.74	18	21	9	7	28	0	0	-24	23	42	1	-8	4260	5079	2213	1655	6696	0	0	-5662	5632	10109	138	-1924
Off-Highway Truck	250	1	230	0.57	18	21	9	7	28	0	0	-24	23	42	1	-8	2322	2769	1206	902	3650	0	0	-3087	3070	5510	75	-1049
Crawler Tractor	250	3	265	0.64	4	5	2	2	7	0	0	-6	6	11	0	-2	2253	2686	1170	875	3541	0	0	-2995	2979	5346	73	-1018
Tractors/Loaders/Backhoes	250	1	250	0.55	4	5	2	2	7	0	0	-6	6	11	0	-2	609	726	316	237	957	0	0	-809	805	1445	20	-275
Grader	250	1	295	0.61	4	5	2	2	7	0	0	-6	6	11	0	-2	797	950	414	310	1252	0	0	-1059	1053	1891	26	-360
Tractors/Loaders/Backhoes	250	5	250	0.55	4	5	2	2	7	0	0	-6	6	11	0	-2	3045	3630	1581	1183	4785	0	0	-4047	4025	7224	98	-1375
Trencher	250	1	200	0.75	4	5	2	2	7	0	0	-6	6	11	0	-2	664	792	345	258	1044	0	0	-883	878	1576	21	-300
Tractors/Loaders/Backhoes	250	1	250	0.55	4	5	2	2	7	0	0	-6	6	11	0	-2	609	726	316	237	957	0	0	-809	805	1445	20	-275
Other Material Handling Equipment	250	1	310	0.59	4	5	2	2	7	0	0	-6	6	11	0	-2	810	966	421	315	1273	0	0	-1077	1071	1922	26	-366
Other Material Handling Equipment	500	4	425	0.59	4	5	2	2	7	0	0	-6	6	11	0	-2	4442	5296	2307	1725	6981	0	0	-5904	5872	10540	143	-2006
Crawler Tractor	250	1	265	0.64	4	5	2	2	7	0	0	-6	6	11	0	-2	751	895	390	292	1180	0	0	-998	993	1782	24	-339
Other Material Handling Equipment	250	2	310	0.59	4	5	2	2	7	0	0	-6	6	11	0	-2	1620	1931	841	629	2546	0	0	-2153	2141	3844	52	-732
Other Material Handling Equipment	120	1	110	0.59	4	5	2	2	7	0	0	-6	6	11	0	-2	287	343	149	112	452	0	0	-382	380	682	9	-130
Other Material Handling Equipment	250	1	310	0.59	4	5	2	2	7	0	0	-6	6	11	0	-2	810	966	421	315	1273	0	0	-1077	1071	1922	26	-366
Crawler Tractor	250	1	225	0.64	4	5	2	2	7	0	0	-6	6	11	0	-2	638	760	331	248	1002	0	0	-848	843	1513	21	-288
Other Material Handling Equipment	250	1	250	0.59	4	5	2	2	7	0	0	-6	6	11	0	-2	653	779	339	254	1027	0	0	-868	863	1550	21	-295
Off-Highway Truck	250	1	250	0.57	4	5	2	2	7	0	0	-6	6	11	0	-2	631	752	328	245	992	0	0	-839	834	1497	20	-285
Welder	15	8	18	0.45	4	5	2	2	7	0	0	-6	6	11	0	-2	287	342	149	111	451	0	0	-381	379	681	9	-130
Other Material Handling Equipment	250	1	310	0.59	4	5	2	2	7	0	0	-6	6	11	0	-2	810	966	421	315	1273	0	0	-1077	1071	1922	26	-366
Air Compressor	15	1	8	0.48	4	5	2	2	7	0	0	-6	6	11	0	-2	17	20	9	7	27	0	0	-23	22	40	1	-8
Other Material Handling Equipment	250	3	310	0.59	4	5	2	2	7	0	0	-6	6	11	0	-2	2430	2897	1262	944	3819	0	0	-3230	3212	5766	78	-1097
Tractors/Loaders/Backhoes	250	1	250	0.55	4	5	2	2	7	0	0	-6	6	11	0	-2	609	726	316	237	957	0	0	-809	805	1445	20	-275
Rubber Tired Dozer	250	1	265	0.54	4	5	2	2	7	0	0	-6	6	11	0	-2	634	756	329	246	996	0	0	-842	838	1504	20	-286
Tractors/Loaders/Backhoes	250	1	250	0.55	4	5	2	2	7	0	0	-6	6	11	0	-2	609	726	316	237	957	0	0	-809	805	1445	20	-275
Other Material Handling Equipment	250	3	310	0.59	9	11	5	3	14	0	0	-12	12	21	0	-4	4860	5794	2524	1888	7638	0	0	-6459	6424	11531	157	-2195
Tractors/Loaders/Backhoes	250	1	250	0.55	9	11	5	3	14	0	0	-12	12	21	0	-4	1218	1452	633	473	1914	0	0	-1619	1610	2890	39	-550
Rubber Tired Dozer	250	1	265	0.54	9	11	5	3	14	0	0	-12	12	21	0	-4	1267	1511	658	492	1992	0	0	-1685	1675	3007	41	-572
Air Compressor	15	2	10	0.48	11	13	6	4	17	0	0	-15	15	26	0	-5	106	127	55	41	167	0	0	-141	140	252	3	-48
Other Material Handling Equipment	250	1	310	0.59	11	13	6	4	17	0	0	-15	15	26	0	-5	2025	2414	1052	786	3182	0	0	-2691	2677	4805	65	-915
Pumps	15	2	8	0.74	11	13	6	4	17	0	0	-15	15	26	0	-5	131	156	68	51	206	0	0	-174	173	311	4	-59
Pumps	15	1	8	0.74	11	13	6	4	17	0	0	-15	15	26	0	-5	66	78	34	25	103	0	0	-87	87	156	2	-30
Rubber Tired Dozer	250	3	265	0.54	7	8	3	3	10	0	0	-9	9	16	0	-3	2852	3400	1481	1108	4482	0	0	-3790	3770	6767	92	-1288
Tractors/Loaders/Backhoes	250	2	250	0.55	7	8	3	3	10	0	0	-9	9	16	0	-3	1827	2178	949	710	2871	0	0	-2428	2415	4335	59	-825
Grader	250	1	300	0.61	7	8	3	3	10	0	0	-9	9	16	0	-3	1216	1449	631	472	1911	0	0	-1616	1607	2884	39	-549
Tractors/Loaders/Backhoes	175	1	150	0.55	7	8	3	3	10	0	0	-9	9	16	0	-3	548	653	285	213	861	0	0	-728	724	1300	18	-248
Off-Highway Truck	500	1	350	0.57	7	8	3	3	10	0	0	-9	9	16	0	-3	1325	1580	688	515	2083	0	0	-1761	1752	3145	43	-599

Emissions Analysis

URB Equivalent		Equation Factors			Total Hours												Multiplier											
Equip	Max HP	No	HP	Load Factor	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L
Bore / Drill Rig	750	1	625	0.75	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	70313
Bore / Drill Rig	500	1	400	0.75	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	45000
Excavator	250	1	198	0.57	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	2257
Off-Highway Truck	250	1	300	0.57	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	25650
Crane	250	1	262	0.43	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	2253
Generator	15	2	15	0.74	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	3330
Other Material Handling Equipment	250	3	310	0.59	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	10974

Off-Road Calcs

Multiplier

Equipment	Max HP	A	B	C	D	E	F	G	H	I	J	K	L
		2009					2012				2010		
Environmental, Fence & Pot Hole Crew (60 days)													
Pump	250	4260	5079	2213	1655	6696	0	0	-5662	5632	10109	138	-1924
Off-Highway Truck	250	2322	2769	1206	902	3650	0	0	-3087	3070	5510	75	-1049
Grade Crew (18 Days)													
Crawler Tractor	250	2253	2686	1170	875	3541	0	0	-2995	2979	5346	73	-1018
Tractors/Loaders/Backhoes	250	609	726	316	237	957	0	0	-809	805	1445	20	-275
Grader	250	797	950	414	310	1252	0	0	-1059	1053	1891	26	-360
Ditch Crew (18 Days)													
Tractors/Loaders/Backhoes	250	3045	3630	1581	1183	4785	0	0	-4047	4025	7224	98	-1375
Trencher	250	664	792	345	258	1044	0	0	-883	878	1576	21	-300
Stringing Crew (18 Days)													
Tractors/Loaders/Backhoes	250	609	726	316	237	957	0	0	-809	805	1445	20	-275
Other Material Handling Equipment	250	810	966	421	315	1273	0	0	-1077	1071	1922	26	-366
Other Material Handling Equipment	500	4442	5296	2307	1725	6981	0	0	-5904	5872	10540	143	-2006
Crawler Tractor	250	751	895	390	292	1180	0	0	-998	993	1782	24	-339
Bending Crew (18 Days)													
Other Material Handling Equipment	250	1620	1931	841	629	2546	0	0	-2153	2141	3844	52	-732
Other Material Handling Equipment	120	287	343	149	112	452	0	0	-382	380	682	9	-130
Pipe Gang (Bead Welders) (18 Days)													
Other Material Handling Equipment	250	810	966	421	315	1273	0	0	-1077	1071	1922	26	-366
Crawler Tractor	250	638	760	331	248	1002	0	0	-848	843	1513	21	-288
Other Material Handling Equipment	250	653	779	339	254	1027	0	0	-868	863	1550	21	-295
Off-Highway Truck	250	631	752	328	245	992	0	0	-839	834	1497	20	-285
Welder	15	287	342	149	111	451	0	0	-381	379	681	9	-130
Joint Coating Crew (18 Days)													
Other Material Handling Equipment	250	810	966	421	315	1273	0	0	-1077	1071	1922	26	-366
Air Compressor	15	17	20	9	7	27	0	0	-23	22	40	1	-8
Lower-in Crew (18 Days)													
Other Material Handling Equipment	250	2430	2897	1262	944	3819	0	0	-3230	3212	5766	78	-1097
Tractors/Loaders/Backhoes	250	609	726	316	237	957	0	0	-809	805	1445	20	-275
Rubber Tired Dozer	250	634	756	329	246	996	0	0	-842	838	1504	20	-286
Tractors/Loaders/Backhoes	250	609	726	316	237	957	0	0	-809	805	1445	20	-275
Tie-In Crew (30 Days)													
Other Material Handling Equipment	250	4860	5794	2524	1888	7638	0	0	-6459	6424	11531	157	-2195
Tractors/Loaders/Backhoes	250	1218	1452	633	473	1914	0	0	-1619	1610	2890	39	-550
Rubber Tired Dozer	250	1267	1511	658	492	1992	0	0	-1685	1675	3007	41	-572
Hydro-Test Crew (39 Days)													
Air Compressor	15	106	127	55	41	167	0	0	-141	140	252	3	-48
Other Material Handling Equipment	250	2025	2414	1052	786	3182	0	0	-2691	2677	4805	65	-915
Pumps	15	131	156	68	51	206	0	0	-174	173	311	4	-59
Pumps	15	66	78	34	25	103	0	0	-87	87	156	2	-30
Clean Up Crew (24 Days)													
Rubber Tired Dozer	250	2852	3400	1481	1108	4482	0	0	-3790	3770	6767	92	-1288
Tractors/Loaders/Backhoes	250	1827	2178	949	710	2871	0	0	-2428	2415	4335	59	-825
Grader	250	1216	1449	631	472	1911	0	0	-1616	1607	2884	39	-549
Tractors/Loaders/Backhoes	175	548	653	285	213	861	0	0	-728	724	1300	18	-248
Off-Highway Truck	500	1325	1580	688	515	2083	0	0	-1761	1752	3145	43	-599
												Total Lbs	
												Total Tons	

Total Lbs

Equipment	A	B	C	D	E	F	G	H	I	J	K	L
	2009						2012			2010		
Environmental, Fence & Pot Hole Crew (60 days)												
Pump	1,134.69	1,352.86	589.31	440.70	6,207.66	-	-	(5,249.76)	5,221.21	9,372.14	127.54	(1,783.81)
Off-Highway Truck	1,658.48	1,977.35	861.35	644.14	2,606.50	-	-	(2,204.29)	2,192.31	3,935.22	53.55	(749.00)
Grade Crew (18 Days)												
Crawler Tractor	1,806.76	2,154.14	938.35	701.73	2,839.54	-	-	(2,401.37)	2,388.32	4,287.06	58.34	(815.96)
Tractors/Loaders/Backhoes	419.60	500.28	217.92	162.97	659.46	-	-	(557.70)	554.66	995.63	13.55	(189.50)
Grader	609.05	726.15	316.32	236.55	957.20	-	-	(809.49)	805.09	1,445.15	19.67	(275.06)
Ditch Crew (18 Days)												
Tractors/Loaders/Backhoes	2,098.01	2,501.39	1,089.62	814.85	3,297.29	-	-	(2,788.48)	2,773.32	4,978.14	67.75	(947.50)
Trencher	624.20	744.21	324.18	242.43	981.01	-	-	(829.63)	825.12	1,481.10	20.16	(281.90)
Stringing Crew (18 Days)												
Tractors/Loaders/Backhoes	419.60	500.28	217.92	162.97	659.46	-	-	(557.70)	554.66	995.63	13.55	(189.50)
Other Material Handling Equipment	598.74	713.86	310.96	232.54	940.99	-	-	(795.79)	791.46	1,420.68	19.33	(270.40)
Other Material Handling Equipment	3,283.41	3,914.70	1,705.27	1,275.24	5,160.28	-	-	(4,364.00)	4,340.27	7,790.84	106.02	(1,482.84)
Crawler Tractor	602.25	718.05	312.78	233.91	946.51	-	-	(800.46)	796.11	1,429.02	19.45	(271.99)
Bending Crew (18 Days)												
Other Material Handling Equipment	1,197.48	1,427.71	621.92	465.09	1,881.99	-	-	(1,591.58)	1,582.92	2,841.37	38.67	(540.80)
Other Material Handling Equipment	212.46	253.30	110.34	82.52	333.90	-	-	(282.38)	280.84	504.11	6.86	(95.95)
Pipe Gang (Bead Welders) (18 Days)												
Other Material Handling Equipment	598.74	713.86	310.96	232.54	940.99	-	-	(795.79)	791.46	1,420.68	19.33	(270.40)
Crawler Tractor	511.35	609.66	265.57	198.60	803.64	-	-	(679.63)	675.94	1,213.32	16.51	(230.93)
Other Material Handling Equipment	482.85	575.69	250.77	187.54	758.87	-	-	(641.76)	638.28	1,145.71	15.59	(218.06)
Off-Highway Truck	450.67	537.32	234.06	175.04	708.29	-	-	(598.99)	595.74	1,069.35	14.55	(203.53)
Welder	161.79	192.90	84.03	62.84	254.28	-	-	(215.04)	213.87	383.90	5.22	(73.07)
Joint Coating Crew (18 Days)												
Other Material Handling Equipment	598.74	713.86	310.96	232.54	940.99	-	-	(795.79)	791.46	1,420.68	19.33	(270.40)
Air Compressor	10.23	12.19	5.31	3.97	16.07	-	-	(13.59)	13.52	24.27	0.33	(4.62)
Lower-in Crew (18 Days)												
Other Material Handling Equipment	1,796.22	2,141.57	932.88	697.63	2,822.98	-	-	(2,387.36)	2,374.39	4,262.05	58.00	(811.20)
Tractors/Loaders/Backhoes	419.60	500.28	217.92	162.97	659.46	-	-	(557.70)	554.66	995.63	13.55	(189.50)
Rubber Tired Dozer	468.45	558.52	243.29	181.94	736.23	-	-	(622.62)	619.24	1,111.54	15.13	(211.56)
Tractors/Loaders/Backhoes	419.60	500.28	217.92	162.97	659.46	-	-	(557.70)	554.66	995.63	13.55	(189.50)
Tie-In Crew (30 Days)												
Other Material Handling Equipment	3,592.44	4,283.14	1,865.76	1,395.27	5,645.96	-	-	(4,774.73)	4,748.77	8,524.10	116.00	(1,622.40)
Tractors/Loaders/Backhoes	839.20	1,000.56	435.85	325.94	1,318.91	-	-	(1,115.39)	1,109.33	1,991.26	27.10	(379.00)
Rubber Tired Dozer	936.90	1,117.04	486.59	363.88	1,472.46	-	-	(1,245.24)	1,238.47	2,223.07	30.25	(423.12)
Hydro-Test Crew (39 Days)												
Air Compressor	63.92	76.21	33.20	24.83	100.46	-	-	(84.95)	84.49	151.66	2.06	(28.87)
Other Material Handling Equipment	1,496.85	1,784.64	777.40	581.36	2,352.48	-	-	(1,989.47)	1,978.65	3,551.71	48.33	(676.00)
Pumps	121.53	144.90	63.12	47.20	191.00	-	-	(161.53)	160.65	288.37	3.92	(54.89)
Pumps	60.77	72.45	31.56	23.60	95.50	-	-	(80.77)	80.33	144.19	1.96	(27.44)
Clean Up Crew (24 Days)												
Rubber Tired Dozer	2,108.03	2,513.33	1,094.82	818.74	3,313.03	-	-	(2,801.79)	2,786.56	5,001.91	68.07	(952.02)
Tractors/Loaders/Backhoes	1,258.81	1,500.83	653.77	488.91	1,978.37	-	-	(1,673.09)	1,663.99	2,986.89	40.65	(568.50)
Grader	929.06	1,107.69	482.52	360.84	1,460.13	-	-	(1,234.82)	1,228.11	2,204.47	30.00	(419.58)
Tractors/Loaders/Backhoes	377.64	450.25	196.13	146.67	593.51	-	-	(501.93)	499.20	896.07	12.19	(170.55)
Off-Highway Truck	946.41	1,128.38	491.53	367.58	1,487.41	-	-	(1,257.89)	1,251.05	2,245.64	30.56	(427.42)
Total Lbs	33,314.54	39,719.81	17,302.19	12,939.03	56,782.28	-	-	(48,020.19)	47,759.12	85,728.20	1,166.65	(16,316.75)
Total Tons	16.66	19.86	8.65	6.47	28.39	-	-	(24.01)	23.88	42.86	0.58	(8.16)

HDD

Equipment	Max HP	A	B	C	D	E	F	G	H	I	J	K	L
		2009					2012				2010		
	500												70313
Bore/Drill Rigs	750												45000
Cranes	250												2257
Excavator	250												25650
Off-Highway Trucks	250												2253
Generators	15												3330
Other Material Handling Equipment	250												10974

Equipment	A	B	C	D	E	F	G	H	I	J	K	L
	2009						2012			2010		
	-	-	-	-	-	-	-	-	-	-	-	66,070.21
Bore/Drill Rigs	-	-	-	-	-	-	-	-	-	-	-	42,284.93
Cranes	-	-	-	-	-	-	-	-	-	-	-	1,216.05
Excavator	-	-	-	-	-	-	-	-	-	-	-	18,317.83
Off-Highway Trucks	-	-	-	-	-	-	-	-	-	-	-	1,609.11
Generators	-	-	-	-	-	-	-	-	-	-	-	3,087.36
Other Material Handling Equipment	-	-	-	-	-	-	-	-	-	-	-	8,112.01
											Total lbs	140,697.51
											Total Tons	70.35
											Difference	62.19

Appendix E: Biological Resources

E-1: Line 406/407 Jurisdictional Delineation Reports

Draft Report

PG&E Line 406 Pipeline Project Wetland Delineation Report

Prepared for

Pacific Gas and Electric

May 2008

CH2MHILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

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Abbreviations and Acronyms

CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
GIS	geographic information system
GPS	global positioning system
HUC	Hydrologic Unit Code
NRCS	Natural Resources Conservation Service
OHWM	Ordinary High Water Mark
PG&E	Pacific Gas and Electric Company
RWQCB	Regional Water Quality Control Board
U.S.	United States
USGS	United States Geological Survey
USACE	U.S. Army Corps of Engineers

Executive Summary

To meet the projected increase in customer demand in the Central Valley over the next 10 to 15 years, Pacific Gas and Electric Company (PG&E) is constructing a natural gas transmission in Yolo County, California. The proposed project discussed in this report includes the construction of approximately 14 miles of 30-inch-diameter natural gas transmission pipeline. The completed pipeline would operate at a maximum pressure of 975 pounds per square inch and transport up to 475,000,000 cubic feet of natural gas per day.

Prior to the waters of the United States (U.S.) and wetlands delineation survey, a reconnaissance-level field survey was conducted to determine the potential environmental consequences for four potential alternatives for the proposed project. The final route selection was based on the results of the constraints identified in the *L400/401 to L172A Feasibility and Routing Study* (CH2M HILL, 2006). The selected route is a slightly modified version of alternative route 3.

This report presents the findings of a delineation of waters of the U.S. and wetlands conducted by CH2M HILL biologists Tim Armstrong and Russell Huddleston on April 4 and 5, 2007. Additional data were collected on March 28, 2008 following a site visit with the U.S. Army Corps of Engineers (USACE). The delineation was conducted in accordance with the USACE's *Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2006).

Twenty-two sample locations were established in topographic depressions, swales, and other low areas in the approximately 1,697-acre study area. The delineation identified a total of 1.41 acres of seasonal wetland, seasonal wetland swales, and other waters in the study area that could potentially fall under the USACE's jurisdiction under the Federal Clean Water Act (CWA). Several other features, including a constructed pond, irrigation canals, agricultural drainage ditches, and upland swales, also were identified in the study area, but are not likely to fall under the USACE's jurisdiction. The USACE is ultimately responsible for determining the limits of its jurisdiction for the purposes of assessing impacts on waters of the U.S. (including wetlands). The information provided in this report is intended to assist the USACE with that determination.

SECTION 1

Introduction

1.1 Project Description

To meet the projected increase in demand for natural gas in the Central Valley over the next 10 to 15 years, PG&E has developed a long-range investment plan to upgrade and increase the local natural gas transmission system in the area. Included in that plan is the proposed Line 406 project, which consists of approximately 14 miles of 30-inch-diameter natural gas transmission pipeline that would operate at a maximum of 975 pounds per square inch and would transport up to 475,000,000 cubic feet of natural gas per day. In addition to the main pipeline, PG&E plans to construct support structures including main line and bridle valves and blow-off stacks, as well as a pressure limiting and metering station at Line 172A. Above ground line-markers and electrolysis test stations will be installed at selected locations along the alignment. The proposed in-service date is October 1, 2009, with the start of construction projected to be May 1, 2009.

1.2 Project Location

This report covers the proposed Line 406 pipeline that originates at the existing Line 400/401 approximately 1.7 miles north of the town of Capay, and traverses approximately 14 miles to the east to just beyond the existing Line 172A, near the town of Yolo, east of Interstate 5 (Figure 1). The project is located in Yolo County, approximately 4 miles northwest of Woodland. The project starts in Township 10 north, Range 02 east, Section 11 in the Esparto United States Geologic Survey (USGS) 7.5-minute quadrangle, traverses the northern part of the Madison quadrangle, and terminates in Township 10 north, Range 01 east, section 1 of the Woodland quadrangle (Mount Diablo Meridian). The start of the project is located at 38° 43′ 52″ north latitude, 122° 03′ 22″ west longitude and terminates at 38° 44′ 35″ north latitude, 121° 48′ 09″ west longitude.

For the purpose of this report, the proposed alignment has been divided into four segments based on land use, vegetation communities, and bisecting roads. Descriptions and locations of the community types found within the project analysis area are provided in the following sections.

- Segment 1—L400/401 to County Road 85, approximately 0.6 mile of orchards;
- Segment 2—County Road 85 to Interstate 505, approximately 5.0 miles of irrigated crops;
- Segment 3—Interstate 505 to County Road 95A, approximately 5.5 miles of annual grassland in the Dunnigan Hills; and
- Segment 4—County Road 95A to L172A, approximately 3.0 miles of irrigated crops.

1.3 Environmental Setting

The project area is located in the west-central portion of the Sacramento Valley. The eastern and western ends of the project are located in the Yolo Alluvial Fans ecological subsection at elevations ranging from 75 to 200 feet. This subsection is characterized by a broad alluvial plain comprised of Pleistocene and recent alluvium from granitic, volcanic, sedimentary, and metamorphic rock sources. The central section of the project crosses through the Dunnigan Hills subsection, which is an extension of the northern California Interior Coast Range. This area is characterized by well rounded, highly dissected hills derived from non-marine Pliocene mudstones, sandstones, and conglomerates. Slopes are generally low to moderate with elevations ranging from 200 to 250 feet (Miles and Goudey, 1997). The following sections provide additional information on regional climate, hydrology, soils, and vegetation.

1.3.1 Climate and Hydrology

The western part of the Sacramento Valley is characterized by a Mediterranean-type climate with cool, wet winters and hot, dry summers. The average annual temperature ranges from an average low of 37°F in December to an average high of 95°F in July. This moderate climate allows for a year-round growing season. Average annual precipitation is 20.9 inches, with approximately 83 percent of the rainfall occurring between November and March (Natural Resources Conservation Service [NCRS], 2008a). See Appendix A for detailed information.

The easternmost end of the project, near Line 172 A, is approximately 11 aerial miles west of the Sacramento River. Cache Creek, a tributary of the Sacramento River, generally parallels the proposed alignment and is located approximately 1.9 miles south of the western end of the study area near Hungry Hollow and 0.7 miles south of the study area near Yolo at the east end. Throughout most of the alignment, Cache Creek is generally between 3 to 4.5 miles to the south (Figure 1). The Dunnigan Hills divide the project into two separate watershed units. The western side of the study area is located in the Lower Cache Creek hydrologic sub area of the Valley-Putah Creek Hydrologic Unit (Hydrologic Unit Code [HUC] 18020110). This watershed encompasses approximately 77,904 acres. The eastern side of the study area is located in the Colusa Trough hydrologic sub area of the Colusa Basin Hydrologic Unit (HUC 18020104), which encompasses approximately 683,757 acres (California Department of Fish and Game [CDFG], 2008).

The Dunnigan Hills are highly dissected and characterized by numerous dendritic swales and drainages. Runoff is typically rapid, resulting in high intensity, but short duration flows in response to heavy rainfall events. The natural hydrology throughout the western Sacramento Valley has been significantly altered as a result of agricultural conversion and construction of irrigation canals, drainage ditches, levees, and dams.

1.4 Soils

The proposed pipeline bisects 15 different mapped soil units (Figures 2A-2L). Marvin silty clay loam [Mf] is the most common soil type along the western part of the alignment and consists of somewhat poorly drained silty clay loams that formed in alluvium from

sedimentary rocks (NRCS, 1972). The most common soil types in the Dunnigan Hills are the Corning Series [CtD2], Sehorn Series [SkD], and Sehorn-Balcom Complex [SmD]. The Corning Series is characterized by well-drained gravelly loam that was formed in softly consolidated, mixed alluvium. The Sehorn Series and Sehorn-Balcom Complex are comprised of well-drained clay. Finally, the length of pipeline from approximately Road 95A to the junction of line 172A largely crosses Yolo soils [Ya and Yb] that are well-drained silt loams and silty clay loams formed in alluvium derived from sedimentary material.

1.5 Plant Community Types Observed in the Study Area

Several plant community types are present along the proposed pipeline route. Orchards and irrigated field crops characterize the western end of the proposed alignment, from Line 400/401 east to Interstate 505. The central part of the proposed alignment through the Dunnigan Hills is characterized by annual grassland. The eastern section, roughly from the junction of County Road 95A and Road 17, is primarily irrigated crops. Descriptions of these community types are provided below.

1.5.1 Orchard

Orchards are found in two areas along the pipeline alignment. The first orchard is at the tie-in location to the existing Line 400/401. In this area, the proposed pipeline will roughly follow an existing agriculture road between two plum orchards that extend approximately 0.6 mile east to County Road 85 (Figure 3A). The second area is a relatively new almond orchard located near County Road 87 (Figures 3B and 3C). The orchard communities are intensively managed with uniformly spaced trees and an open understory to facilitate harvesting and pruning of the trees.

1.5.2 Irrigated and Dry Land Crops

Irrigated row crops are a dominant community within the western part of the Central Valley and are planted on the most fertile soils in the valley (CDFG, 2005). Alfalfa and tomatoes are common irrigated crops, with wheat and hay the predominant dry-land crops grown along the length of the proposed pipeline. Many of these crops are either flooded using water pumped from larger irrigation canals into smaller irrigation ditches along the edges of the fields, or are irrigated using overhead sprinkler systems. As with orchards, irrigated row crops and wheat crops are highly managed communities.

1.5.3 Annual Grassland

Annual grassland is the dominant community type through the Dunnigan Hills, roughly from Interstate 505 east to County Road 95A (Figures 3E through 3J). This community is comprised largely of annual species of grasses and forbs that germinate with fall rains, grow slowly in the winter months, and remain low in stature until spring when increasing temperatures stimulate rapid growth. Characteristic grass species found in the community include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), medusa-head (*Taeniatherum caput-medusae*), fescue (*Vulpia myuros*), ryegrass (*Lolium multiflorum*) and wild oats (*Avena barbata, A. fatua*). Common annual forbs include lupine (*Lupinus bicolor*), filaree (*Erodium* spp.), blow-wives (*Achyrachaena mollis*), fiddleneck (*Amsinckia menziesii* var. *intermedia*), bur clover (*Medicago polymorpha*), and vetch (*Vicia villosa*).

SECTION 2

Areas Subject to Regulation under Section 404 of the Clean Water Act

2.1 Overview of Federal Wetland Regulation under the Clean Water Act

The USACE regulates discharge of dredge and fill material into waters of the U.S. (including wetlands) under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined as all navigable waters, including (1) all tidal waters; (2) all interstate waters and wetlands; (3) all other waters such as lakes, rivers, streams (perennial or intermittent), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate commerce; (4) all impoundments of water mentioned above; (5) all tributaries to waters mentioned above; (6) territorial seas; and (7) all wetlands adjacent to waters mentioned above.

Wetlands are areas that "are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory, 1987). Any actions that involve the placement of fill material into jurisdictional waters and wetlands must comply with Section 404 of the CWA.

The limit of jurisdictional waters of the U.S. (including wetlands) in non-tidal waters extends to the Ordinary High Water Mark (OHWM), to adjacent wetlands above the OHWM, or, if not adjacent, to the limit of the wetlands. The OHWM is defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics such as a natural line impressed on the bank, shelving, scouring, changes in the character of the soil, destruction of terrestrial vegetation, presence of litter or debris, or other appropriate evidence (33 Code of Federal Regulations [CFR] Section 328.4).

The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are "adjacent wetlands." When waters of the U.S. consist only of wetlands, the jurisdiction extends to the limit of the wetlands (33 CFR Section 328.3(c)).

2.2 Recent Changes in USACE Jurisdiction

In the *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, the Supreme Court determined that the use of wetlands by migratory birds as a link to interstate commerce is not fairly supported by the CWA, and that the USACE cannot solely rely upon this rule as the basis for jurisdiction over isolated wetlands. While jurisdiction over isolated wetlands is determined on a case-by-case basis, in general isolated, intrastate, and non-navigable waters are typically considered to be outside the authority of the CWA. However, isolated wetlands that support interstate commerce or wetlands in which the

degradation or destruction of the wetlands could affect the physical, biological, or chemical integrity of other waters of the U.S. are likely to be considered jurisdictional.

On June 5, 2007, the U.S. Environmental Protection Agency (EPA) issued guidance for the Supreme Court's decision in the *Rapanos v. United States* and *Carabell v. United States court* cases (EPA, 2007). Under this guidance, federal jurisdiction extends to (1) traditional navigable waters, (2) wetlands adjacent to traditional navigable waters, (3) non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries. Jurisdiction over (1) non-navigable tributaries that are not relatively permanent, (2) wetlands adjacent to non-navigable tributaries that are not relatively permanent, and (3) wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary will be based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water. Jurisdiction will not be asserted over the following features: (1) swales or erosional features (e.g., gullies and small washes characterized by low volume, infrequent, or short duration flow), and (2) ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

2.3 State Wetland Regulations

Section 401 of the CWA specifies that states must certify that any activity subject to a federal permit (such as a USACE permit) meet all state water quality standards. In California, the State Water Resources Control Board and the regional boards are responsible for taking certification actions for activities subject to any permit issued by USACE. Wetlands and waters in the project area are subject to the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB) (Region 5S).

Pursuant to California's Porter-Cologne Water Quality Control Act, the RWQCBs also regulate the "discharge of waste" into "waters of the state." All parties proposing to discharge waste that could affect waters of the state must file a waste discharge report with the appropriate RWQCB. The terms "discharge of waste" and "waters of the state" are broadly defined in the Porter-Cologne Water Quality Act, such that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly impact "waters of the state." Under state regulatory authority, any wetlands or other waters of the state, including isolated wetlands, are potentially subject to the jurisdiction of the RWQCB.

SECTION 3

Methods

A wetlands delineation (including waters of the U.S) was conducted for the proposed Line 406 pipeline project on April 4 and 5, 2007, by CH2M HILL biologists Tim Armstrong and Russell Huddleston. Additional surveys were conducted by Russell Huddleston on March 28, 2008, following a site visit with Erin Hess from the USACE on March 25, 2008. The project study area included the proposed 14-mile pipeline route and a 500-foot buffer on each side of the centerline for a total study area of approximately 1,697 acres (Figures 3A through 3L).

Previous reconnaissance field surveys were conducted on October 11 and 13, 2006, as part of the *L400/401 to L172A Feasibility and Routing Study* (CH2M HILL, 2006), which encompassed the four possible alternative routes: Route 1, 2A, 2B, and 3. The final route selected was a slight alteration of alternative route 3.

Prior to conducting the wetland delineation, additional field reconnaissance surveys were conducted in December 2006 to determine vegetation status following the September 2006 fire that burned approximately 14,000 acres in the Dunnigan Hills, including a portion of the proposed pipeline alignment. Because of the impacts on the grassland vegetation resulting from the fire, the wetland delineation was postponed until the vegetation component was fully discernable. The wetland delineation was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (Environmental Laboratory, 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2006). Except in limited instances, these guidelines require positive indicators for hydrophytic vegetation, hydric soil, and wetland hydrology for an area to be considered a wetland.

Sample points were established at 22 locations in areas considered to be potential wetlands and where appropriate, in adjacent upland areas (Figures 3A through 3L). At each sample location, the dominant plant species were identified and the absolute cover was visually estimated for each species. Given the relatively small size of the wetland features and the homogeneity of the plant community, vegetation estimates were made on the overall feature rather than a defined sample area. The dominant species within each vegetation strata (tree, shrub, and herb) included the most abundant species whose cumulative cover accounted for at least 50 percent of the total cover, as well as any single species that accounted for at least 20 percent of the total vegetative cover (USACE, 2006). Strata that contained less than 5 percent total cover were not considered in the dominance test. All taxonomic designations follow the *Jepson Manual Higher Plants of California* (Hickman, 1996). The wetland indicator status of each dominant species was determined using the *National List of Plant Species that Occur in Wetlands, Region 0* (Reed, 1988). A list of plant species observed at the sample locations, with the corresponding indicator status for Region 0, is provided in Table 1.

Wetland hydrology was determined based on observations of surface indicators such as depth of standing water and groundwater conditions observed in soil pits, if present. Where saturated soils or inundation were not observed because of to normal seasonal conditions, other indicators such as defined drainage channels, debris deposits, algal matting, and scouring were noted. Site topography, landscape position, surface water drainage patterns, and seasonal rainfall patterns also were considered for the hydrologic determination at each sample location.

Surface soils were examined in pits excavated with a sharpshooter shovel to depths ranging from 12 to 18 inches. Soil morphological features such as color, texture, and structure were noted for each sample pit. Soil texture was estimated in the field, and moist soil colors were determined using Munsell® soil color charts. Hydric soil determinations were based on indicators provided in the Arid West Regional Supplement (USACE, 2006) as well as *Field Indicators of Hydric Soils in the United States* (NRCS, 2006).

Wetland boundaries were determined in the field based on evident changes in vegetation, hydrology, soils, microtopography, and the presence of defined drainage patterns (if present). Sample point locations and wetland boundaries were mapped using a Trimble GeoXT® global positioning system (GPS) unit. Field data was then post-processed and differentially corrected and plotted on aerial photographs using geographic information system (GIS) software.

In addition to wetlands, other waters features, including ponds, irrigation canals, agricultural ditches, erosional channels, upland swales, and other drainages were also delineated and mapped using a combination of GPS field data and high-resolution aerial photographs.

Representative photographs are included in Appendix B, and the wetlands delineation data forms are included in Appendix C.

TABLE 1
Plant Species Observed at Sample Points and their Wetland Indicator Status

Scientific Name[a]	Common Name	Indicator Status[b]
Amsinckia menziesii	Common fiddleneck	NL
Avena barbata	Wild oat	NL
Bromus diandrus	Rip-gut brome	NL
Bromus hordeaceus	Soft chess	FACU-
Centaurea solstitialis	Yellow star thistle	NL
Convolvulus arvense	bindweed	NL
Crypsis schoenoides	Swamp timothy	OBL
Eleocharis macrostachya	Creeping Spikerush	OBL
Erodium cicutarium	Red-stem filaree	NL
Erodium botrys	Broad leaf filaree	NL
Eryngium sp.	Coyote thistle	FACW
Geranium dissectum	Cutleaf geranium	NL
Glyceria occidentalis (= *G. declinata*)	Mannagrass	OBL
Hordeum marinum ssp. *gussonianum*	Mediterranean barley	FAC
Hypochaeris radicata	Smooth cat's ear	NL
Lactuca seriola	Prickly lettuce	FAC
Lolium multiflorum	Ryegrass	FAC*
Lupinus bicolor	Miniature lupine	NL
Matricaria matricarioides	Pineapple weed	FACU
Medicago polymorpha	Bur clover	NL
Myosurus minimus	Tiny mouse tail	OBL
Plagiobothrys stipitatus	Slender popcorn flower	OBL
Plantago lanceolata	English plantain	FAC-
Poa annua	Annual bluegrass	FACW-
Psilocarphus brevissimus	Wooly marbles	OBL
Ranunculus muricatus	Spiny-fruit buttercup	FACW+
Rumex crispus	Curly dock	FACW-
Taeniatherum caput-medusae	Medusa-head	NL
Trifolium variegatum	White-tip clover	FACW-
Vicia vilosa	Vetch	NL
Vulpia myuros	Fescue	FACU*

Notes:
[a] Plant taxonomy follows *The Jepson Manual: Higher Plants of California* (Hickman, 1993).
[b] Wetland indicator status follow *Plants of the United States of America, Region 0* (Reed, 1988).

FAC = Facultative – Equally likely to occur in wetlands and non-wetlands (34 to 66 percent probability).
FACU = Facultative Upland – Estimated 67 to 99 percent probability of occurrence in non-wetlands.
FACW = Facultative Wetland – Estimated 67 to 99 percent probability of occurrence in wetlands.
NL = Not Listed – Not listed in National List of Plant Species that Occur in Wetlands; is presumed an upland plant.
OBL = Obligate Wetland – Occurs with an estimated 99 percent probability in wetlands.
+/- = Indicates greater (+) or lesser (-) tendency to occur in wetlands.
* = Indicates a tentative status code assignment.

SECTION 4

Results

A total of 1.41 acres of potentially jurisdictional waters, including Goodnow Slough and associated tributaries, seasonal wetlands, and seasonal wetland swales, were identified in the 1,697-acre study area. Other features identified in the study area included a constructed pond, irrigation canals, agricultural ditches, and upland swales that were considered non-jurisdictional. Ultimately, the USACE is responsible for determining the limits of federal jurisdiction under the Clean Water Act and the information provided in this report is intended to assist the USACE with that determination.

As previously noted, the approximately 14-mile pipeline route was divided into four segments based on the roads bisecting the pipeline alignment and vegetation communities encountered. The following sections present the findings for each of the four segments that are defined as follows:

- Segment 1—L400/401 to County Road 85, approximately 0.6 mile of orchards;
- Segment 2—County Road 85 to Interstate 505, approximately 5.0 miles of irrigated crops;
- Segment 3—Interstate 505 to County Road 95A, approximately 5.5 miles of annual grassland in the Dunnigan Hills; and
- Segment 4—County Road 95A to L172A, approximately 3.0 miles of irrigated crops.

A summary of all wetlands, waters, and other features identified during the delineation are provided in Table 2 at the end of this section. Representative site photographs and wetland data sheets are provided in Appendix B and C, respectively.

4.1 Segment 1

With the exception of a small area of annual grassland near the tie-in with the existing Line 401/404, this segment is characterized by irrigated orchards. No wetlands occur in this segment of the proposed alignment. The Hungry Hollow Canal is located approximately 500 feet east of County Road 85 and generally runs perpendicular to the proposed alignment (Figure 3A). The canal is owned and operated by the Yolo County Flood Control and Water Conservation District and is a north lateral off of the Adam West Canal. This feature supplies irrigation water to the orchards and agricultural fields throughout the Hungry Hollow area. Within the study area, the canal is approximately 20 feet wide and is a routinely maintained open channel.

4.2 Segment 2

Segment 2 of the alignment is located entirely within irrigated agricultural fields. The majority of the fields in this area are flood irrigated and, as a result, numerous small earthen agricultural ditches occur throughout this section of the alignment. In addition, two larger

irrigation canals, also managed by Yolo County Flood Control and Water Conservation District, are present in this area (Figures 3A through 3E). No wetlands or natural drainages occur in this segment of the proposed alignment.

4.3 Segment 3

Segment 3 includes the portion of the alignment through the Dunnigan Hills and contains all of the potential jurisdiction wetlands and other waters of the U.S. that were identified in the study area. Vegetation is predominantly annual grassland that is used primarily for sheep pasture. A small amount of irrigated pasture is present along the western end (near Highway 505) and scattered dry land crop fields and residential areas also occur throughout this section.

There is a large irrigation canal just east of the frontage road (Road 90 A) along Highway 505 that runs perpendicular to the proposed alignment at the juncture with County Road 17 (Figure 3E). The channel is approximately 35 feet wide in this area. During the April 2007 field survey shallow ponding was noted within the channel on the north side of County Road 17 and soils were moist to the south. At the time of the survey the channel bottom was vegetated with curly dock (*Rumex crispus*), ryegrass (*Lolium multiflorum*), cut-leaf geranium (*Geranium dissectum*), and cocklebur (*Xanthium strumarium*) throughout. Arroyo willow (*Salix lasiolepis*) was also present in some areas along the side banks. During the April 2007 survey, routine channel maintenance (vegetation and sediment removal) was observed in portions of this feature to the south of the study area.

An excavated, earthen irrigation ditch is present to the east of this canal. This ditch appears to be used to flood irrigate the pasture on the south side of County Road 19. Just east of this ditch is Goodnow Slough (Figure 3F). Goodnow Slough appears to be a natural drainage that has been partially channelized and is currently used as an irrigation canal. The channel is approximately 12 feet wide, devoid of vegetation, and appears to be routinely maintained. A large constructed pond is also present in this area, on the north side of County Road 19 (Figure 3F). The pond is characterized by open water with scattered arroyo willows along the edges.

4.3.1 Tributary Drainages

Three tributary drainage channels to Goodnow Slough are located on the north side of County Road 17 east of Interstate 505 (Figure 3F). These features have generally weakly expressed channels, although some sections of the drainages exhibit well-defined bed and bank characteristics. The average channel widths range from approximately 2 to 5 feet. Scattered vegetation within the channels includes Mediterranean barley and ryegrass. There is also a large patch of giant reed (*Arundo donax*) present along the lower part of Drainage No. 2. While these drainages were dry at the time of the surveys, erosional scouring and a large amount of debris along the barbed wire fence suggest these drainages are subject to high-intensity, ephemeral flows in response to storm events.

4.3.2 Seasonal Wetland 1 (sp-11 and sp-12)

Seasonal Wetland 1 is located at the terminus of a dendritic drainage/swale system immediately adjacent to Goodnow Slough (Figure 3F). Vegetation in this area consists of

scattered spikerush (*Eleocharis macrostachya*), mannagrass (*Glyceria declinata*), and Mediterranean barley (*Hordeum marinum* spp. *gussonianum*). Surface soil (0 to 8 inches) at this location is a dark grayish brown (2.5 Y 4/2) clay with approximately 15 percent light yellowish brown (2.5 Y 6/3) concentrations throughout the matrix. Below 8 inches, the soil is gleyed (Gley 6/5 GY) sandy clay loam with approximately 25 percent yellowish brown (10 YR 5/6) concretions in the matrix. Calcium carbonate concentrations are also present throughout the lower soil profile. At the time of the survey, the soils were saturated in the upper 2 inches and moist to a depth of 16 inches. In addition to receiving surface water from the upslope drainage, this area may also receive seepage water from the adjacent slough.

A second sample point was located in the upland swale located to the northeast of seasonal wetland 1 (Figure 3F). Mediterranean barley and bur clover are the dominant vegetation in this area, with approximately 20 percent bare ground. Surface soil in this area (0 to 3 inches) is a dark grayish brown (10 YR 4/2) sandy clay loam with approximately 5 percent brown (7.5 YR 4/4) concentrations along the root channels. From 3 to 15 inches, the soil is a mixture of dark grayish brown (10 YR 4/2) and dark gray (10 YR 4/1) sandy clay loam with approximately 15 percent brown (7.5 YR 4/4) and 5 percent black (10 YR 2/1) concentrations. This area appears to convey overland flows in response to storm events, but does not exhibit an OHWM and there was no evidence to suggest prolonged saturation or inundation occurs in this area.

4.3.3 Seasonal Wetland 2 (sp-13 and sp-14)

Seasonal Wetland 2 is located on the north side of County Road 17, immediately east of the dendritic drainage/swale feature that flows into Seasonal Wetland 1 (Figure 3F). This area is characterized by a broad, shallow topographic depression that exhibits a notable change in vegetation from the adjacent grassland community. Ryegrass is the dominant species throughout the basin with scattered Mediterranean barley, slender popcorn flower (*Plagiobothrys stipitatus*) and coyote thistle (*Eryngium* sp.). Surface soil (0 to 7 inches) in this location is a dark grayish brown (10 YR 3/2) clay loam with approximately 5 percent dark yellowish brown (10 YR 4/6) concentrations in the matrix. Below 7 inches, the soil is a grayish brown (10 YR 3/2) clay. The basin was dry during the March 28, 2008 survey, but algal matting was present throughout, suggesting the presence of ponded water earlier in the season.

The adjacent grassland area (sp-14) is characterized by non-native annual grasses, including fescue, wild oat, medusa-head and filaree. Soil in this area is a gravelly, brown (10 YR 4/3) clay loam in the upper 7 inches, becoming more of a clay texture with depth. No redoximorphic features or other indicators of hydric soil were noted at the time of the survey and there was no indication of seasonal saturation or inundation in this area.

4.3.4 Upland (sp-10)

This sample point is located in a in a relatively low-lying area characterized by Mediterranean barley and bur clover. The upper 1 inch of the soil is a dark grayish brown (10 YR 4/2) clay loam, with very few (less than 1 percent) brown (7.5 YR 4/4) concentrations along the root channels. Below 1 inch, the soil is a gravelly dark grayish brown (10 YR 4/2) clay with no redoximorphic features. No evidence of flowing water, saturation, or inundation was noted in this area.

4.3.5 Upland Swale/Drainage (sp-9 and sp-9a)

Sample point 9 was located on the south side of County Road 17 in a weakly expressed topographic swale feature, just downslope of a culvert under the roadway (Figure 3G). Vegetation throughout this area is characterized by Mediterranean barley and bur clover. The surface soil (from 0 to 2 inches) is a very gravelly, brown (10 YR 4/3) sandy clay loam with approximately 3 percent dark brown (7.5 YR 3/4) concentrations along the root channels. From 2 to 18 inches, the soil is a very gravelly, dark gray (10 YR 4/1) clay. This area appears to convey short duration overland flows in response to storm events, but does not exhibit an OHWM, nor does it show evidence of seasonal saturation or inundation.

A second sample point (sp-9a) was taken in a small drainage leading to the culvert on the north side of County Road 17 (Figure 3G). This drainage is located downslope of a broad, weakly expressed topographic swale. Vegetation in this area is predominantly soft chess and fescue with some Mediterranean barley and scattered curly dock also present. Soil in this area is a brown (10 YR 4/3) clay loam throughout the upper 16 inches, with no redoximorphic features. This area appears to convey short duration overland flows in response to storm events, but does not exhibit an OHWM or show evidence of prolonged seasonal saturation or inundation.

4.3.6 Upland Swale (sp-8)

Sample point 8 was established in a weakly expressed topographic swale feature, just down slope of a 16-inch-diameter culvert under County Road 17. Vegetation throughout this area is characterized by Mediterranean barley and bur clover. Surface soil to a depth of 2 inches is a gravelly, dark grayish brown (10 YR 4/2) sandy clay loam with approximately 2 percent brown (7.5 YR 4/4) concentrations along the roots channels. From 2 to 15 inches, the soil is a very gravelly, dark grayish brown (10 YR 4/2) clay with no redoximorphic features. This area may convey short duration overland flows in response to storm events, but does not exhibit an OHWM or show evidence of prolonged seasonal saturation or inundation.

4.3.7 Upland (sp-8a)

Sample point 8a is located in a low saddle area that was characterized by dense ryegrass. Surface soil in this area was a very dark grayish brown (10 YR 3/2) sandy clay loam from 0 to 8 inches. Very few (less than 1 percent) yellowish red (5 YR 4/6) concentrations are present along the root channels in the upper 2 inches, and very few dark brown (7.5 YR 3/4) concentrations are in the matrix from 2 to 8 inches. Below 8 inches, the soil is a dark grayish brown (10 YR 4/2) clay with very few dark brown (7.5 YR 3/4) concentrations in the matrix. This area may convey overland flow in response to storm events, but does not exhibit an OHWM and does not appear to support prolonged seasonal saturation or inundation.

4.3.8 Upland Swale (sp-8b)

This sample point is located in a weakly expressed topographic swale characterized by ryegrass and Mediterranean barley. Soil in the upper 7 inches is a dark grayish brown (10 YR 4/2) clay loam with no redoximorphic features. Soil color is the same between 7 and 16 inches, but the texture becomes clay. This area appears to convey short duration overland flows in response to storm events, but does not exhibit an OHWM or show evidence of prolonged seasonal saturation or inundation.

4.3.9 Seasonal Wetland Swale 1 (sp-7a, sp-7b, sp-7c)

This area is characterized by a weakly expressed topographic swale and excavated drainage leading to a 16-inch-diameter culvert on the north side of County Road 17 (Figure 3G). This area is shown as an intermittent blue-line drainage on the Madison USGS 7.5-minute quadrangle. Ryegrass and Mediterranean barley are the dominant species throughout the seasonal wetland swale. The surface soil (0 to 2 inches) is a dark grayish brown (10 YR 4/2) clay loam with approximately 2 percent yellowish red (5 YR 4/6) concentrations along the root channels. From 2 to 9 inches the soil is a very dark grayish brown (10 YR 4/1) clay loam with approximately 5 percent dark yellowish brown (10 YR 4/4) concentrations in the matrix. Soil below 9 inches is a very dark grayish brown (10 YR 3/2) clay with approximately 2 percent dark yellowish brown (10 YR 4/4; 10 YR 3/4) concentrations in the matrix. A small earthen berm (less than 12 inches high) is present along the south end of this feature, parallel to the road. This small berm appears to impede down slope drainage and resulting in increased seasonal saturation and inundation at this location as evidenced by algal matting in the lower swale area.

A sample point was also established in the drainage feature on the north side of the road that conveys flows into the 16-inch-diameter culvert (sp-7c). Ryegrass was the sole dominant plant species in the drainage with scattered curly dock and sparse wild oat. Soils are highly stratified with the matrix layers ranging dark grayish brown (10 YR 4/2 and 10 YR 4/3) to brown (10 YR 5/3). Few to common redoximorphic concentrations were observed throughout the soil profile ranging from yellowish red (5 YR 4/5) along the root channels to dark yellowish brown (10 YR 3/6) in the matrix. Soil texture is a clay loam in the upper 8 inches, becoming clay between 8 and 16 inches. This drainage feature appears to both convey flows and support some seasonal saturation and inundation.

One upland sample point (sp-7b) was established adjacent to the seasonal wetland swale and drainage area. Vegetation at this location is typical for the annual grassland habitat throughout the Dunnigan Hills and included species such as filaree, ryegrass, fescue and wild oat. Surface soil (0 to 6.5 inches) in this area is a brown (10 YR 4/3) sandy loam. Between 6.5 and 8 inches the soil is a stratified brown (10 YR 4/3) (7.5 YR 4/4) and grayish brown (10 YR 5/2) silt loam. Below 8 inches the soil is a dark grayish brown (10 YR 4/2) clay with very few (less than 1 percent) dark yellowish brown (10 YR 4/4) concentrations in the matrix. This area may support brief overland flows in response to storm events, but does not show any indication of prolonged saturation or inundation or an OHWM.

4.3.10 Upland Swale (sp-7)

Sample point sp-7 is located in a weakly expressed swale on the south side of County Road 17 downslope of a 16-inch-diameter culvert. Vegetation in the swale is similar to the grassland vegetation throughout this area and is characterized by ryegrass with scattered bur clover and soft chess. Soil in the upper 2 inches is a dark grayish brown (10 YR 4/2) clay loam with few (less than 2 percent) dark yellowish brown (10 YR 4/6) concentrations along the root channels. Below 2 inches the soil is a dark grayish brown (10 YR 4/2) clay with very few (less than 1 percent) dark yellowish brown (10 YR 4/6) concentrations in the matrix. This area appears to support highly ephemeral, short duration overland flows in response to storm events, but does not exhibit an OHWM or appear to be subject to prolonged saturation or inundation.

4.3.11 Upland Swale (sp-5)

This sample point was established in a weakly expressed topographic swale that flows to the south into a slightly eroded scour channel. Vegetation in the swale is similar to the adjacent grassland community with filaree and ryegrass the dominant species and scattered soft chess and wild oat also present. The top one inch of the soil is a very gravelly, dark brown (7.5 YR 3/2) sandy clay loam with few (less than 2 percent) strong brown (7.5 YR 4/6) concentrations along the root channels. From 1 to 12 inches the soil is a very gravelly, dark brown (7.5 YR 3/2) sandy clay loam with no redoximorphic features. This area likely conveys short duration overland flow in response to storm events, but does not exhibit an OHWM or appear to support prolonged saturation or inundation.

4.3.12 Upland (sp-6)

This sample point is located in a very weakly expressed topographic low area. Vegetation in this location is typical of the annual grassland observed throughout the Dunnigan Hills and included species such as wild oat, ryegrass, soft chess, bur clover and filaree. Surface soil (0 to 3 inches) in this area is a very gravelly, dark grayish brown (10 YR 4/2) clay loam underlain by a very gravelly, very dark grayish brown (10 YR 3/2) clay. Ephemeral overland flows may occur in this area in response to storm events, but no OHWM or evidence of prolonged seasonal saturation or inundation was evident at this location.

4.3.13 Seasonal Wetland 2 (sp-4, sp-4a, sp-4b)

This feature is shown as blue-line stream on the Madison 7.5-minute USGS quadrangle map. There is a very weakly expressed topographic low area on the north side of County Road 17 and an 18-inch-diameter culver under the road in this area. There is no apparent change in vegetation or evidence of flow on the north side of the road; therefore, sample points were located only on the south side of the road in this area. During the March 2008 survey, drift lines were present on the barb wire fence along the south side of the road, indicating significant flows overtopping the road and flowing down the swale in this area. Approximately 100 feet downslope from the road there is a well-defined erosional channel that exhibited recent evidence of scour during the March 2008 surveys. This erosional channel ends abruptly and overland flow continues through an upland swale (Figure 3H). Two sample points were established in the swale feature down slope of the culvert on the south side of County Road 17. Both points had similar vegetation and soil characteristic (sp-4 and sp-4a). Ryegrass and Mediterranean barley are the dominant plant species throughout the swale. Soil in the upper part (2 to 4 inches) is a dark grayish brown (10 YR 4/2) sandy clay loam with a few (1 to 2 percent) yellowish red (5 YR 4/6) concentrations along the root channels. Soils in the lower horizon were also dark grayish brown (10 YR 4/2) and ranged from gravelly sandy clay loam to clay texture. Soil cracks were noted in this area and the adjacent upland area during the March 2008 field visits. Soil in this area is mapped as the Sehorn-Balcom complex. Both of these soil series are Vertisols that are characterized by cracks that regularly close and open each year due to the shrink-swell of the clay as a result of changes in soil moisture (NRCS, 2008b and 1999). Soil cracks associated with Vertic soils are not considered to be an indicator of wetland hydrology (USACE, 2006). However, the debris (drift lines) along the barbed wire fence and the scouring observed in the erosional channel suggest that significant flows had recently occurred in this location. While flows in this area appear to be relatively high intensity,

they are likely highly ephemeral based on the slope, drainage patterns, and rapid runoff. This area did not appear to support prolonged saturation or inundation.

Sample point sp-4b was established in the grassland community adjacent to the swale. Dominant vegetation in this area includes ryegrass, soft chess, wild oat, and bur clover. Soil in the upper 10 inches is a dark grayish brown (10 YR 4/2) clay loam underlain by a brown (10 YR 4/3) clay. Surface cracks in the soil were also evident in this area. This area may be subject to short duration overland flow in response to stormwater runoff, but no evidence of prolonged saturation, inundation, or an OHWM was observed.

4.3.14 Upland (sp-3)

Sample point 3 is located in a topographic low area south of County Road 17. The vegetation is similar throughout this area and is characterized by soft chess and Mediterranean barley with sparse curly dock, bur clover and miniature lupine. Soil in this area is a gravelly, dark grayish brown (10 YR 4/2) clay loam throughout the upper 16 inches. No redoximorphic features or other indicators of hydric soil were observed. No evidence of recent flow or prolonged seasonal saturation/inundation was noted at this location.

4.3.15 Upland (sp-2)

Sample point sp-2 was located in a low saddle area between two rolling hills. The grassland habitat in this area is characterized by Mediterranean barley with sparse soft chess and ryegrass. Soil throughout the upper 4 inches is a gravelly, dark grayish brown (10 YR 4/2) clay loam, becoming clay below 4 inches. No redoximorphic features or other indicators of hydric soil were observed. No OHWM, evidence of ephemeral flow, or wetland hydrology was noted in this location.

4.3.16 Upland Swale (sp-1)

The feature is a weakly expressed drainage swale at the base of a rolling hill that is shown on the USGS Woodland quadrangle map as and intermittent blue-line drainage. Ryegrass is dominant plant species throughout the swale, but is also abundant throughout the adjacent grassland area. Associated species with relatively low cover in this area included soft chess, Mediterranean barley, wild oat, yellow star-thistle (*Centaurea solstitialis*), bur clover, and prickly lettuce (*Lactuca serriola*). Surface soil (0 to 4 inches) is a dark grayish brown (10 YR 4/1) clay loam. From 4 to 12 inches the soil is a gravelly, very dark grayish brown (10 YR 4/1) clay. No redoximorphic features or other indicators of hydric soil were noted in the upper 12 inches of the soil profile. This feature likely conveys short duration, overland flows in response to heavy rainfall, but no OHWM or evidence of prolonged inundation or saturation were noted in this area.

4.4 Segment 4

Segment 4 of the proposed alignment is located almost entirely within irrigated agricultural fields. No wetlands were observed in this section. The Acacia Canal, a constructed agricultural irrigation canal, is located in this section between County Road 96 and Interstate 5 (Figure 3K). This feature is approximately 8 to 10 feet wide and supports a narrow riparian corridor that is characterized by valley oak (*Quercus lobata*) and California

walnut (*Juglans hindsii*). Scattered willow (S*alix sp.*), cottonwood (*Populus fremontii*), and Himalayan blackberry (*Rubus discolor*) are also present in some areas along the canal. Common herbaceous species along the banks include dallisgrass (*Paspalum dilatatum*), barnyard grass (*Echinochloa crus-galli*), curly dock, milk thistle (*Silybum marinum*), mustard (*Hirschfeldia incana*), and Queen Anne's lace (*Daucus carota*).

TABLE 2
Wetlands and Waters Survey Results by Sample Location for the PG&E Yolo Pipeline Route 406

Feature	Total Area (acres)	Hydrophytic Vegetation	Wetland Hydrology	Hydric Soils	Waters of the U.S./ Wetlands[a]	Notes
Segment 1						
Hungry Hollow Canal	0.58	None	Yes	N/A	No	Constructed irrigation canal west of County Road 85; routinely maintained; approximately 20 feet wide. Pipeline will be installed using directional drill or jack and bore under the canal.
Segment 2						
Irrigation Canal 1	0.37	None	Yes	N/A	No	Constructed irrigation canal east of County Road 88A; routinely maintained; approximately 15 feet wide. Pipeline will be installed using directional drill or jack and bore under the canal.
Irrigation Canal 2	0.35	None	Yes	N/A	No	Constructed irrigation canal west of Interstate 505; routinely maintained; approximately 15 feet wide. Pipeline will be installed using directional drill or jack and bore under the canal.
Agricultural Drainage Ditches	1.81	None	Yes	N/A	No	Numerous constructed agricultural drainages for localized conveyance of irrigation water occur throughout this segment. Pipeline would likely be installed using either open cut trench or directional drill in these areas; all drainages would be restored to the original condition following construction.
Segment 3						
Irrigation Canal 3	0.87	Yes	Yes	N/A	No	Constructed canal adjacent to Interstate 505, approximately 35 feet wide. Pipeline will be installed using directional drill or jack and bore under the canal and highway at this location.
Agricultural Drainage Ditch	0.10	None	Yes	N/A	No	Agricultural drainages for localized conveyance of irrigation water to pasture land to the south. Proposed project would not affect this feature.
Goodnow Slough	0.79	None	Yes	N/A	Yes	Historical natural feature that has been partially channelized and is routinely maintained for conveyance of irrigation water. Proposed project would not affect this feature.
Pond	1.48	No	Yes	N/A	No	Constructed pond with sparse riparian vegetation along edges. Appears to be a constructed reservoir for irrigation water storage. Proposed project would not affect this feature.

TABLE 2
Wetlands and Waters Survey Results by Sample Location for the PG&E Yolo Pipeline Route 406

Feature	Total Area (acres)	Hydrophytic Vegetation	Wetland Hydrology	Hydric Soils	Waters of the U.S./ Wetlands[a]	Notes
Drainage 1	0.04	No	Yes	N/A	Yes	Tributary to Goodnow Slough; weakly expressed bed and bank bed characteristics with some evidence of scouring along the channel; this drainage appears to support ephemeral flows in response to storm events. Proposed project would not affect this feature.
Drainage 2 & 3	0.07	No	Yes	N/A	Yes	Tributaries to Goodnow Slough – weakly expressed drainages to the north, but well defined bed and bank characteristics near County Road 17; drainages appear to support high intensity, but ephemeral flows in response to storm events. Proposed project would not affect these features.
Seasonal Wetland 1	0.01	Yes	Yes	Yes	Yes	Seasonal wetland area immediately adjacent to Goodnow slough. Proposed project would not affect this feature.
Upland Swale (sp-11)	0.18	No	No	No	No	Weakly expressed topographic swale, likely conveys ephemeral overland flows in response to storm events, but does not exhibit an OHWM or evidence of wetland hydrology. Potential temporary impacts on this feature during construction.
Seasonal Wetland 2 (sp-13)	0.18	Yes	Yes	Yes	Yes	Shallow topographic depression located adjacent to ephemeral drainage channel that is tributary to Goodnow Slough.
Upland Swale (sp-9)	0.15	Yes	No	No	No	Weakly expressed swale feature shown as an intermittent blue line on USGS topographic map; likely conveys some highly ephemeral overland flow in response to storm events but has no OHWM or evidence of prolonged saturation or inundation.
Upland Swale/ Drainage (sp-9a)	0.75	No	No	No	No	Weakly expressed swale feature shown as an intermittent blue line on USGS topographic map; likely conveys some highly ephemeral overland flow in response to storm events but has no OHWM or evidence of prolonged saturation or inundation.
Upland Swale (sp-8)	0.51	No	No	No	No	Weakly expressed swale feature; likely conveys some highly ephemeral overland flow in response to storm events but has no OHWM or evidence of prolonged saturation or inundation.
Upland Swale (sp-8b)	0.43	No	No	No	No	Weakly expressed swale feature; likely conveys some highly ephemeral overland flow in response to storm events but has no OHWM or evidence of prolonged saturation or inundation.

TABLE 2
Wetlands and Waters Survey Results by Sample Location for the PG&E Yolo Pipeline Route 406

Feature	Total Area (acres)	Hydrophytic Vegetation	Wetland Hydrology	Hydric Soils	Waters of the U.S./ Wetlands[a]	Notes
Seasonal Wetland Swale 1 (sp-7a)	0.15	Yes	Yes	Yes	Yes	Weakly expressed swale feature shown as an intermittent blue line on USGS topographic map; berm along roadside impedes flows in this area and appears to result in seasonal ponding.
Drainage (sp-7c)	0.02	Yes	Yes	Yes	Yes	Roadside drainage to culvert; shown as an intermittent blue line on USGS topographic map; area appears to support ephemeral flows as well as seasonal ponding due to restricted drainage at the culvert.
Upland Swale (sp-7)	0.06	Yes	No	No	No	Weakly expressed swale area shown as a blue line on the USGS topographic map. This area appears to convey some ephemeral overland flows in response to storm events, but does not exhibit an OHWM or evidence of prolonged saturation or inundation.
Upland Swale (sp-5)	0.16	No	No	No	No	Weakly expressed swale feature; likely conveys some highly ephemeral overland flow in response to storm events but has no OHWM or evidence of wetland hydrology
Seasonal Wetland Swale 2 (sp-4/sp-4a)	0.04	Yes	No	No	Yes[b]	Weakly expressed swale area shown as a blue line on the USGS topographic map. This area appears to convey overland flows in response to storm events to the south into a well defined, but discontinuous erosional scour channel; drift lines observed on fence and erosional scouring noted in this area, but there was no evidence of prolonged seasonal saturation or inundation.
Erosional Channel (sp-4)	0.11	No	Yes	N/A	Yes[b]	Erosional scour channel, devoid of vegetation; shown as an intermittent blue line on the USGS topographic map; evidence of significant flow in this area based on significant scouring at head cut area. Channel dissipates into upland swale to the southeast.
Upland Swale (sp-4)	0.05	No	No	N/A	No	Weakly expressed swale area shown as a blue line on the USGS topographic map. This area appears to convey some ephemeral overland flows in response to storm events, but does not exhibit an OHWM or show evidence of prolonged saturation or inundation.
Upland Swale (sp-3)	0.04	No	No	No	No	Weakly expressed swale located in the vicinity of an intermittent blue line shown on the USGS topographic map. This area appears to convey some ephemeral overland flows in response to storm events, but does not exhibit an OHWM or show evidence of prolonged saturation or inundation.

TABLE 2
Wetlands and Waters Survey Results by Sample Location for the PG&E Yolo Pipeline Route 406

Feature	Total Area (acres)	Hydrophytic Vegetation	Wetland Hydrology	Hydric Soils	Waters of the U.S./ Wetlands[a]	Notes
Upland Swale (sp-1)	0.33	Yes	No	No	No	Weakly expressed swale located in the vicinity of an intermittent blue line shown on the USGS topographic map. This area appears to convey some ephemeral overland flows in response to storm events, but does not exhibit an OHWM or show evidence of prolonged saturation or inundation.
Segment 4						
Acacia Canal	0.80	Yes	Yes	---	No	Constructed irrigation canal, approximately 8 to 10 feet wide. This feature supports narrow band of riparian vegetation. The pipeline placement will be located on the south side of the canal and cross the pipeline by directional drill or jack and bore under County Road 96.

Notes:

[a] Preliminary jurisdictional determination subject to verification by the USACE.
[b] This area was considered a potential seasonal wetland swale by the USACE during the March 25, 2998 field verification.

4.5 Summary of Potential Jurisdictional and Non-jurisdictional Features

A wetland delineation was conducted for PG&E's proposed 14-mile natural gas pipeline (Line 406) in Yolo County, California. The project study area included the centerline of the proposed pipeline and a 500-foot buffer to either side for a total of approximately 1,697 acres. A total of 1.41 acres of potential jurisdictional wetlands and other waters of the U.S. were identified in the project study area (Table 3). An additional 9.02 acres of non-jurisdictional features, including a constructed pond, irrigation canals, agricultural ditches, and upland swales also occur in the study area.

TABLE 3
Summary of Potential Jurisdictional and Non-jurisdictional Features Identified in the Project Study Area

	Acreage
Potential Jurisdictional Wetland and Other Waters	
Goodnow Slough	0.79
Drainages (tributary to Goodnow Slough)	0.11
Seasonal Wetlands	0.19
Seasonal Wetland Swales /Drainage	0.21
Erosional Channel	0.11
Total	**1.41**
Non-Jurisdictional Wetland and Other Waters	
Constructed Pond	1.48
Canals	2.97
Agricultural Drainage Ditches	1.91
Upland Swales / Drainage	2.66
Total	**9.02**

SECTION 5

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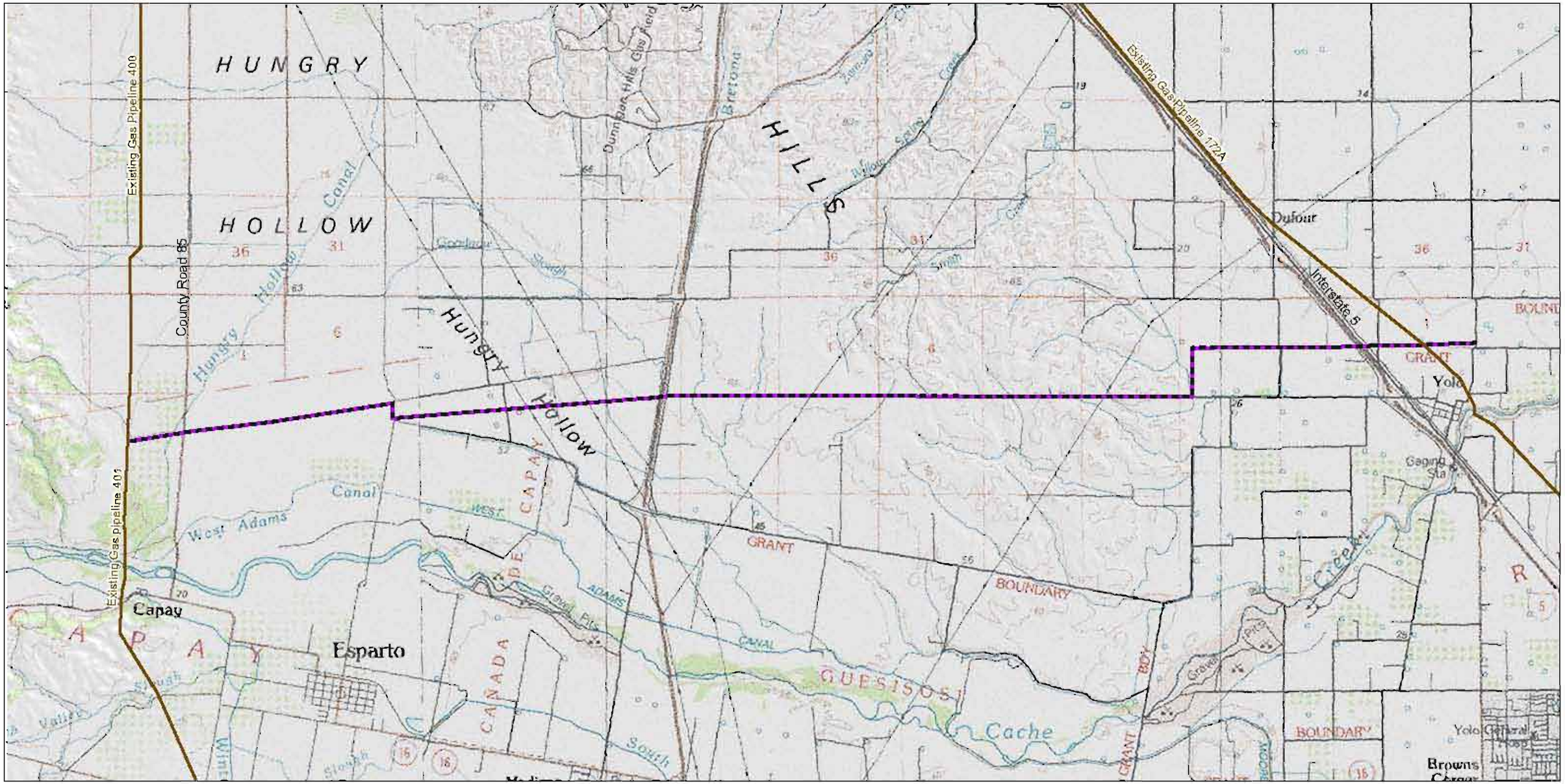
Figures



PG&E Line 406
Pipeline Project
Wetland Delineation
Figure 1
Regional Location

LEGEND

- Proposed Line 406 Pipeline
- Active PG&E Gas Pipeline

N
W E
S

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Miles
Scale 1 63,360

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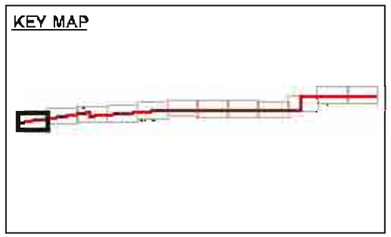
Line 406 and Line 407 Pipeline Project
Figure 2A
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

BrA	Brentwood silty clay loam, 0 to 2 percent
CfD2	Corning gravelly loam, 2 to 15 percent slopes, eroded
HcA	Hillgate loam, 0 to 2 percent slopes
Mf	Marvin silty clay loam
TaA	Tehama loam, 0 to 2 percent

KEY MAP



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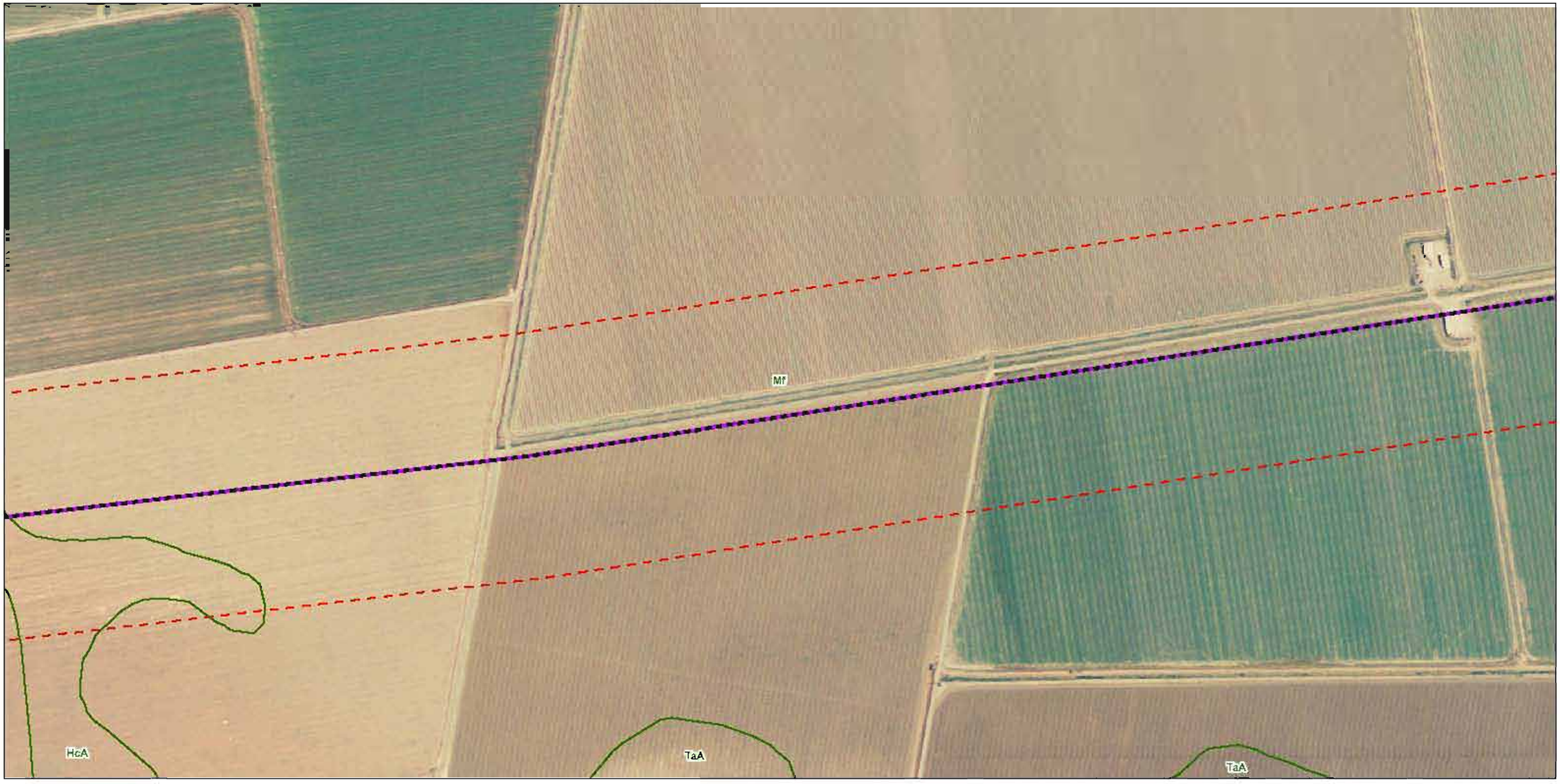


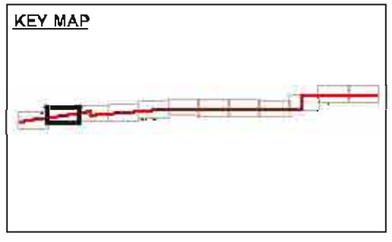
Line 406 and Line 407 Pipeline Project
Figure 2B
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

HcA	Hillgate loam, 0 to 2 percent slopes
Mf	Marvin silty clay loam

KEY MAP



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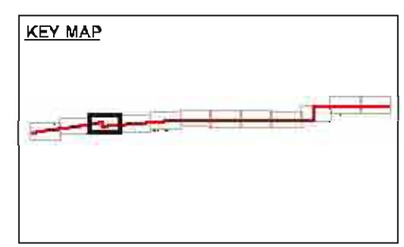
Line 406 and Line 407 Pipeline Project
Figure 2C
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

HcA	Hillgate loam, 0 to 2 percent slopes
Mf	Marvin silty clay loam

KEY MAP



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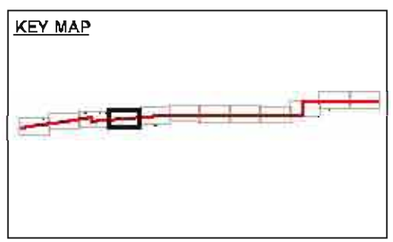
Line 406 and Line 407 Pipeline Project
Figure 2D
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

Ca	Capay silty clay
HcA	Hillgate loam, 0 to 2 percent slopes
Mf	Marvin silty clay loam
Pb	Pescadero silty clay, saline-alkali

KEY MAP



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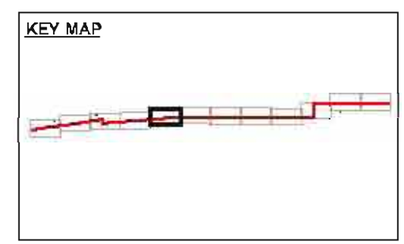
Line 406 and Line 407 Pipeline Project
Figure 2E
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

Mf	Marvin silty clay loam
Ms	Myers clay
Pb	Pescadero silty clay, saline-alkali
SkD	Sehorn clay, 2 to 15 percent slopes
Wm	Willows clay, marly variant

KEY MAP



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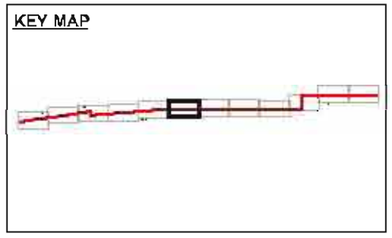
Line 406 and Line 407 Pipeline Project
Figure 2F
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

CtD2	Corning gravelly loam, 2 to 15 percent slopes, eroded
Ms	Myers clay
SkD	Sehorn clay, 2 to 15 percent slopes
Wm	Willows clay, marly variant

KEY MAP



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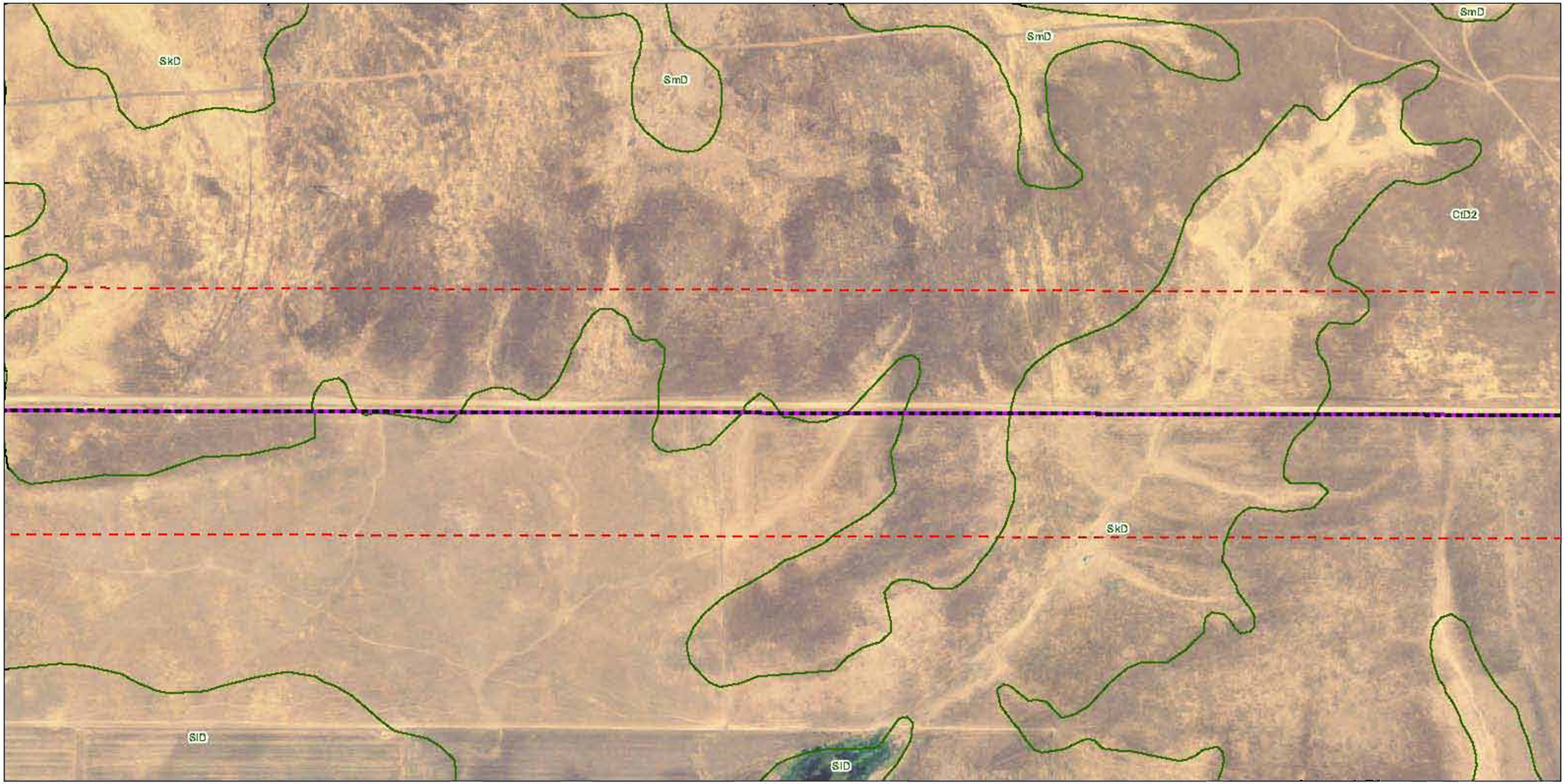


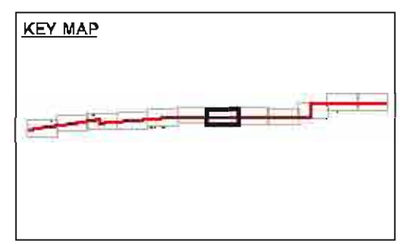
Line 406 and Line 407 Pipeline Project
Figure 2G
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

CfD2	Corning gravelly loam, 2 to 15 percent slopes, eroded
SkD	Sehorn clay, 2 to 15 percent slopes

KEY MAP



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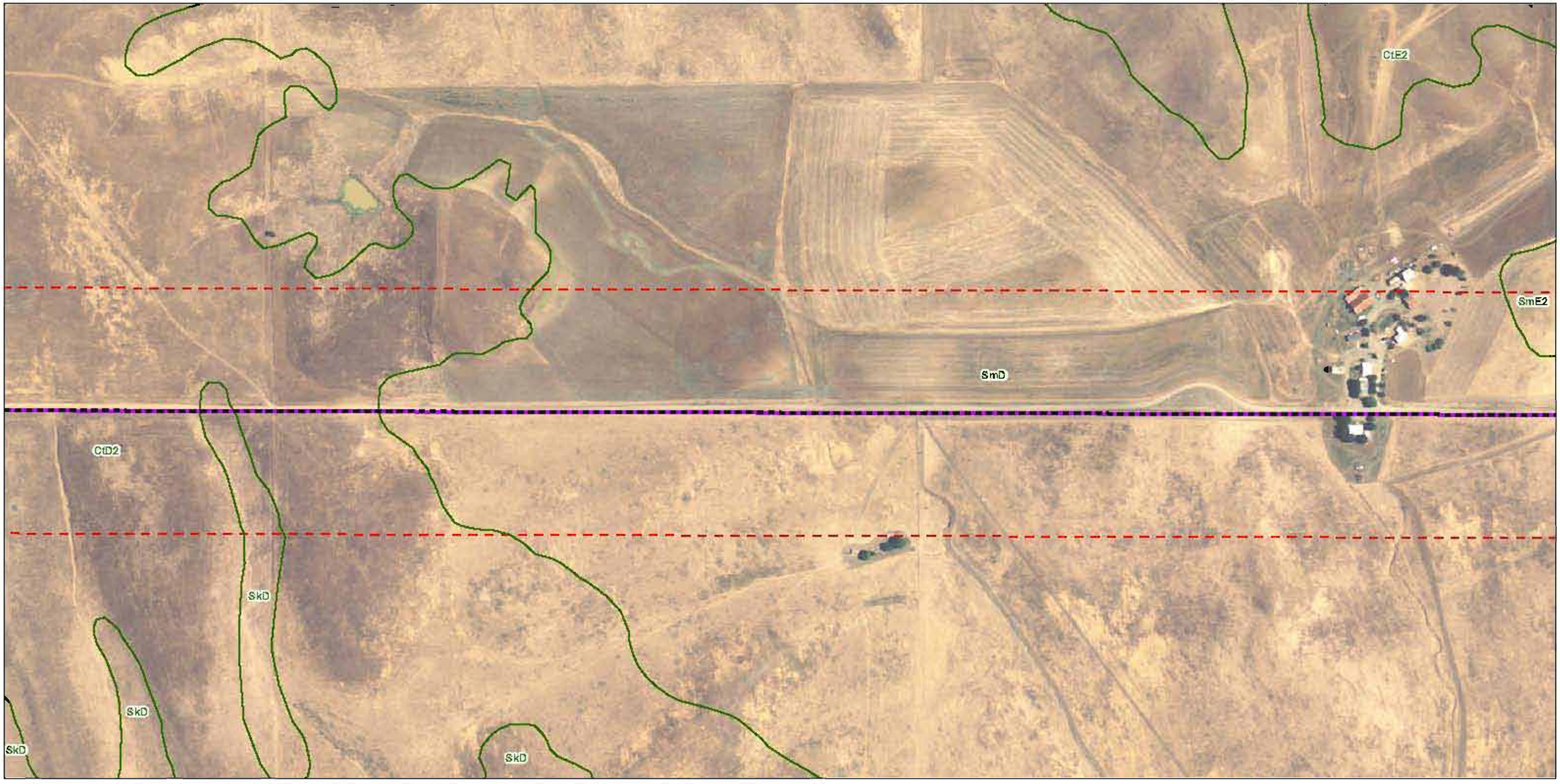


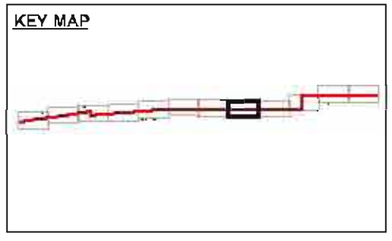
Line 406 and Line 407 Pipeline Project
Figure 2H
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

CtD2	Corning gravelly loam, 2 to 15 percent slopes, eroded
SkD	Sehorn clay, 2 to 15 percent slopes
SmD	Sehorn-Balcom complex, 2 to 15 percent slopes
SmE2	Sehorn-Balcom complex, 15 to 30 percent slopes, eroded

KEY MAP



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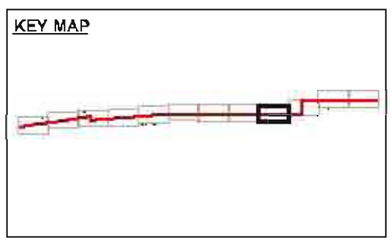
Line 406 and Line 407 Pipeline Project
Figure 2l
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

CfD2	Corning gravelly loam, 2 to 15 percent slopes, eroded
SmD	Sehorn-Balcom complex, 2 to 15 percent slopes
SmE2	Sehorn-Balcom complex, 15 to 30 percent slopes, eroded

KEY MAP



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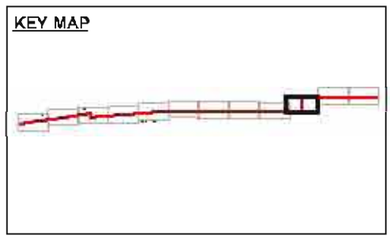
Line 406 and Line 407 Pipeline Project
Figure 2J
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

CfD2	Corning gravelly loam, 2 to 15 percent slopes, eroded
Ms	Myers clay
Rg	Rincon silty clay loam
SkD	Sehorn clay, 2 to 15 percent slopes
SmD	Sehorn-Balcom complex, 2 to 15 percent slopes

KEY MAP



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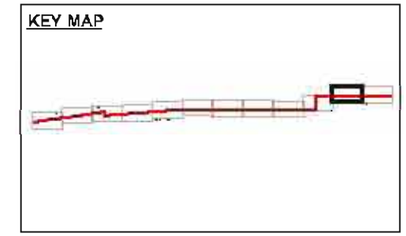
Line 406 and Line 407 Pipeline Project
Figure 2K
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

BrA	Brentwood silty clay loam, 0 to 2 percent
Rg	Rincon silty clay loam
Ya	Yolo silt loam
Yb	Yolo silty clay loam

KEY MAP



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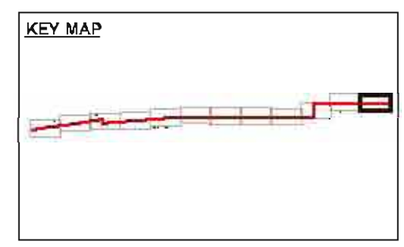
Line 406 and Line 407 Pipeline Project
Figure 2L
Soils and Land Use Maps

LEGEND
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

BrA	Brentwood silty clay loam, 0 to 2 percen
Ya	Yolo silt loam
Yb	Yolo silty clay loam

KEY MAP



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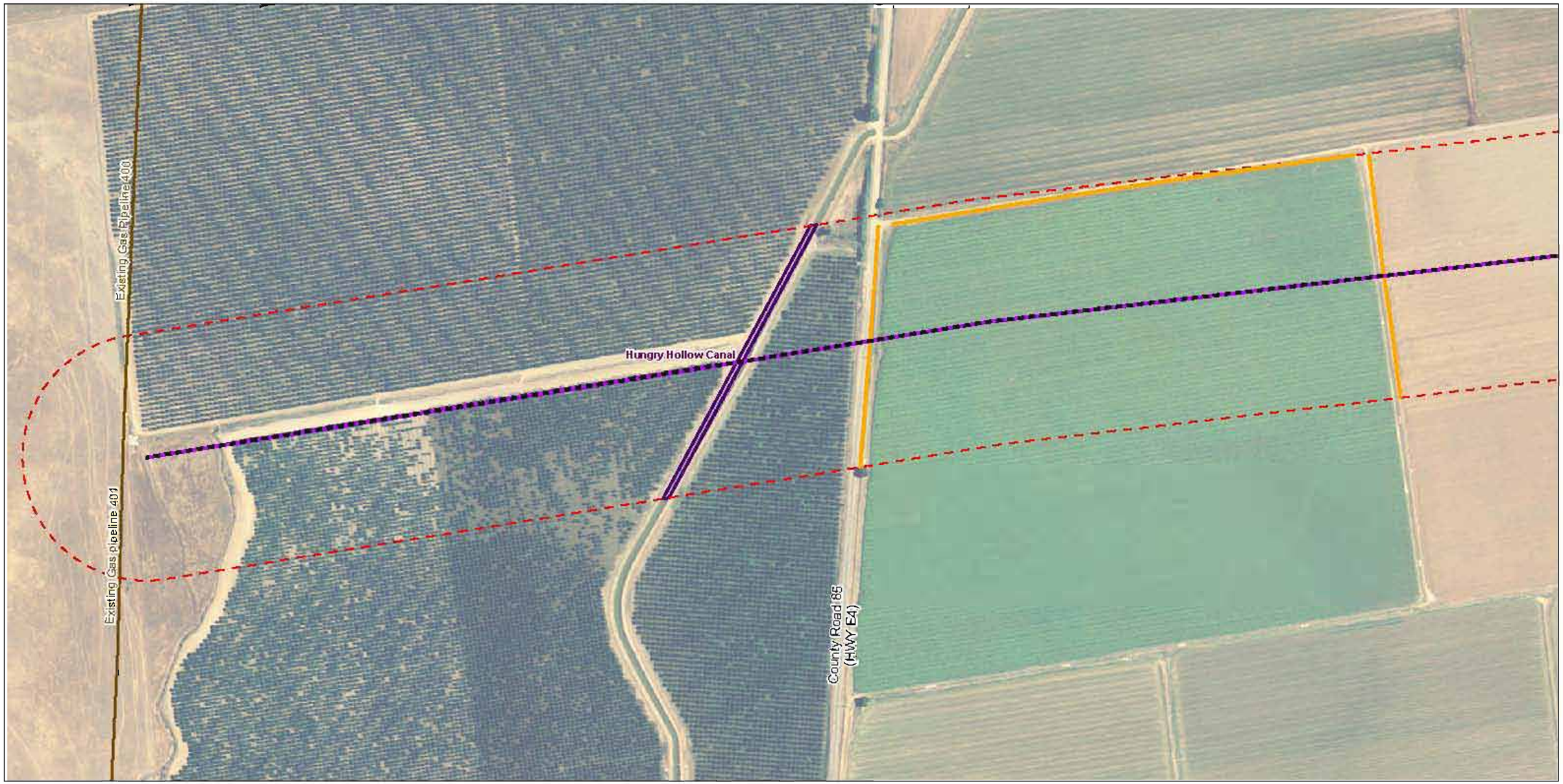
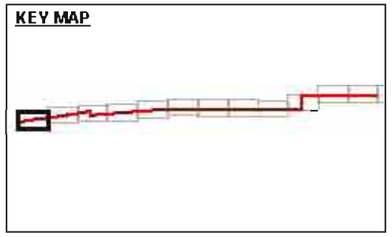


Line 406 and Line 407 Pipeline Project
Figure 3A
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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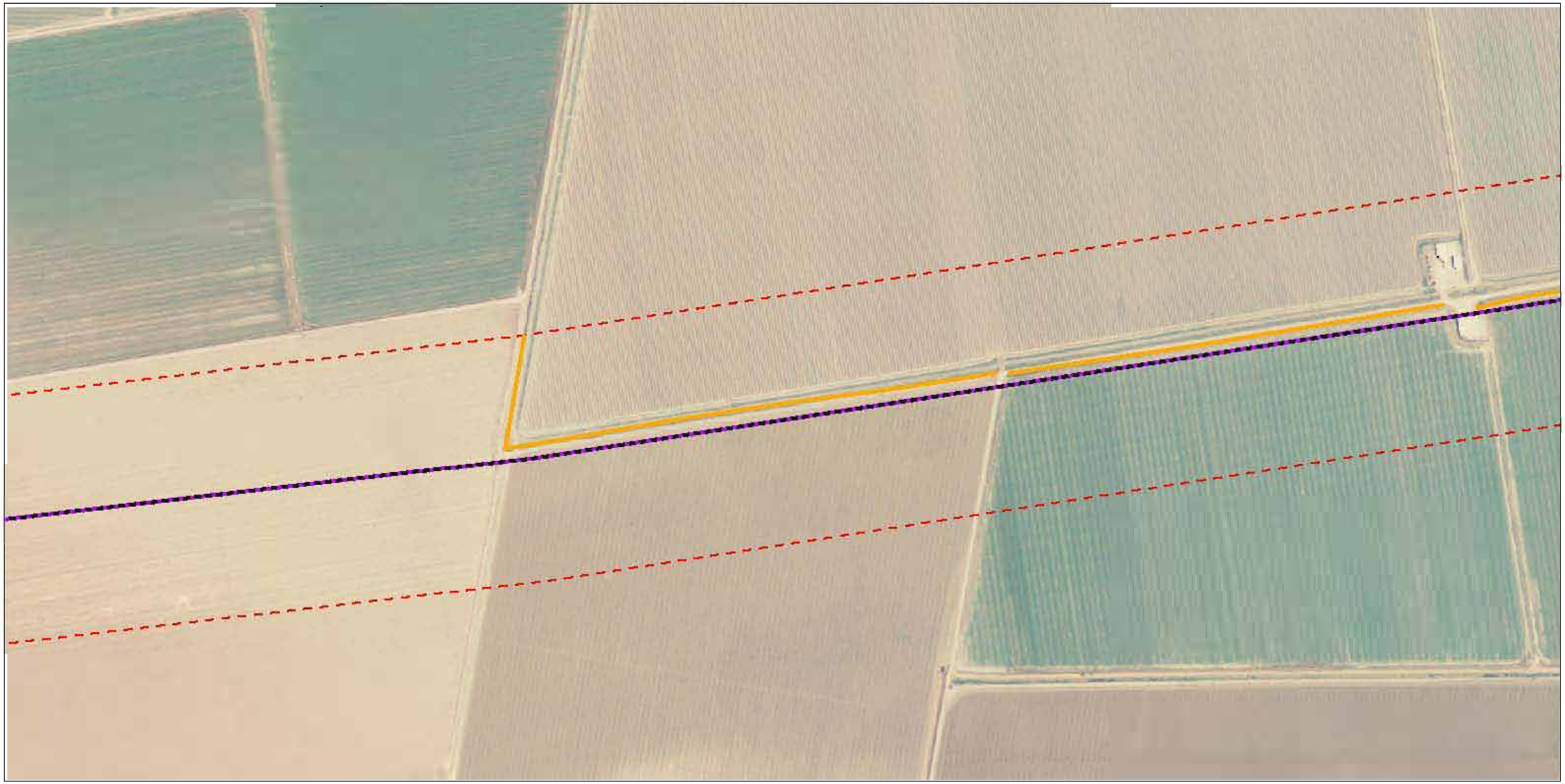
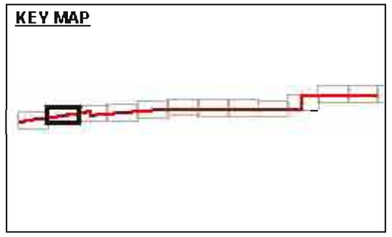


Line 406 and Line 407 Pipeline Project
Figure 3B
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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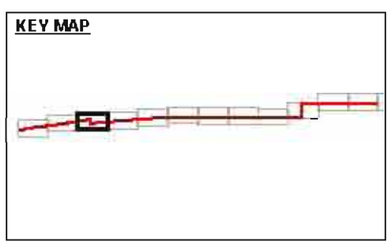
Line 406 and Line 407 Pipeline Project
Figure 3C
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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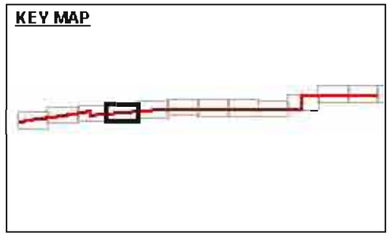
Line 406 and Line 407 Pipeline Project
Figure 3D
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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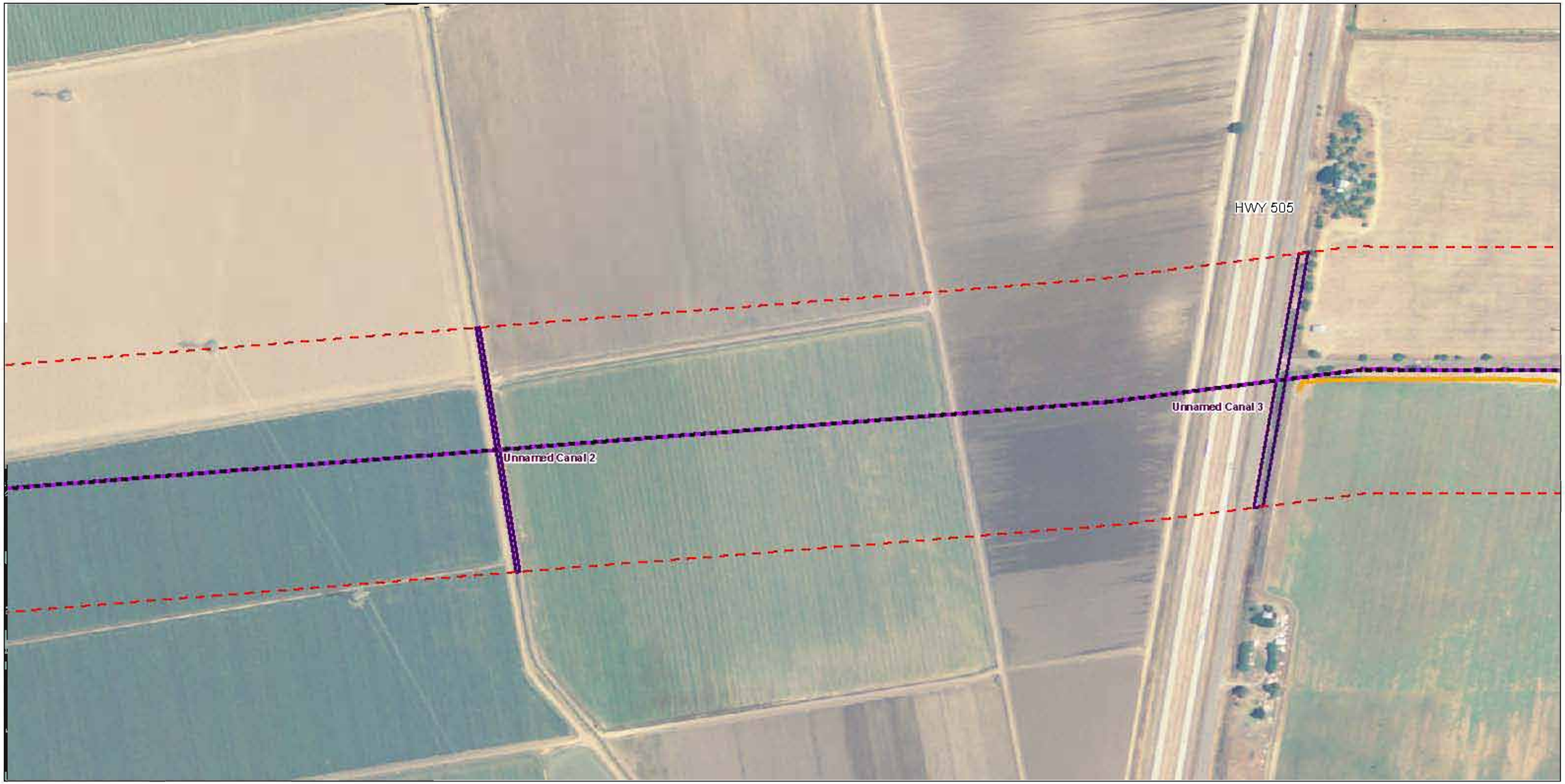
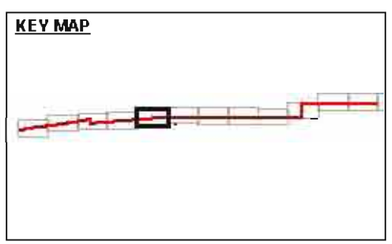


Line 406 and Line 407 Pipeline Project
Figure 3E
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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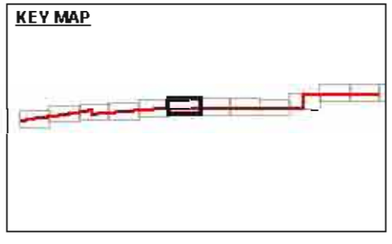
Line 406 and Line 407 Pipeline Project
Figure 3F
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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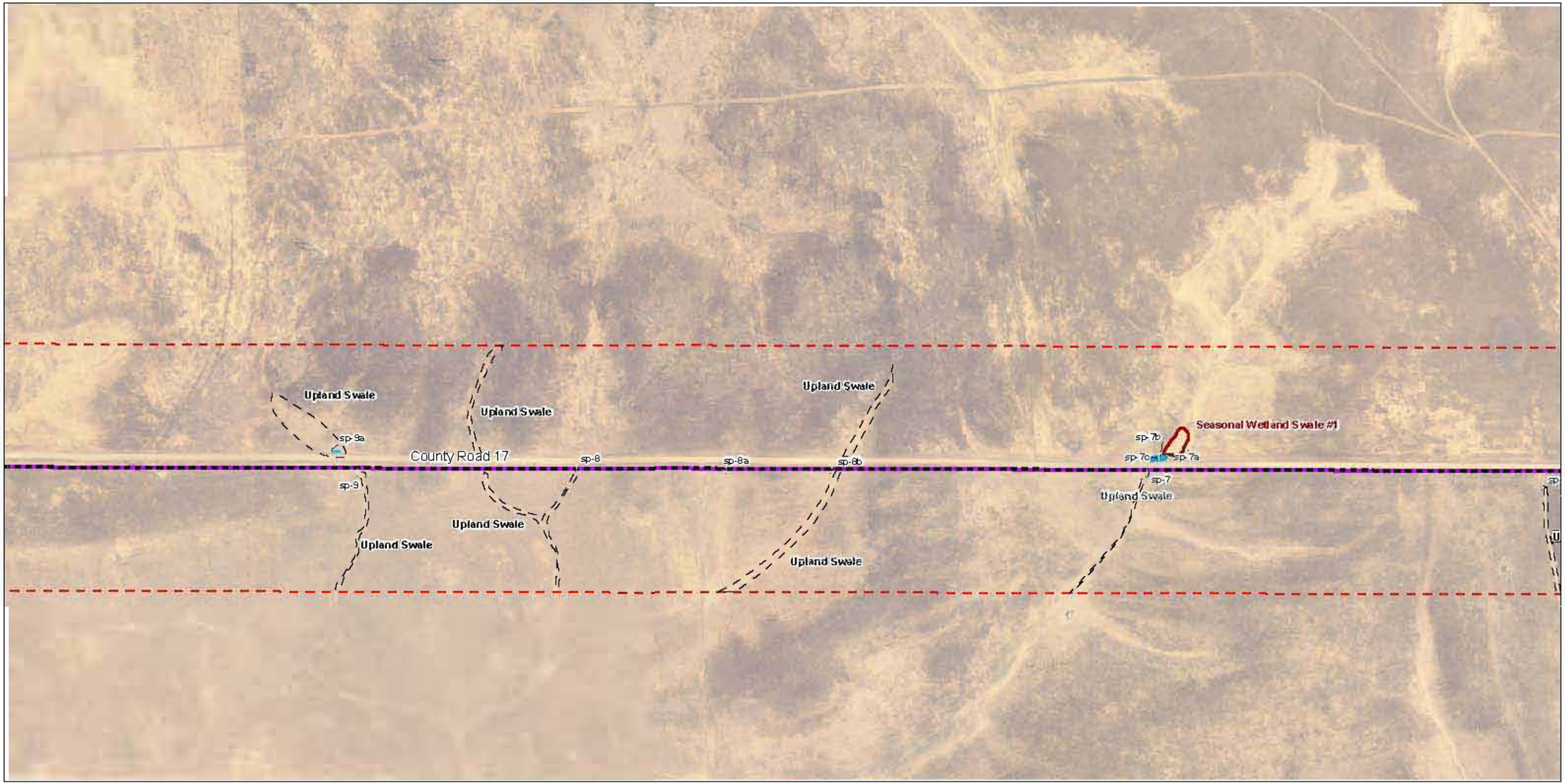
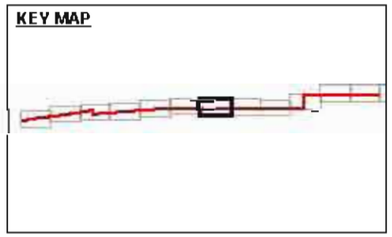


Line 406 and Line 407 Pipeline Project
Figure 3G
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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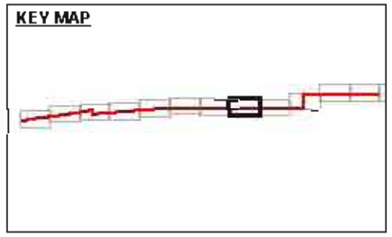
Line 406 and Line 407 Pipeline Project
Figure 3H
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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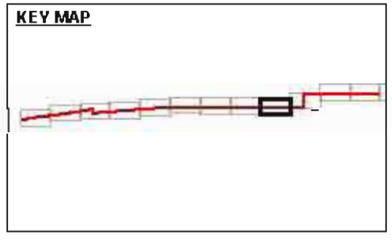
Line 406 and Line 407 Pipeline Project
Figure 3I
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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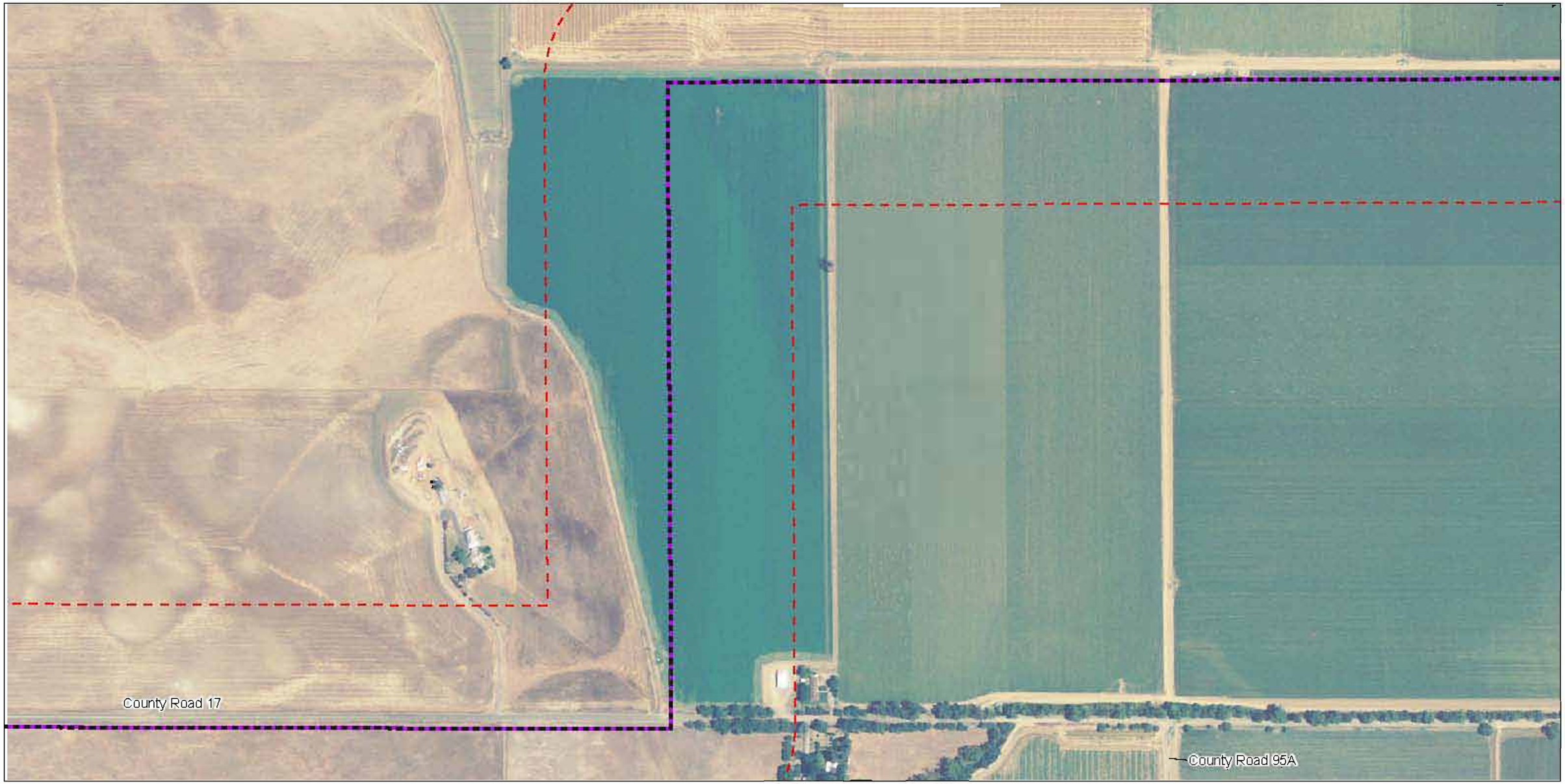
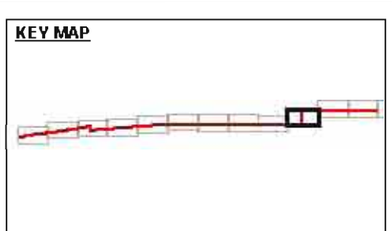


Line 406 and Line 407 Pipeline Project
Figure 3J
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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Line 406 and Line 407
Pipeline Project
Figure 3K
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP

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Feet

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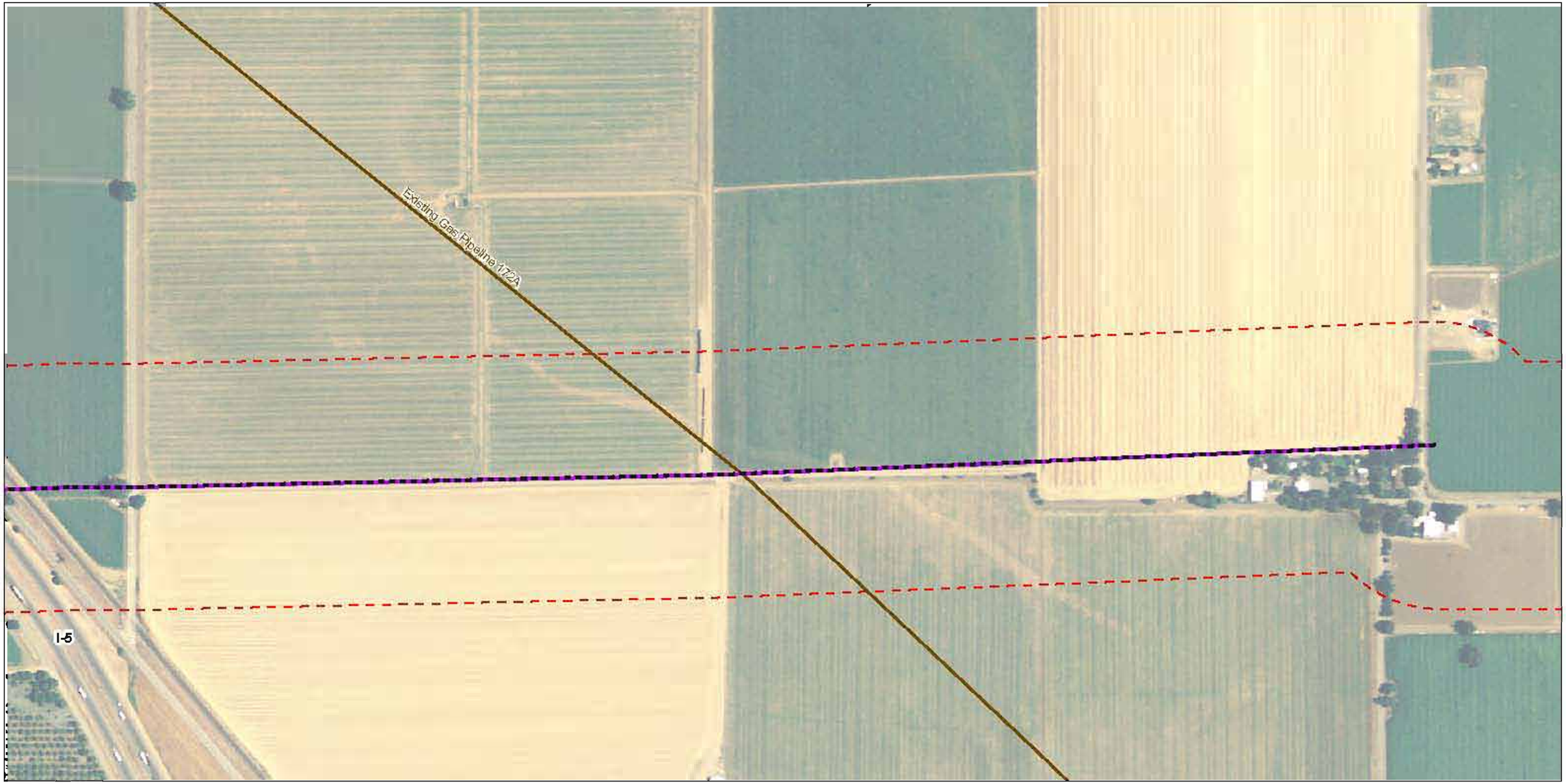
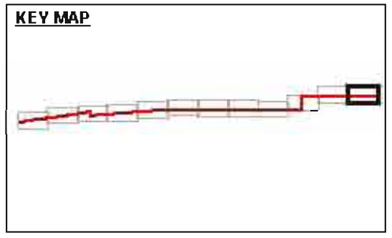


Line 406 and Line 407 Pipeline Project
Figure 3L
Wetlands Maps

LEGEND

- Data Points
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- Agricultural Drainage Ditch
- Drainage
- 500-Foot Buffer of Pipeline
- Upland Swale
- Erosional Channel
- Seasonal Wetland Swale
- Seasonal Wetland
- Pond
- Canal

KEY MAP



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Feet

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Appendix A
NRCS WETS Tables

WETS Station : DAVIS 1 WSW, CA2294 Creation Date: 08/29/2002
Latitude: 3832 Longitude: 12146 Elevation: 00060
State FIPS/County(FIPS): 06113 County Name: Yolo
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	avg daily min	avg	Precipitation (Inches) avg	30% chance will have less than	more than	avg # of days w/.1 or more	avg total snow fall
January	53.3	37.2	45.2	4.04	1.66	4.92	7	0.1
February	59.8	40.0	49.9	3.76	1.42	4.54	6	0.0
March	64.7	42.5	53.6	3.03	1.27	3.68	6	0.0
April	72.0	45.1	58.6	0.97	0.38	1.17	2	0.0
May	80.4	50.1	65.2	0.55	0.05	0.62	1	0.0
June	88.3	54.6	71.4	0.18	0.00	0.20	0	0.0
July	92.7	55.9	74.3	0.03	0.00	0.00	0	0.0
August	91.8	55.1	73.4	0.04	0.00	0.00	0	0.0
September	88.0	53.5	70.7	0.30	0.00	0.27	0	0.0
October	78.9	48.2	63.6	0.90	0.26	1.09	1	0.0
November	63.7	40.9	52.3	2.41	0.74	2.86	4	0.0
December	53.9	36.3	45.1	2.82	1.23	3.44	5	0.0
Annual	-----	-----	-----	------	14.42	22.02	--	----
Average	74.0	46.6	60.3	------	------	------	--	----
Total	-----	-----	-----	19.00	------	------	32	0.1

GROWING SEASON DATES

Probability	Temperature 24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	> 365 days	1/16 to 12/14	2/26 to 11/28
	> 365 days	333 days	276 days
70 percent *	> 365 days	12/31 to 12/29	2/15 to 12/ 8
	> 365 days	364 days	297 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1917-2002 prcp

Station : CA2294, DAVIS 1 WSW

------- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
17	M0.17	5.90	0.61	M0.51	0.00	0.00	0.00	0.00	0.49	0.00	0.12	0.59	8.39
18	0.95	3.59	3.10	0.82	0.00	0.00	M0.00	0.00	4.07	0.28	M2.19	1.69	16.69
19	2.49	M7.12	1.54	0.02	0.00	0.00	0.00	0.00	0.55	0.00	0.31	2.61	14.64
20	0.37	0.76	M3.47	0.83	0.00	0.04	0.00	M0.04	0.03	1.46	4.02	4.39	15.41
21	5.11	0.32	1.24	M0.30	0.26	0.00	M0.00	M0.00	0.00	0.21	M1.62	4.39	13.45
22	2.29	5.85	1.47	0.40	M0.40	0.00	0.00	M0.00	0.00	1.56	3.29	7.37	22.63
23	2.62	0.70	0.00	2.22	0.10	0.00	0.00	0.00	0.35	M0.40	0.53	0.88	7.80
24	2.46	2.76	1.18	0.38	0.05	0.00	0.00	0.00	0.00	2.05	1.42	3.55	13.85
25	1.05	4.28	3.10	2.15	1.63	0.02	0.00	0.03	0.10	0.01	1.71	1.29	15.37
26	3.70	5.50	0.01	5.74	0.26	0.00	0.00	0.01	0.00	2.01	5.18	0.58	22.99
27	2.18	4.66	1.07	2.48	0.31	0.47	0.00	0.00	0.00	1.71	2.91	2.32	18.11
28	1.73	1.62	3.45	0.75	0.27	0.00	0.00	0.00	0.00	0.13	3.19	2.74	13.88
29	0.54	1.56	1.34	0.34	0.01	0.94	0.00	0.00	0.00	0.09	0.00	3.77	8.59
30	M3.80	1.66	3.48	0.92	0.18	0.00	0.00	0.00	0.23	0.69	0.92	0.20	12.08
31	3.71	1.02	0.85	0.00	0.80	0.31	0.00	M0.00	0.00	0.17	1.36	7.84	16.06
32	1.35	1.67	2.01	0.66	0.15	0.00	0.00	0.00	0.00	0.00	0.39	2.17	8.40
33	3.77	0.66	1.95	0.05	0.56	0.01	0.00	0.00	0.01	0.70	0.00	M2.62	10.33
34	1.16	3.21	0.10	0.35	0.25	0.44	0.00	0.00	0.00	0.65	2.51	2.57	11.24
35	4.87	0.83	2.88	4.40	0.00	0.00	0.00	0.00	0.00	1.03	1.05	1.51	16.57
36	3.27	7.63	0.95	1.32	M0.50	0.53	M0.00	0.00		0.27	0.02	3.40	17.89
37	2.38	5.74	5.53	0.19	0.00	0.09	0.02	0.00	0.00	0.81	2.92	3.93	21.61
38	3.49	8.87	4.26	1.11	0.38	0.00	0.00	0.00	0.09	0.76	0.60	1.08	20.64
39	M1.39	0.87	1.62	0.34	0.24	0.00	0.01	0.00	0.16	0.20	0.08	0.98	5.89
40	6.59	7.42	3.58	0.76	0.64	0.00	0.00	0.00	0.04	0.65	1.12	8.62	29.42
41	5.88	5.87	3.62	3.87	1.83	0.01	0.00	0.00	0.00	1.16	1.36	5.25	28.85
42	4.12	2.71	2.05	3.92	0.67	0.00	0.00	0.00	0.02	0.59	1.65	2.62	18.35
43	7.67	1.23	2.30	1.44	0.25	0.06	0.00	0.00	0.00	0.21	M1.00	1.45	15.61
44	2.84	6.03	M0.85	1.48	0.96	0.67	0.00	0.00	0.00	1.19	3.25	2.24	19.51
45	1.26	4.30	2.50	0.04	0.60	0.05	0.00	0.00	0.00	2.96	1.36	5.80	18.87
46	M0.90	0.91	1.43	1.65	0.40	0.00	0.01	0.00	0.10	0.51	2.53	2.40	10.84
47	0.41	2.75	2.84	0.16	0.48	0.43	0.00	0.00	0.00	2.43	0.97	0.84	11.31
48	0.51	0.84	2.97	2.48	2.53	0.51	0.00	0.00	0.35	1.27	0.27	4.40	16.13
49	1.48	1.37	4.51	0.00	0.38	0.00	0.00	0.05	0.00	0.04	1.12	1.69	10.64
50	4.20	3.36	1.17	0.79	0.05	0.00	M0.00	M0.00	0.05	1.98	3.88	4.47	19.95
51	1.40	1.06	1.00	0.74	0.68	0.00	0.00	0.00	0.01	1.55	1.99	4.46	12.89
52	7.08	0.99	3.22	1.04	0.09	0.23	0.00	0.00	0.00	0.01	1.56	7.31	21.53
53	2.86	0.03	1.86	M2.25	0.35	0.47	0.00	0.08	0.00	0.16	1.77	0.21	10.04
54	3.23	3.54	2.51	1.69	0.16	0.16	0.00	0.08	0.00	0.00	2.98	3.91	18.26
55	2.68	1.24	0.40	2.17	0.64	0.00	0.00	0.00	0.92	0.44	1.16	11.87	21.52
56	6.19	2.67	0.08	1.50	0.54	0.00	0.00	0.00	M0.50	1.32	0.07	0.17	13.04
57	2.07	3.67	1.26	1.18	1.78	0.00	0.00	0.00	0.60	1.37	0.41	2.97	15.31
58	4.91	9.08	4.49	4.11	0.77	0.03	0.04	0.01	0.06	0.32	0.05	0.86	24.73
59	4.65	4.41	0.25	0.33	0.00	0.00	0.00	0.00	1.83	0.00	0.00	1.46	12.93
60	3.25	3.43	1.14	0.90	0.54	0.00	0.00	0.00	0.00	0.07	3.73	1.03	14.09
61	3.69	1.44	2.15	0.46	0.15	0.03	0.00	0.00	0.12	0.06	2.47	2.49	13.06
62	0.90	7.09	1.77	0.05	0.04	0.00	0.00	0.00	0.03	7.93	0.54	2.37	20.72
63	4.87	3.36	3.35	3.91	0.72	0.02	0.00	0.00	0.13	1.21	3.78	0.42	21.77
64	4.01	0.02	0.84	0.24	0.09	0.46	0.00	0.05	0.00	1.72	2.84	5.13	15.40
65	4.50	0.53	0.89	2.84	0.06	0.00	0.01	0.51	0.00	0.04	3.47	2.74	15.59
66	1.94	1.78	0.11	0.54	0.18	0.09	0.15	0.03	0.07	0.00	6.12	3.98	14.99
67	7.94	0.70	3.75	3.93	0.02	0.95	0.00	0.00	0.04	0.26	1.10	0.96	19.65
68	4.51	2.03	2.06	0.21	0.29	0.03	0.00	0.18	0.00	0.54	2.43	3.28	15.56
69	9.60	6.11	1.46	0.93	0.01	0.13	0.00	0.00	0.05	0.89	0.56	5.36	25.10
70	6.79	1.13	1.75	0.04	0.05	0.42	0.00	0.00	0.00	0.92	6.87	4.38	22.35
71	0.86	0.13	1.53	0.37	1.28	0.00	0.00	0.00	0.01	0.06	0.99	3.63	8.86
72	0.97	1.39	0.08	0.90	0.30	0.27	0.00	0.00	0.84	2.61	5.18	2.16	14.70

73	8.66	5.66	2.46	0.08	0.04	0.00	0.00	0.00	0.16	1.51	5.46	4.06	28.09
74	3.30	0.53	4.75	0.82	0.00	0.28	0.63	0.00	0.00	0.81	1.06	3.43	15.61
75	0.23	6.21	4.08	0.43	0.00	0.00	0.08	0.04	0.00	2.33	0.19	0.38	13.97
76	0.38	0.62	1.12	0.87	0.00	0.13	0.00	0.51	0.25	0.11	0.56	1.07	5.62
77	1.34	0.89	1.83	0.01	1.12	0.00	0.00	0.00	0.71	0.23	2.74	3.98	12.85
78	9.69	3.52	4.72	2.06	0.04	0.01	0.00	0.00	0.00	0.00	3.04	0.87	23.95
79	5.99	4.32	1.97	0.85	0.20	0.00	0.00	0.00	0.00	1.92	1.77	4.81	21.83
80	5.07	7.80	2.27	1.13	0.26	0.03	0.11	0.00	0.00	0.04	0.13	3.18	20.02
81	4.27	0.66	3.11	0.40	0.13	0.00	0.00	0.00	0.32	1.87	5.08	3.25	19.09
82	5.81	2.63	6.89	5.44	0.00	0.07	0.00	0.00	1.97	2.81	5.69	2.71	34.02
83	5.98	6.29	M8.63	2.81	0.38	0.07	0.00	0.04	0.48	0.45	6.44	6.58	38.15
84	0.39	1.25	1.02	0.36	0.00	0.12	0.00	0.21	0.04	1.22	6.49	1.32	12.42
85	1.03	1.79	3.15	0.34	0.06	0.09	0.00	0.01	0.35	0.50	4.46	3.11	14.89
86	3.92	9.70	4.61	0.74	0.07	0.00	0.00	0.00	0.71	0.01	0.14	1.33	21.23
87	2.05	3.08	3.29	0.18	0.02	0.00	0.00	0.00	0.00	0.72	2.21	4.44	15.99
88	4.76	0.76	0.20	1.33	0.99	0.89	0.00	0.00	0.00	0.12	1.56	2.99	13.60
89	0.65	0.62	4.85	0.29	0.02	0.28	0.00	0.12	2.31	1.30	1.35	0.03	11.82
90	4.12	3.70	0.76	0.31	1.85	0.00	0.00	0.00	0.02	0.14	0.27	1.34	12.51
91	0.32	2.84	8.00	0.79	0.12	0.28	0.00	0.00	0.01	0.52	0.21	2.13	15.22
92	1.58	8.55	3.63	0.55	0.00	0.20	0.00	0.00	0.00	1.72	0.15	6.16	22.54
93	10.78	6.04	1.90	0.63	0.73	1.53	0.00	0.00	0.00	0.37	2.10	1.71	25.79
94	2.28	3.32	0.08	0.75	1.25	0.00	0.00	0.00	0.04	0.61	4.03	2.79	15.15
95	12.48	0.22	8.13	0.73	1.48	0.71	0.00	0.00	0.00	0.00	0.02	6.64	30.41
96	4.42	7.06	2.16	1.78	2.42	0.00	0.00	0.00	0.00	1.31	1.43	6.73	27.31
97	8.66	0.27	0.52	0.07	0.32	0.21	0.00	0.16	0.05	0.48	4.89	2.23	17.86
98	4.80	11.38	1.69	1.48	2.47	0.06	0.00	0.00	0.50	0.67		1.06	24.11
99	1.76	4.03	1.73	1.21	0.07	0.02	0.00	0.00	0.00	0.20	1.42	0.09	10.53
0	4.76	7.46	1.62	1.31	0.77	0.15	0.00	0.00	0.19	2.21	0.70	0.34	19.51
1	2.82	5.14	2.39	0.89	0.00	0.12	0.00	0.00	0.26	0.45	2.88	6.71	21.66
2													

WETS Station : WINTERS, CA9742 Creation Date: 08/29/2002
Latitude: 3832 Longitude: 12158 Elevation: 00130
State FIPS/County(FIPS): 06113 County Name: Yolo
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	avg daily min	avg	Precipitation (Inches) avg	30% chance will have less than	more than	avg # of days w/.1 or more	avg total snow fall
January	55.5	37.8	46.7	5.10	2.02	6.18	7	0.1
February	62.0	41.4	51.7	4.67	1.61	5.60	6	0.0
March	67.2	44.4	55.8	3.60	1.38	4.36	6	0.0
April	74.8	48.0	61.4	1.03	0.35	1.25	2	0.0
May	83.2	53.5	68.4	0.64	0.06	0.74	1	0.0
June	91.3	58.3	74.8	0.12	0.00	0.13	0	0.0
July	96.2	60.2	78.2	0.03	0.00	0.00	0	0.0
August	95.0	59.3	77.2	0.05	0.00	0.00	0	0.0
September	90.5	57.2	73.8	0.26	0.00	0.27	0	0.0
October	81.0	51.0	66.0	1.00	0.31	1.22	1	0.0
November	65.8	42.9	54.3	2.87	0.82	3.38	4	0.0
December	56.2	37.3	46.8	3.45	1.56	4.27	5	0.0

Annual	-----	-----	-----	------	16.91	26.75	--	----
Average	76.6	49.3	62.9	------	------	------	--	----
Total	-----	-----	-----	22.81	------	------	32	0.2

GROWING SEASON DATES

Probability	Temperature: 24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates / Growing Season Length		
50 percent *	---------- / > 365 days	1/ 4 to 12/25 / 355 days	2/ 9 to 12/ 6 / 301 days
70 percent *	---------- / > 365 days	12/30 to 12/30 / > 365 days	2/ 1 to 12/14 / 317 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1948-2002 prcp

Station : CA9742, WINTERS
Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
48							0.00	0.00	0.18	0.85	0.14	3.89	5.06
49	1.33	0.77	M6.13	0.00	0.30	0.00	0.03	0.05	0.00	0.00	1.17	1.41	11.19
50	5.24	3.63	1.00	0.85	0.04	0.00	0.00	0.00	0.09	2.11	5.66	M6.50	25.12
51	2.25	M0.82	1.87	0.52	0.71	0.00	0.00	0.00	0.03	1.07	2.63	5.95	15.85
52	7.80	0.94	M3.46	0.76	0.05	0.18	M0.02	0.00	0.00	0.00	1.63	10.47	25.31
53	3.21	0.00	1.43	1.67	0.54	0.65	0.00	0.00	0.00	0.07	2.07	0.33	9.97
54	4.26	3.40	3.76	2.32	0.19	0.01	0.00	0.16	0.00	0.00	3.47	3.79	21.36
55	2.10	1.65	0.48	1.96	0.00	0.00	0.00	0.00	1.07	0.13	1.60	14.44	23.43
56	6.17	M3.73	0.02	1.55	0.56	0.08	0.00	0.00	0.32	1.03	0.11	0.11	13.68
57	1.89	3.99	0.96	1.60	1.38	0.00	0.00	0.00	0.50	2.92	0.36	3.37	16.97
58	5.32	11.60	5.53	4.11	0.81	0.13	0.06	0.00	0.00	0.10	0.00	0.92	28.58
59	6.77	7.27	0.23	0.08	0.00	0.00	0.00	0.00	2.63	0.00	0.00	2.02	19.00
60	3.90	4.16	1.49	1.35	1.46	0.00	0.00	0.00	0.02	0.09	3.65	2.07	18.19
61	4.77	1.34	1.56	0.68	0.06	0.06	0.00	0.00	0.20	0.04	2.92	2.79	14.42
62	1.02	9.57	2.66	0.00	0.08	0.00	0.00	0.07	0.01	6.90	0.37	2.43	23.11
63	6.54	3.69	3.72	4.06	0.76	0.12	0.00	0.00	0.49	1.59	4.25	0.66	25.88
64	4.16	0.00	1.53	0.32	0.10	0.64	0.01	0.05	0.00	2.74	3.37	6.91	19.83
65	4.99	0.60	0.91	3.73	0.00	0.00	0.00	0.30	0.00	0.00	4.79	2.73	18.05
66	3.37	2.43	0.11	0.59	0.13	0.13	0.11	0.10	0.07	0.00	7.37	4.87	19.28
67	10.84	0.46	5.46	4.52	0.00	1.73	0.00	0.00	0.07	0.17	1.26	1.22	25.73
68	6.31	2.82	2.64	0.39	0.24	0.00	0.00	0.12	0.00	0.60	3.15	5.73	22.00
69	9.31	7.70	1.46	1.33	0.00	0.04	0.00	0.00	0.00	1.74	0.66	6.92	29.16
70	12.41	1.35	2.25	0.00	0.09	0.39	0.00	0.00	0.10	0.61	7.51	6.21	30.92
71	1.26	0.07	2.09	0.46	0.52	0.00	0.00	0.00	0.01	0.09	1.36	5.37	11.23

72	1.42	1.37	0.01	0.79	0.23	0.20	0.00	0.00	0.54	3.44	6.08	1.98	16.06
73	10.99	7.50	2.80	0.02	0.12	0.00	0.00	0.00	0.05	0.86	6.72	3.90	32.96
74	3.68	0.46	4.57	1.04	0.00	0.10	0.50	0.02	0.00	1.09	0.59	4.61	16.66
75	0.25	7.86	6.58	0.88	0.00	0.00	0.09	0.13	0.00	2.09	0.05	0.33	18.26
76	0.47	0.74	1.53	0.69	0.00	0.05	0.00	0.67	0.33	0.11	0.64	1.37	6.60
77	1.94	0.87	2.01	0.00	1.44	0.00	0.00	0.00	0.51	0.24	3.99	4.53	15.53
78	13.29	5.41	4.62	1.77	0.04	0.02	0.00	0.00	0.36	0.00	2.41	0.68	28.60
79	7.87	4.89	2.00	1.24	0.37	0.04	0.00	0.00	0.00	1.77	2.16	6.27	26.61
80	6.00	13.09	2.14	1.11	0.05	0.04	0.19	0.00	0.00	0.04	0.08	3.53	26.27
81	5.74	0.88	3.67	0.48	0.48	0.00	0.00	0.00	0.35	1.74	7.03	4.34	24.71
82	7.53	2.65	7.50	4.78	0.00	0.06	0.00	0.00	1.39	3.14	7.10	2.82	36.97
83	8.77	7.56	10.21	M3.44	0.25	0.00	0.00	0.04	0.48	0.85	M7.43	8.09	47.12
84	0.43	1.39	1.18	0.53	0.00	0.01	0.00	0.29	0.09	1.17	7.50	1.36	13.95
85	1.53	2.06	3.75	0.06	0.00	0.04	0.00	0.06	0.24	0.38	3.98	3.56	15.66
86	4.64	12.87	5.84	0.70	0.18	0.00	0.00	0.00	0.60	0.04	0.10	1.25	26.22
87	2.38	4.82	3.43	0.09	0.18	0.00	0.00	0.00	0.00	0.71	2.07	6.35	20.03
88	5.98	0.59	0.42	1.14	0.95	0.18	0.00	0.00	0.00	0.11	2.47	3.49	15.33
89	0.81	0.83	4.21	0.50	0.03	0.35	0.00	0.01	2.29	1.93	1.02	0.00	11.98
90	3.40	2.62	0.59	0.13	2.36	0.00	0.00	0.00	0.13	0.20	0.30	0.96	10.69
91	0.35	3.22	11.06	0.29	0.33	0.14	0.00	0.01	0.00	0.48	0.37	2.97	19.22
92	2.16	7.74	3.68	0.64	0.04	0.32	0.00	0.00	0.00	2.12	0.16	7.35	24.21
93	12.53	6.59	1.70	0.61	1.02	0.70	0.00	0.00	0.00	0.93	2.52	2.12	28.72
94	2.16	4.55	0.16	1.13	1.46	0.00	0.00	0.00	0.00	0.73	4.77	3.19	18.15
95	17.21	0.25	11.75	0.78	1.65	0.68	0.00	0.00	0.00	0.00	0.05	9.67	42.04
96	6.11	9.23	2.31	2.63	2.38	0.00	0.00	0.00	0.00	1.48	2.40	9.46	36.00
97	11.35	0.54	0.62	0.04	0.43	0.23	0.00	0.31	0.04	0.41	6.49	2.17	22.63
98	5.92	15.12	2.01	1.73	3.47	0.00	0.00	0.00	0.26	0.55	3.57	1.22	33.85
99	1.43	5.55	2.75	1.44	0.04	0.07	0.00	0.00	0.09	0.26	1.94	0.17	13.74
0	5.35	8.66	2.87	1.71	1.20	0.28	0.00	0.00	0.03	3.07	0.79	0.47	24.43
1	3.88	6.82	2.69	0.89	0.00	0.06	0.00	0.00	0.30	0.43	5.12	9.26	29.45
2													

WETS Station : WOODLAND 1 WNW, CA9781 Creation Date: 08/29/2002
Latitude: 3841 Longitude: 12148 Elevation: 00070
State FIPS/County(FIPS): 06113 County Name: Yolo
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	avg daily min	avg	Precipitation (Inches) avg	30% chance will have less than	more than	avg # of days w/.1 or more	avg total snow fall
January	53.8	38.0	45.9	4.30	1.78	5.23	7	0.1
February	60.2	41.4	50.8	4.38	1.61	5.28	7	0.0
March	65.8	44.4	55.1	3.28	1.53	4.00	6	0.0
April	73.4	47.4	60.4	1.11	0.49	1.36	2	0.0
May	82.1	52.4	67.3	0.60	0.10	0.71	1	0.0
June	90.7	56.9	73.8	0.16	0.00	0.20	0	0.0
July	95.3	58.6	77.0	0.03	0.00	0.00	0	0.0
August	94.1	57.7	75.9	0.06	0.00	0.03	0	0.0
September	89.9	56.3	73.1	0.43	0.00	0.41	0	0.0
October	79.4	50.6	65.0	1.08	0.41	1.35	2	0.0
November	63.6	42.8	53.2	2.58	0.86	3.09	4	0.0
December	54.1	37.1	45.6	2.90	1.43	3.61	5	0.0

Annual	-----	-----	-----	------	14.51	22.89	--	----
Average	75.2	48.6	61.9	------	------	------	--	----
Total	-----	-----	-----	20.91	------	------	34	0.1

GROWING SEASON DATES

Probability	Temperature: 24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates / Growing Season Length		
50 percent *	---------- / > 365 days	12/31 to 12/31 / > 365 days	2/ 7 to 11/27 / 294 days
70 percent *	---------- / > 365 days	12/31 to 12/31 / > 365 days	1/31 to 12/ 3 / 307 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1948-2002 prcp

Station : CA9781, WOODLAND 1 WNW
Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
48							0.00	0.00	0.16	1.18	0.34	3.93	5.61
49	1.36	1.27	5.85	0.00	0.29	0.00	0.00	0.05	0.00	0.04	0.89	1.41	11.16
50	4.08	3.11	1.09	0.82	0.13	0.00	0.00	0.00	0.30	2.41	3.54	4.75	20.23
51	1.90	1.37	1.00	0.92	0.97	0.00	0.00	0.00	0.01	1.30	1.79	4.67	13.93
52	7.52	1.29	3.14	1.07	0.03	0.26	0.00	0.00	0.00	0.00	1.45	8.08	22.84
53	2.67	0.02	2.07	1.92	0.52	0.61	0.00	0.15	0.00	0.13	2.17	0.18	10.44
54	3.03	3.76	2.75	1.89	0.19	0.02	0.00	0.07	0.00	0.01	2.92	3.86	18.50
55	2.75	1.74	0.40	2.12	0.43	0.00	0.00	0.00	0.89	0.46	1.30	11.71	21.80
56	6.19	2.54	0.06	M1.70	0.36	0.00	0.00	0.00	0.56	M0.88	0.10	0.12	12.51
57	2.40	3.72	1.26	1.00	1.21	0.00	0.00	0.00	0.93	1.50	0.33	2.55	14.90
58	4.04	8.49	4.14	4.26	0.70	0.00	0.00	0.02	0.07	0.28	0.00	0.98	22.98
59	4.11	4.59	0.36	0.15	0.00	0.00	0.00	0.00	1.70	0.00	0.00	1.61	12.52
60	2.64	2.77	1.93	0.99	0.77	0.00	0.01	0.00	0.01	0.14	3.66	1.30	14.22
61	3.34	1.23	2.14	0.64	0.16	0.09	0.00	0.02	0.17	0.10	2.59	2.69	13.17
62	0.70	5.56	1.56	0.09	0.03	0.00	0.00	0.00	0.00	6.91	0.44	2.16	17.45
63	4.61	2.69	3.47	3.56	0.53	0.02	0.00	0.00	0.25	1.65	3.95	0.45	21.18
64	3.89	0.03	0.78	0.23	0.04	0.29	0.00	0.02	0.00	1.60	3.14	3.33	13.35
65	3.08	0.53	0.71	2.51	0.03	0.00	0.00	0.53	0.00	0.02	3.69	2.04	13.14
66	1.60	1.74	0.15	1.11	0.16	0.15	0.10	0.03	0.08	0.00	6.06	3.23	14.41
67	7.75	0.67	3.51	4.41	0.06	1.16	0.00	0.02	0.11	0.30	1.08	0.92	19.99
68	4.59	1.99	2.35	0.12	0.07	0.00	0.00	0.06	0.00	0.60	3.25	3.56	16.59
69	7.83	M7.58	2.18	1.43	0.05	0.07	0.01	0.00	0.00	1.40	0.75	6.06	27.36
70	7.04	1.41	2.29	0.25	0.05	0.47	0.00		0.00	0.81	7.49	5.55	25.36

71	1.27	0.04	1.98	0.44	1.47	0.02	0.00	0.00	0.02	0.24	1.10	5.35	11.93
72	1.00	1.71	0.09	1.03	0.35	0.34	0.00	0.00	0.73	2.31	5.16	2.37	15.09
73	9.83	7.04	2.59	0.33	0.32	0.00	0.00	0.00	0.17	1.25	M5.76	4.52	31.81
74	3.99	0.71	4.69	1.05	0.08	0.60	0.84	0.04	0.00	1.45	0.66	4.06	18.17
75	0.35	8.22	5.13	1.05	0.00	0.00	0.10	0.19	0.00	1.87	0.31	0.61	17.83
76	0.42	0.84	1.55	1.14	0.00	0.12	0.00	0.43	0.61	0.37	0.69	0.91	7.08
77	1.59	1.07	2.05	0.04	1.43	0.00	0.00	0.00	0.50	0.44	3.09	3.48	13.69
78	10.98	4.38	4.68	2.44	0.04	0.00	0.00	0.00	0.53	0.00	2.63	0.59	26.27
79	6.90	5.37	2.52	1.03	0.09	0.00	0.00	0.00	0.04	1.85	2.04	5.43	25.27
80	5.10	10.11	2.12	1.00	0.21	0.16	0.05	0.00	0.00	0.11	0.19	2.61	21.66
81	5.79	1.09	4.74	0.57	0.30	0.00	0.00	0.00	0.53	2.61	6.48		22.11
82		2.27	6.61	4.56	0.02	0.33	0.00	0.02	3.72	2.86	5.93	2.46	28.78
83	7.42	6.10	8.92	3.34	0.41	0.15	0.00	0.07	0.76	0.75	6.38	7.39	41.69
84	0.49	1.43	1.14			0.26	0.00	0.30	0.05		6.83	1.21	11.71
85	0.87		2.69	0.43	0.00	0.05		0.05			4.18	2.94	11.21
86	3.78	8.82	4.83		0.08	0.00	0.00			0.13	0.16	1.27	19.07
87	2.26	3.32	3.50	0.14	0.10	0.00	0.00	0.00		0.90	2.27		12.49
88	5.44			1.62			0.00	0.00			1.88	3.95	12.89
89	0.71	M0.93		0.45	0.04		0.00	0.17	2.60	2.50	0.85	0.00	8.25
90	5.02	3.36	1.08	0.32	2.22	0.00	0.00	0.00	0.00	0.04	0.32	1.21	13.57
91	0.38	2.93	9.11	M0.29	0.32	0.42	0.00	0.00	0.00	0.41	0.29	2.84	16.99
92	2.51	M8.38	M2.82	0.64	0.00	0.22	0.00	0.00	0.00	2.34		6.86	23.77
93	11.70	7.57	2.33	0.98	0.82	0.47	0.00	0.00	0.00	0.78	2.55	1.87	29.07
94	2.66	3.27	0.12	0.49	1.20	0.00	0.00	0.00	0.05	0.85	3.90	2.90	15.44
95	13.28	0.30	8.44	0.54	1.09	0.70	0.00		0.00	0.00	0.01	6.56	30.92
96	4.29	M8.67	2.17	2.30	2.11	0.00	0.00	0.00	0.00	2.12	1.36	5.80	28.82
97		0.21	0.66	0.15	0.41	0.14	0.00	0.22	0.04	0.38	5.21	2.23	9.65
98	5.50	12.20	1.80	1.67	2.42		0.00		0.57	0.87	M2.25	1.28	28.56
99	1.78	4.78	1.63	1.43	0.07	0.02	0.00	0.00	0.00	0.26	1.56	0.29	11.82
0	5.11	7.50	1.75	1.70	1.12	0.22	0.00	0.00	0.32	1.52	0.86	0.34	20.44
1	3.60	5.70	2.82	1.46	0.00	0.13	0.00	0.00	0.24	0.47	M3.44	6.96	24.82
2													

Appendix B
Site Photographs

Hungry Hollow Canal; routinely maintained agricultural canal

Agricultural Drainage Ditch along County Road 95, typical of this type of feature observed through the Segment 2 of the project study area

Canal 3 – East of Highway 505

Goodnow Slough – North of County Road 17

Goodnow Slough – South of County Road 17

Drainage #1 Tributary to Goodnow Slough – north of County Road 19

Constructed Pond – North of County Road 17

Seasonal Wetland 1- Adjacent to Goodnow Slough

Hydric Soil – Seasonal Wetland 1 (sp-12)

Seasonal Wetland 2 – North of County Road 17

Soil Sample from Seasonal Wetland 2 (sp-13)

Upland Swale south of County Road 17 (sp-11)

Upland Sample Point (sp-10) – south of County Road 17

Upland Swale (sp-9) - south of County Road 17

Upland Swale (sp-9a)

Small drainage at culvert north of County Road 17 (sp-9a)

Upland Swale (sp-8) - south of County Road 17

Seasonal Wetland Swale 1 (sp-7a) – north of County Road 17

Algal deposits in Seasonal Wetland Swale 1 – north of County Road 17

Drainage (sp-7c) north side of County Road 17

Soil sample from drainage (sp-7c)

Upland Swale (sp-7) South of County Road 17

Upland Swale (sp-5) south of County Road 17

Seasonal Wetland Swale 2 (sp4, 4a) south of County Road 17

Erosional scour channel at south end of Seasonal Wetland Swale 2

Upland (sp-3)

Upland Swale (sp-1) south side of County Road 17

Segment 4 – Acacia Canal

Appendix C
Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/4/07

Applicant/Owner: PG&E State: CA Sampling Point: SP 01

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10 N 01 E SEC 9

Landform (hillslope, terrace, etc.): TOE SLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5%

Subregion (LRR): C Lat: 38°44' 08.677 Long: -121°52' 16.637" Datum: WGS 84

Soil Map Unit Name: SEHORN-BALCOM COMPLEX 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: WEAKLY EXPRESSED SWALE FEATURE 2-4 FEET WIDE, INTERMITTENT BED AND BANK 6-8" - NO EVIDENCE OF ORDINARY HIGH WATER OR WETLAND HYDROLOGY, 2007 BELOW AVERAGE RAINFALL TO DATE

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. LOLIUM MULTIFLORUM	80	X	FAC*
2. BROMUS HORDEACEUS	5		FACU-
3. HORDEUM MARINUM	5		FAC
4. AVENA BARBATA	2		NL
5. CENTAUREA SOLSTITIALIS	2		NL
6. MEDICAGO POLYMORPHA	2		FACU-
7. LACTUCA SERRIOLA	2		FAC
8.			
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0%, % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: VEGETATION IN SWALE DOMINATED BY RYEGRASS - NO DISTINCT CHANGE FROM ADJACENT GRASSLAND COMMUNITY

SOIL

Sampling Point: SP01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/2	100%	–	–	–	–	CL	
4-12	10YR4/1	100%	–	–	–	–	C	SOME FINE GRAVEL

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): >12"

Hydric Soil Present? Yes ___ No X

Remarks: NO EVIDENCE OF HYDRIC SOILS OR PERCHED WATER TABLE OBSERVED

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SHALLOW TOPOGRAPHIC SWALE – NO EVIDENCE OF RECENT FLOW OR SEASONAL WETLAND HYDROLOGY AT THIS LOCATION

*SHOWN AS INTERMITTENT BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/4/07

Applicant/Owner: PG&E State: CA Sampling Point: SP02

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N 01E SEC 9

Landform (hillslope, terrace, etc.): TOE SLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5%

Subregion (LRR): C Lat: 38°44'08.960 Long: 121°52'41.499 Datum: WGS84

Soil Map Unit Name: SEHORN - BALLCOM 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: WEAKLY EXPRESSED SWALE NO EVIDENCE OF WETLAND HYDROLOGY OR ORDINARY HIGH WATER MARK IN THIS AREA - BELOW AVERAGE RAINFALL TO DATE

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. HORDEUM MARINUM	75	X	FAC
2. BROMUS HORDEACEUS	10		FACU-
3. LOLIUM MULTIFLORUM	5		FAC
4. MEDICAGO POLYMORPHA	2		FACU-
5. AVENA BARBATA	1		NL
6. RUMEX CRISPUS	1		FACW-
7. CONVOLVULUS ARVENSIS	<1		NL
8. CENTAUREA SOLSTITIALIS	<1		NL
Total Cover: 79.5%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum <5% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: SPARSE BROMUS DIANDRUS, VICIA VILOSA ALSO SCATTERED THROUGHOUT THIS AREA - NO DISTINCT CHANGE FROM THE ADJACENT GRASSLAND - SHIFT TO MORE HORDEUM MARINUM

SOIL

Sampling Point: SP02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1+	100%	–	–	–	–	CL	GRAVELLY
4-16	10YR4/2	100%	–	–	–	–	C	FINE GRAVELS

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): >16

Hydric Soil Present? Yes ___ No X

Remarks: SLIGHT OXIDATION ALONG ROOTS IN UPPER 1" - NO STRONG EVIDENCE OF HYDRIC SOIL IN THIS LOCATION

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SHALLOW TOPOGRAPHIC SWALE - MAY CONVEY EPHEMERAL FLOWS IN RESPONSE TO STORM EVENTS, BUT DOES NOT APPEAR TO SUPPORT PROLONGED SATURATION OR INUNDATION
* BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/4/07

Applicant/Owner: PG&E State: CA Sampling Point: SP03

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10 N 01 E SEC 8

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5%

Subregion (LRR): C Lat: 38° 44' 09.092" Long: 121° 53' 18.777" Datum: WGS 84

Soil Map Unit Name: SEHORN-BALCOM COMPLEX 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: GRASSY UPLAND SWALE - NO EVIDENCE OF WETLAND CHARACTERISTICS
- BELOW AVERAGE SEASONAL RAINFALL TO DATE

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. BROMUS HORDEACEUS	50	X	FACU-
2. HORDEUM MARINUM	35	X	FAC
3. RUMEX CRISPUS	5		FACW-
4. MEDICAGO POLYMORPHA	5		FACU-
5. LUPINUS BICOLOR	1		NL
6.			
7.			
8.			
Total Cover: 79%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum <85% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	5	x 2 = 10
FAC species	35	x 3 = 105
FACU species	55	x 4 = 220
UPL species	1	x 5 = 5
Column Totals:	96 (A)	340 (B)

Prevalence Index = B/A = 3.54

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: GRASSY SWALE FEATURE - NO DISTINCT CHANGE FROM ADJACENT GRASSLAND

SOIL

Sampling Point: SP03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100%	—	—	—	—	CL	VERY GRAVELLY
2-17	10YR 4/2	100%	—	—	—	—	CL	FINE-MED GRAVELS

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): >17

Hydric Soil Present? Yes ___ No X

Remarks: SOILS VERY GRAVELLY THROUGHOUT - FINE TO MEDIUM GRAVELS, APPEAR WELL DRAINED SOILS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: - UPLAND SWALE - MAY CONVEY EPHEMERAL FLOW IN RESPONSE TO STORM EVENTS, BUT NO INDICATION OF PROLONGED SATURATION OR INUNDATION IN THIS AREA

- BLUE LINE ON TOPO MAP NEAR THIS LOCATION

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/4/07

Applicant/Owner: PG&E State: CA Sampling Point: SP04

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N 01E SEC 7

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5%

Subregion (LRR): C Lat: 38° 44' 10.138" Long: 121° 53' 48.353" Datum: WGS84

Soil Map Unit Name: SEHORN-BALCOM COMPLEX 2-15% NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UPLAND SWALE - NO EVIDENCE OF WETLAND HYDROLOGY AT THIS LOCATION - APPEARS TO SUPPORT OVERLAND FLOWS - BELOW AVERAGE RAINFALL TO DATE - BLUE LINE ON TOPO MAP

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. HORDEUM MARINUM	60	X	FAC
2. LOLIUM MULTIFLORUM	30	X	FAC*
3. RUMEX CRISPUS	5		FACW-
4. PLAGIOBOTHRYS STIPITATUS	5		OBL
5. AVENA BARBATA	2		NL
6. MEDICAGO POLYMORPHA	1		FACU
7.			
8.			
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: - SAMPLE POINT AT LOW DEPRESSION WITHIN SWALE NEAR CULVERT - DOWNSLOPE THE VEGETATION BECOMES MORE SIMILAR TO ADJACENT GRASSLAND

SOIL

Sampling Point: SP04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/2	98%+	5YR4/6	<2%	C	RC	SCL	VERY GRAVELLY
4-14	10YR4/2	100%	—	—	—	—	SCL	FINE-MED. GRAVELS

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): >14"

Hydric Soil Present? Yes ___ No X

Remarks: FEW IRON CONCENTRATIONS IN UPPER PART OF SOIL - LESS THAN 2% - NO STRONG EVIDENCE OF HYDRIC SOIL IN THIS AREA.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- X Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SAMPLE POINT TAKEN AT CULVERT DISCHARGE POINT IN WHAT APPEARS TO BE THE WETTEST PART OF THE SWALE. DRIFT LINES AT FENCE SUGGEST OVERLAND FLOW THROUGH THIS AREA, BUT NO EVIDENCE OF PROLONGED SATURATION/INUNDATION

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400 / 401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG & E State: CA Sampling Point: 4a

Investigator(s): R. HUDDLESTON Section, Township, Range: 10 N 01 E SEC 7

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%

Subregion (LRR): C Lat: 38° 44' 09.808" Long: 121° 53' 48.193" Datum: WGS 84

Soil Map Unit Name: SEHORN - BALCOM COMPLEX 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: - WEAKLY EXPRESSED SWALE - CONVEYS FLOWS INTO INTERMITTENT SCOUR CHANNEL TO THE SOUTH - NO STRONG EVIDENCE OF PROLONGED SATURATION OR INUNDATION

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. HORDEUM MARINUM SSP. GUSSON.	50%	X	FAC
2. LOLIUM MULTIFLORUM	20%	X	FAC*
3. BROMUS HORDEACEUS	25%	X	FACU-
4. AVENA BARBATA	5%		NL
5. MEDICAGO POLYMORPHA	2%		NL
6. LUPINUS BICOLOR	T		NL
7. ERODIUM CICUTARIUM	T		NL
8.			
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 4a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/2	99%	5YR4/6	1%	C	RC	SCL	MANY ROOTS/FINE GV
2-5	10YR4/2	100%	–	–	–	–	GV SCL	
5-15	10YR4/2	100%	–	–	–	–	CLAY	FINE GRAVELS

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks: NO STRONG INDICATION OF HYDRIC SOIL AT THIS SAMPLE POINT

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: VERY THIN DETRITUS LAYER, DRIFT LINES ON FENCE SOME SOIL CRACKS – BUT CRACKED SOILS OCCUR THROUGHOUT THIS AREA DUE TO SHRINK-SWELL CLAYS – NOT INDICATIVE OF WETLAND HYDROLOGY *BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400 / 401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG & E State: CA Sampling Point: 46

Investigator(s): R. HUDDLESTON Section, Township, Range: 10 N 01 E SEC 7

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%

Subregion (LRR): C Lat: 38° 44' 09.639" Long: 121° 53' 48.715" Datum: WGS84

Soil Map Unit Name: SEHORN-BALCOM COMPLEX 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: UPLAND GRASSLAND ADJACENT TO SWALE FEATURE

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. LOLIUM MULTIFLORUM	30	X	FAC+
2. BROMUS HORDEACEUS	30	X	FACU-
3. AVENA BARBATA	20	X	NL
4. MEDICAGO POLYMORPHA	20	X	NL
5. ERODIUM CICUTARIUM	T		NL
6. LUPINUS BICOLOR	T		NL
7. MATRICARIA MATRICARIOIDES	T		FACU
8.			
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: TYPICAL ANNUAL GRASSLAND COMMUNITY FOR THIS AREA

SOIL

Sampling Point: 46

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR4/2	100%	–	–	–	–	CL	FEW FINE GRAVEL
10-16	10YR4/3	100%	–	–	–	–	CLAY	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks: CRACKED SOILS OBSERVED - DUE TO HEAVY CLAYS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: - APPEARS TO HAVE SOME OVERLAND FLOW IN THIS AREA INTO ADJACENT SWALE - BUT NO EVIDENCE OF PROLONGED SATURATION / INUNDATION

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/4/07

Applicant/Owner: PG & E State: CA Sampling Point: SP05

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N 01E SEC 7

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5%

Subregion (LRR): C Lat: 38°44'10.109" Long: 121°54'27.685" Datum: WGS 84

Soil Map Unit Name: CORNING GRAVELLY LOAM, 2-15% NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: - WEAKLY EXPRESSED SWALE - FLOWS SOUTH INTO MORE DEFINED EROSIONAL SCOUR CHANNEL
- BELOW AVERAGE SEASONAL RAINFALL

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. EROBIUM BOTRYS	50	x	NL
2. LOLIUM MULTIFLORUM	25	x	FAC*
3. BROMUS HORDEACEUS	10		FACU-
4. AVENA BARBATA	10		NL
5. RUMEX CRISPUS	5		FACW-
6. VULPIA MYUROS	T		FACU
7.			
8.			
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	5	x 2 = 10
FAC species	25	x 3 = 75
FACU species	10	x 4 = 40
UPL species	60	x 5 = 300
Column Totals:	100 (A)	425 (B)

Prevalence Index = B/A = 4.25

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: RUDERAL SPECIES AND GRASSES THROUGHOUT THIS AREA - NO DISTINCT CHANGE IN PLANT COMMUNITY FROM ADJACENT AREA

SOIL

Sampling Point: SP05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 3/2	98%	5YR 4/6	1-2%	C	RC	SCL	VERY GRAVELLY
1-12	7.5YR 3/2	100%	—	—	—	—	SCL	VERY GRAVELLY

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): >12

Hydric Soil Present? Yes ___ No X

Remarks: - SOILS COARSE, GRAVELLY TEXTURE - SOILS APPEAR WELL DRAINED - NO STRONG INDICATORS OF HYDRIC SOIL AT THIS LOCATION

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections) if available:

Remarks: - EVIDENCE OF OVERLAND FLOW IN THIS AREA, BUT NO INDICATION OF PROLONGED SATURATION OR INUNDATION

- NO BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/5/07
Applicant/Owner: PG&E State: CA Sampling Point: SP06
Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N 01E SEC 7
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%
Subregion (LRR): C Lat: 38° 44' 12.050" Long: 121° 54' 07.992 Datum: WGS84
Soil Map Unit Name: CORNING GRAVELLY LOAM 2-15% NWI classification: NONE
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____ or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: EROSIONAL / UPLAND SWALE - NO EVIDENCE OF WETLAND HYDROLOGY
BELOW AVERAGE RAINFALL TO DATE

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. AVENA BARBATA	30	X	NL
2. LOLIUM MULTIFLORUM	20	X	FAC*
3. BROMUS HORDEACEUS	15		FACU-
4. MEDICAGO POLYMORPHA	10		FACU-
5. ERODIUM BOTRYS	10		NL
6.			
7.			
8.			
Total Cover: 85%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust N/A

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	20	x 3 =	60
FACU species	25	x 4 =	100
UPL species	40	x 5 =	200
Column Totals:	85 (A)		360 (B)

Prevalence Index = B/A = 4.2

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: SIMILAR TO ADJACENT GRASSLAND - SPARSE BINDWEED, BLOW WIVES, BROMUS DIANDRUS ALSO PRESENT

SOIL

Sampling Point: SP06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR4/2	100%	–	–	–	–	CL	VERY GRAVELLY
3-16	10YR3/2	100%	–	–	–	–	C	VERY GRAVELLY

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): >16"

Hydric Soil Present? Yes ___ No X

Remarks: VERY GRAVELLY SOILS – NO EVIDENCE OF HYDRIC SOIL IN THIS AREA.

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: POTENTIAL EPHEMERAL OVERLAND FLOW IN RESPONSE TO STORM EVENTS, NO EVIDENCE OF PROLONGED SATURATION OR INUNDATION

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400-/401 City/County: YOLO Sampling Date: 4/5/07

Applicant/Owner: PG&E State: CA Sampling Point: SP07

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N ~~SE~~ 01E SEC 7

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5%

Subregion (LRR): C Lat: 38° 44' 10.808" Long: 121° 54' 47.999" Datum: WGS 84

Soil Map Unit Name: CORNING GRAVELLY LOAM 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: - WEAKLY EXPRESSED UPLAND SWALE - POTENTIAL EPHEMERAL FLOWS, BUT NO WETLAND HYDROLOGY EVIDENT
- BELOW AVERAGE SEASONAL RAINFALL

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. LOLIUM MULTIFLORUM	60%	X	FAC*
2. MEDICAGO POLYMORPHA	10		FACU-
3. BROMUS HORDEACEUS	10		FACU-
4. RUMEX CRISPUS	5		FACW-
5. ~~VULPIA MYUROS~~	~~5~~		~~FACU~~
6. VICIA VILLOSA	5		NL
7. HORDEUM MARINUM	5		FAC
8. AVENA BARBATA	2		NL
Total Cover: 90%+			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 40% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: VEGETATION SIMILAR TO ADJACENT GRASSLAND
NO DISTINCT CHANGE IN PLANT COMMUNITY

SOIL

Sampling Point: SP07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/2	98%+	10YR4/6	<2%	C	RC	SCL	GRAVELLY
2-16	10YR4/2	99%	10YR4/6	1%	C	M	C	GRAVELLY

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): >14

Hydric Soil Present? Yes ___ No X

Remarks: VERY GRAVELLY SOILS, SOME COBBLE - SOME REDOX PRESENT BUT LESS THAN 2% - DOES NOT MEET HYDRIC SOIL CRITERIA

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: THIS AREA MAY SUPPORT EPHEMERAL OVERLAND FLOW IN RESPONSE TO STORM EVENTS BUT DOES NOT APPEAR TO SUPPORT PROLONGED SATURATION OR INUNDATION * BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400 / 401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG&E State: CA Sampling Point: 7a

Investigator(s): R. HUDDLESTON Section, Township, Range: 10 N 01E SEC 6

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%

Subregion (LRR): C Lat: 38° 44' 11.543 Long: 121° 54' 46.921" Datum: WGS84

Soil Map Unit Name: SEHORN CLAY 2-15% SLOPE NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: - SWALE FEATURE - BERM / CULVERT AT ROAD IN THIS AREA BLUE LINE ON TOPO MAP

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. LOLIUM MULTIFLORUM	70%	X	FAC*
2. HORDEUM MARINUM SSP. GUSSON	20%	X	FAC
3. RUMEX CRISPUS	2%		FACW-
4. AVENA BARBATA	2%		NL
5. LUPINUS BICOLOR	2%		NL
6. ERODIUM CICUTARIUM	2%		NL
7. GERANIUM DISSECTUM	2%		NL
8. CONVOLVULUS ARVENSIS	T		NL
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 7a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 4/2	98%	5YR 4/6	2%	C	RC	CL	MANY FINE ROOTS
2-9"	10YR 4/1+	95%	10YR 4/4	5%	C	M	CL	INCREASED CLAY
9-16"	10YR 3/2	98%	10YR 3/4	1%	C	M	CLAY	
			10YR 4/4	1%	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No ___

Remarks: SOME FINE GRAVELS, ASH ALSO INTERMIXED WITH SOILS IN THIS AREA

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SOME ALGAE MATTING PRESENT IN THIS AREA

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UNE 400/401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG&E State: CA Sampling Point: 7b

Investigator(s): R. HUDDLESTON Section, Township, Range: 10N 01E SEC 6

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%

Subregion (LRR): C Lat: 38° 44' 11.619" Long: 121° 54' 47.205 Datum: WGS 84

Soil Map Unit Name: SEHORN CLAY, 2-15% SLOPES NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: - ANNUAL GRASSLAND ADJACENT TO SWALE - APPEARS TO HAVE SOME OVERLAND FLOW IN RESPONSE TO STORM EVENTS BUT NO WETLAND CHARACTERISTICS

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. ERODIUM CICUTARIUM	40%	X	NL
2. LOLIUM MULTIFLORUM	20%	X	FAC*
3. VULPIA MYUROS	20%	X	FACU*
4. AVENA BARBATA	10%		NL
5. LUPINUS BICOLOR	5%		NL
6. TRIFOLIUM VARIEGATUM	T		FACW-
7.			
8.			
Total Cover: 95%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	1	x 2 =	2
FAC species	20	x 3 =	60
FACU species	20	x 4 =	80
UPL species	55	x 5 =	275
Column Totals:	96 (A)		417 (B)

Prevalence Index = B/A = 4.34

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hycrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: VEGETATION TYPICAL OF GRASSLAND IN THIS LOCATION

SOIL

Sampling Point: 7b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6.5"	10YR 4/3	100%					SL	LOOSE, SANDY STRUCTURE
6.5-8"	10YR 4/3	33%					SiL	MIXED THROUGHOUT
	7.5YR 4/4	33%						
	10YR 5/2	33%						
8-16"	10YR 4/2	99%	10YR 4/4	1%	C	M	CLAY	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks: MIXED SOILS AT BOTTOM OF PLOW LAYER - NO EVIDENCE OF HYDRIC SOILS - SOME SMALL SURFACE CRACKS PRESENT

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: THIS AREA APPEARS SUBJECT TO SOME OVERLAND FLOWS DURING STORM EVENTS WITH SURFACE FLOWS TO THE ADJACENT SWALE AREA, BUT NO INDICATION OF PROLONGED SATURATION OR INUNDATION - OR ORDINARY HIGH WATER

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG&E State: CA Sampling Point: 7c

Investigator(s): R. HUDDLESTON Section, Township, Range: 10N 01E SEC 6

Landform (hillslope, terrace, etc.): HILL SLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%

Subregion (LRR): C Lat: 38° 44' 11.378" Long: 121° 54' 47.375 Datum: WGS84

Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: DRAINAGE AREA TO CULVERT UNDER ROAD - BLUE LINE ON TOPOGRAPHIC MAP

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. LOLIUM MULTIFLORUM	80%	X	FAC*
2. RUMEX CRISPUS	15%		FACW-
3. AVENA BARBATA	2-5%		NL
4.			
5.			
6.			
7.			
8.			
Total Cover: 95%+			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0-5% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 7c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/2	99%	5YR4/6	1%	C	RC	CL	MANY FINE ROOTS
2-3	10YR4/3	98	10YR4/2	2%	C	M	CL	
3-4.5	10YR4/2	98	10YR4/3	2%	C	M	CL	
4.5-5.5	10YR5/3	95%	10YR3/6	5%	C	M	CL	
5.5-8	10YR4/2	98%	10YR3/4	2%	C	M	CL	
8-8.5	10YR4/3	98	10YR5/3	2%	C	M	CLAY	
8.5-16	10YR4/2	95%	10YR3/4	5%	C	M	CLAY	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No ___

Remarks: STRATIFIED SOILS OBSERVED IN THIS AREA - MIXED EXCAVATED ROADSIDE DRAINAGE DITCH

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: DRAINAGE DITCH TO CULVERT UNDER ROAD - CONVEYS STORM WATER FLOWS INTO SWALE FEATURE ON THE SOUTH SIDE OF THE ROAD

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/5/07

Applicant/Owner: PG&E State: CA Sampling Point: SP08

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N 01W SEC 12

Landform (hillslope, terrace, etc.): HILL SLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5%

Subregion (LRR): C Lat: 38°44' 11.286" Long: 121° 55' 17.209" Datum: WGS84

Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UPLAND SWALE - NO WETLAND CHARACTERISTICS

BELOW AVERAGE SEASONAL RAINFALL

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. HORDEUM MARINUM	60%	X	FAC
2. MEDICAGO POLYMORPHA	25%	X	FACU-
3. BROMUS HORDEACEUS	5		FACU-
4. EROPIUM BOTRYS	5		NL
5.			
6.			
7.			
8.			
Total Cover: 95%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust: 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	60	x 3 =	180
FACU species	30	x 4 =	120
UPL species	5	x 5 =	25
Column Totals:	95 (A)		325 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: VEGETATION SIMILAR TO ADJACENT GRASSLAND

NO CHANGE IN PLANT COMMUNITY

SOIL

Sampling Point: SP08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	98%	7.5YR 4/4	2	C	RC	SCL	GRAVELLY
2-15	10YR 4/2	100%	–	–	–	–	C	VERY GRAVELLY

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): 7/15

Hydric Soil Present? Yes ___ No X

Remarks: FEW CONCENTRATIONS IN UPPER 2" - NO STRONG EVIDENCE OF HYDRIC SOIL - DOES NOT MEET ANY CRITERIA

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 16" DIAMETER CULVERT AT UPPER END OF SWALE POSSIBLE EPHEMERAL FLOW THROUGH THIS AREA, BUT NO INDICATION OF PROLONGED SATURATION OR INUNDATION - NOT A BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400 / 401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG&E State: CA Sampling Point: 8a

Investigator(s): R. HUDDLESTON Section, Township, Range: 10 N 01 W SEC 1

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5

Subregion (LRR): C Lat: 38° 44' 11.137" Long: 121° 55' 09.511" Datum: WGS 84

Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UPLAND SWALE – POTENTIAL OVERLAND FLOW, BUT NO EVIDENCE OF WETLAND HYDROLOGY OR HYDRIC SOIL

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. LOLIUM MULTIFLORUM	90%	X	FAC*
2. RUMEX CRISPUS	5%		FACW-
3. HORDEUM MARINUM SP. GUSS.	2%		FAC
4. VICIA SP.	2%		NL-FACU
5. AVENA BARBATA	1%		NL
6. GERANIUM DISSECTUM	T		NL
7.			
8.			
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 8a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 3/2	99%	5YR 4/6	1%	C	RC	SCL	MANY FINE ROOTS
2-8"	10YR 3/2	99%	7.5YR 3/4	1%	C	M	SCL	
8-16"	10YR 4/2	99%	7.5YR 3/4	1%	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks: NO STRONG EVIDENCE OF HYDRIC SOILS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: POTENTIAL OVERLAND FLOWS IN THIS AREA - DOES NOT APPEAR TO SUPPORT PROLONGED SATURATION OR INUNDATION

NO BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400 / 406 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG&E State: CA Sampling Point: 86

Investigator(s): R. HUDDLESTON Section, Township, Range: 10N 01W SEC 1

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%

Subregion (LRR): C Lat: 38° 44' 11.052 Long: 121° 55' 04.124 Datum: WGS84

Soil Map Unit Name: SEIHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: GRASSY SWALE - POTENTIAL OVERLAND FLOW IN RESPONSE TO STORM EVENTS, BUT DOES NOT APPEAR TO SUPPORT WETLAND HYDROLOGY

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. LOLIUM MULTIFLORUM	60%	X	FAC*
2. HORDEUM MARINUM SSP. GUS.	35%	X	FAC
3. GERANIUM DISSECTUM	5%		NL
4. RUMEX CRISPUS	T		FACW-
5. AMSINKIA MENZIESII	T		NL
6. VICIA VILLOSA	T		NL
7. LACTUCA SERRIOLA	T		FAC
8.			
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: GRASSY SWALE - SHIFT TOWARDS FACULTATIVE SPECIES IN THIS LOCATION RELATIVE TO ADJACENT GRASSLAND

SOIL

Sampling Point: 8b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2	100%					CL	FINE ROOTS UPPER 3"
7-16	10YR 4/2	100%					C	FEW GRAVELS

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: NONE
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
NO EVIDENCE OF REDOX OR OTHER HYDRIC SOIL INDICATORS OTHER THAN

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: POTENTIAL OVERLAND FLOW IN RESPONSE TO STORM EVENTS BUT NO EVIDENCE OF PROLONGED SATURATION OR INUNDATION

NO BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/5/07

Applicant/Owner: PG&E State: CA Sampling Point: SP09

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10 N 01 W SEC 12

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5%

Subregion (LRR): C Lat: 38°44' 11.208" Long: 121°55' 28.427 Datum: WGS84

Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: UPLAND SWALE - POTENTIAL OVERLAND FLOW, BUT NOT WETLAND HYDROLOGY IN THIS AREA
BELOW AVERAGE SEASONAL RAINFALL

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. HORDEUM MARINUM	60	X	FAC
2. MEDICAGO POLYMORPHA	30	X	FACU-
3. BROMUS HORDEACEUS	T		FACU-
4. RUMEX CRISPUS	T		FACW-
5. ERODIUM BOTRYS	T		NL
6. CENTAUREA SOLSTITALIS	T		NL
7.			
8.			
Total Cover: 95%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	1	x 2 =	2
FAC species	60	x 3 =	120
FACU species	31	x 4 =	124
UPL species	2	x 5 =	10
Column Totals:	94 (A)		256 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP09

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/3	97%	7.5YR3/4	3%	C	RC	SCL	VERY GRAVELLY
2-18	10YR4/1+	-	-	-	-	-	C	VERY GRAVELLY

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: NONE
Depth (inches): >18

Hydric Soil Present? Yes ___ No X

Remarks:
REDOX CONCENTRATIONS ALONG ROOT CHANNELS - BUT SOIL DOES NOT MEET ANY HYDRIC CRITERIA

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
16" DIAMETER CULVERT AT ROAD - POTENTIAL OVERLAND FLOW THROUGH THIS AREA, BUT NO INDICATION OF PROLONGED SATURATION OR INUNDATION - NOT A BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400 / 401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG & E State: CA Sampling Point: 9a

Investigator(s): R. HUDDLESTON Section, Township, Range: 10N 01W SEC 1

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%

Subregion (LRR): C Lat: 38°44'12.169 Long: 121° 55' 29.674 Datum: WGS84

Soil Map Unit Name: CORNING GRAVELLY LOAM 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: - SWALE AREA · SMALL SCOUR CHANNEL NEAR CULVERT APPEARS TO HAVE SOME OVERLAND FLOW IN RESPONSE TO STORM EVENTS BUT NO WETLAND HYDROLOGY OR HYDRIC SOILS EVIDENT

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. BROMUS HORDEACEUS	50%	X	FACU-
2. VULPIA MYUROS	25%	X	FACU*
3. HORDEUM MARINUM SSP. GUSS.	20%	X	FAC
4. RUMEX CRISPUS	10%		FACW-
5. AVENA BARBATA	2%		NL
6. BROMUS DIANDRUS	2%		NL
7. AMSINCKIA MENZIESII	T		NL
8.			
Total Cover: 100%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	10	x 2 = 20
FAC species	20	x 3 = 60
FACU species	75	x 4 = 300
UPL species	5	x 5 = 25
Column Totals:	110 (A)	405 (B)

Prevalence Index = B/A = 3.68

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: UPLAND GRASSLAND COMMUNITY

SOIL

Sampling Point: 9a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3	100%	–	–	–	–	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

SOILS UNIFORM THROUGHOUT - NO EVIDENCE OF HYDRIC SOILS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

- SWALE AREA - SMALL SCOUR CHANNEL / DRAINAGE AT CULVERT - BUT NO EVIDENCE OF WETLAND HYDROLOGY UPSLOPE OF THIS AREA. - NO BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/5/07

Applicant/Owner: PG&E State: CA Sampling Point: SP10

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N 01W SEC 12

Landform (hillslope, terrace, etc.): HILL SLOPE Local relief (concave, convex, none): NONE Slope (%): 2-5

Subregion (LRR): C Lat: 38°44' 11.454" Long: 121° 55' 49.094 Datum: WGS 84

Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks: UPLAND SWALE - POTENTIAL OVERLAND FLOW IN RESPONSE TO STORM EVENTS, BUT NO EVIDENCE OF WETLAND HYDROLOGY BELOW AVERAGE SEASONAL RAINFALL

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. HORDEUM MARINUM	45%	X	FAC
2. MEDICAGO POLYMORPHA	35%	X	FACU-
3. BROMUS HORDEACEUS	3%		FACU-
4. ERODIUM BOTRYS	2%		NL
5.			
6.			
7.			
8.			
Total Cover: 85%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	45	x 3 =	135
FACU species	38	x 4 =	152
UPL species	2	x 5 =	10
Column Totals:	85 (A)		(B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: - GRASSY SWALE - NO DISTINCT CHANGE FROM ADJACENT GRASSLAND COMMUNITY

SOIL

Sampling Point: SP10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR4/2	100%	7.5YR 4/4	<1%	C	RC	CL	VERY GRAVELLY
1-18	10YR4/2	100%	—	—	—	—	C	VERY GRAVELLY

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): >18

Hydric Soil Present? Yes ___ No X

Remarks: HEAVY CLAY SOILS WITH ABUNDANT GRAVEL THROUGHOUT THE UPPER 18" - NO EVIDENCE OF HYDRIC SOIL

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: WEAKLY EXPRESSED TOPOGRAPHIC SWALE - POTENTIAL FOR OVERLAND FLOW IN THIS AREA, BUT NO INDICATION OF PROLONGED SATURATION OR INUNDATION - NOT A BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400-/401 City/County: YOLO Sampling Date: 4/5/07
Applicant/Owner: PG&E State: CA Sampling Point: SP11
Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N 01W SEC 11
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 0-5%
Subregion (LRR): C Lat: 38°44' 11.160" Long: 121° 58' 19.629" Datum: WGS 84
Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: DRAINAGE SWALE - POSSIBLE OVERLAND FLOW, NO APPARENT WETLAND HYDROLOGY
BELOW AVERAGE RAINFALL TO DATE

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. HORDEUM MARINUM	50%	x	FAC
2. MEDICAGO POLYMORPHA	20%	x	FACU-
3. HYPOCHAERIS RADICATA	5%		NL
4. ERODIUM BOTRYS	T		NL
5. PLAGIOBOTHRYS STIPITATUS	T		OBL
6. RANUNCULUS MURICATUS	T		FACW+
7. POA ANNUA	T		FAC
8. LUPINUS BICOLOR	T		NL
Total Cover: 80%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 20% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	50	x 3 =	150
FACU species	20	x 4 =	80
UPL species	5	x 5 =	25
Column Totals:	75 (A)		255 (B)

Prevalence Index = B/A = 3.4 ~~255~~

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: SPARSE - DESCHAMPSIA DANTHONIOIDES (FACW), LILIUM MULTIFLORUM (FACW) AND PSILOCARPHUS BREVISSIMUS (OBL) ALSO PRESENT
- SPARSE VERNAL PLANTS PRESENT IN THIS AREA - MOSTLY GRASSES AND BUR CLOVER

SOIL

Sampling Point: SP11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	95%	7.5YR 4/4	5%	C	RC	SCL	FINE-MED GRAVEL
3-15	10YR 4/2	60%					SCL	GRAVELLY-MIXED
	10YR 4/1	20%						SOILS IN THIS
	7.5YR 4/4	15%						LOCATION
	10YR 2/1	5%						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): >15

Hydric Soil Present? Yes X No ___

Remarks:

- SOILS BELOW 3" - MIXED SOIL COLORS WITH CONCENTRATIONS EVIDENT IN THE MATRIX AND ALONG ROOT CHANNELS - SOIL APPEARS TO MEET DEPLETED MATRIX INDICATOR

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SAMPLE POINT IN TOPOGRAPHIC SWALE - POSSIBLE OVERLAND FLOW IN THIS AREA, BUT DOES NOT APPEAR TO SUPPORT PROLONGED SATURATION OR INUNDATION * BLUELINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/401 City/County: YOLO Sampling Date: 4/5/07

Applicant/Owner: PG&E State: CA Sampling Point: SP12

Investigator(s): R. HUDDLESTON, T. ARMSTRONG Section, Township, Range: 10N 01W SEC 11

Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): CONCAVE Slope (%): 0-2

Subregion (LRR): C Lat: 38°44'10.889" Long: 121° 56' 20.957" Datum: WGS 84

Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: -LOW DEPRESSION AT END OF SWALE, ADJACENT TO IRRIGATION CANAL - PROBABLE SEEPAGE IN THIS LOCATION
-BELOW AVERAGE RAINFALL

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. ELEOCHARIS MACROSTACHYA	15	X	OBL
2. GLYCERIA OCCIDENTALIS	15	X	OBL
3. HORDEUM MARINUM	10	X	FAC
4. CRYPSIS SCHOENOIDES	T		OBL
5. RANUNCULUS MURICATUS	T		FACW-
6. PLANTAGO LANCEOLATA	T		FAC-
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 50% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: BASIN ADJACENT TO IRRIGATION CANAL - CHARACTERIZED BY WETLAND VEGETATION

SOIL

Sampling Point: SP12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 4/2	85%	2.5Y 6/3	15%	D	M	C	
8-16	GLEY 6/5GY	75%	10YR 5/6	25%	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/E

Depth (inches): >16

Hydric Soil Present? Yes X No ___

Remarks: SOILS - STRONG INDICATORS OF REDUCING CONDITIONS NOTED AT THIS LOCATION

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 2"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SOILS SATURATED AT THE SURFACE - MOIST THROUGHOUT
APPEARS TO RECIEVE SEEPAGE FROM ADJACENT CANAL

* BLUE LINE ON TOPO MAP

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400 / 401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG & E State: CA Sampling Point: SP13

Investigator(s): R. HUDDLESTON Section, Township, Range: 10N 01W SEC 2

Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): CONCAVE Slope (%): 0-2

Subregion (LRR): C Lat: 38° 44' 13.278" Long: 121° 58' 16.116" Datum: WGS 84

Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: BROAD SHALLOW TOPOGRAPHIC DEPRESSION - APPEARS TO SUPPORT SEASONAL SATURATION / INUNDATION

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. LOLIUM MULTIFLORUM	50%	x	FAC
2. HORDEUM MARINUM SSP. GUS	15%	x	FAC
3. PLAGIOBOTHRYS STIPITATUS	15%	x	OBL
4. ERYNGIUM SP.	15%	x	(FACW)
5. MYOSURUS MINIMUS	T		OBL
6. PSILOCARPHUS BREVISSIMUS	T		OBL
7.			
8.			
Total Cover: 95%+			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum <5% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: - SHIFT IN PLANT COMMUNITY TOWARDS MORE HYDROPHYTIC PLANTS IN THIS AREA. SOME CHARASTIC VERNAL POOL SPECIES PRESENT

SOIL

Sampling Point: SP13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7"	10YR4/2+	95%	10YR4/6	5%	C	M	CL	
7-16"	10YR4/2+	100%					CLAY	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): 7/6

Hydric Soil Present? Yes X No ___

Remarks: EVIDENCE OF REDOX IN UPPER 7" OF THE SOIL

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections) if available:

Remarks: Algae matting present, slight topographic depression

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LINE 400/ 401 City/County: YOLO Sampling Date: 3/28/08

Applicant/Owner: PG & E State: CA Sampling Point: SP 14

Investigator(s): R. HUDDLESTON Section, Township, Range: 10 N 01 W SEC 2

Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): NONE Slope (%): 0-2

Subregion (LRR): C Lat: 38° 44' 13.198" Long: 121° 56' 16.549" Datum: WGS 84

Soil Map Unit Name: SEHORN CLAY 2-15% NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No ____	
Wetland Hydrology Present?	Yes ____	No ____	

Remarks: UPLAND SAMPLE POINT ADJACENT TO DEPRESSIONAL AREA

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: N/A			
Sapling/Shrub Stratum			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: N/A			
Herb Stratum			
1. VULPIA MYUROS	20%	X	FACU+
2. AVENA BARBATA	20%	X	NL
3. TAENIATHERUM CAPUT-MEDUSAE	20%	X	NL
4. ERODIUM CICUTARIUM	15%		NL
5. BROMUS HORDEACEUS	5%		FACU-
6. VICIA SP.	5%		–
7. LUPINUS BICOLOR	5%		NL
8.			
Total Cover: 90%			
Woody Vine Stratum			
1. NONE			
2.			
Total Cover: N/A			

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: TYPICAL ANNUAL GRASSLAND HABITAT FOR THIS AREA

SOIL

Sampling Point: P14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR4/3	100%	–	–	–	–	CL	FINE ROOTS
7-16	10YR4/3	100%	–	–	–	–	CLAY	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks: FINE GRAVELS THROUGHOUT - NO EVIDENCES OF HYDRIC SOIL

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: UPLAND GRASSLAND - NO EVIDENCE OF SATURATION OR INUNDATION

DRAFT

Delineation of Waters of the United States

PG&E Line 407 Natural Gas Transmission Pipeline

Placer, Sacramento, Yolo, and Sutter Counties, CA

August 2007

Prepared for:

TRC
Attention: Benjamin Hart
80 Stone Pine Road, Suite 200
Half Moon Bay, CA. 94019

Prepared by:

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Appendix A –Official Soils Series Descriptions

Appendix B – Field Data and Jurisdictional Forms

Appendix C – Delineation Acreage Totals

Attachment A – Wetland Delineation Map

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Table 1. Waters of the U.S. Totals Delineated within the PG&E Line 407 Survey Area. 11

Table 2. Soils Found within the PG&E Line 407 Survey Area. 16

Figure 1. Location Map..... 3

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DRAFT
DELINEATION OF WATERS OF THE UNITED STATES

PG&E Line 407 Natural Gas Transmission Pipeline
Placer, Sacramento, Yolo, and Sutter Counties, CA.

Introduction and Project Location

Gallaway Consulting, Inc. conducted a delineation of Waters of the U.S. for an approximately 26-mile (3524-acre) survey area located in Placer, Sacramento, Yolo, and Sutter Counties, California (**Figure 1**). The PG&E Line 407 project (Project) is located in portions of the Woodland, Grays Bend, EL Dorado Bend, Knights Landing, Verona, Rio Linda, Roseville, Citrus Heights, Pleasant Grove, and Taylor Monument U.S. Geological Survey (USGS) 7.5 minute quadrangle maps (refer to **Figure 1** for sections, townships, and ranges). Surveys were conducted on July 21 and 24-28, and August 10 and 25, 2006, May 3, 8, and 14, June 21, and July 31, 2007 by biologists Brooks Taylor, Chelsea Kramer, Jody Gallaway, and Breanna Owens and botanists Shirley Innecken and Elena Alfieri. The surveys involved an examination of botanical resources, soils, hydrological features, and determination of wetland characteristics based on the *United States Army Corps of Engineers Wetlands Delineation Manual* (1987); the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (2006); and, the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (2007).

The PG&E Line 407 is part of a project to provide natural gas to communities in the Sacramento River Valley, which is an area of rapid growth. The survey area is composed of a 500-foot buffer on either side of the Project alignment. Due to the large size of the project, it will be distinguished as PG&E Line 407 West (approximately 14 miles in length) and PG&E Line 407 East (approximately 12 miles in length). The PG&E Line 407 West (West Project) will run from a tie-in point with proposed PG&E Line 406 and existing PG&E Line 172A near Highway 5 north of the City of Woodland to a tie-in point with proposed PG&E Line 407 East (East Project) at the corner of Powerline and Riego roads. The East Project then splits, running south along Powerline Road to West Elverta Road, and east along Riego Road/Baseline Road to Fiddyment Avenue. From the western tie-in, the line will run along the edges of fields and parallel a series of county roads and irrigation canals, crossing Knights Landing Ridge Cut, the Yolo Bypass, and the Sacramento River before reaching the eastern tie-in (**Figure 1**).

This report addresses the nature, jurisdictional status, and landscape position of the wetlands in the survey area; it does not provide information suitable for structural analysis of soils for construction purposes, flood plain delineation, or other purposes not expressly stated. Wetland acreages presented in this report should be considered preliminary, and subject to review and modification by the U.S. Army Corps of Engineers (USACE) during the wetland delineation verification process.

Site Conditions

The survey area encompasses an approximately 3524-acre (26-mile) corridor of rural, urban, developed, and open land in portions of the Woodland, Grays Bend, EL Dorado Bend, Knights Landing, Verona, Rio Linda, Roseville, Citrus Heights, Pleasant Grove, and Taylor Monument USGS quadrangles. Residential structures, agricultural structures, and agricultural fields occupy the extent of the survey area. The agricultural fields within the survey area consist of planted row crops including alfalfa, wheat, sunflowers, corn, and tomatoes in addition to orchards and rice fields. Topography in the area is flat to gently sloping and portions continue to be graded for agriculture, with project elevation ranging from 15 to125 feet above sea level. Water used for agriculture within the survey area is pumped from the Sacramento River via the Tule Canal, the Knights Landing Ridge Cut, and the Natomas Cross Canal, as well as a matrix of unnamed irrigation canals and ditches.

Survey Methodology

Many of the terms used throughout this report have specific meanings relating to the federal wetland delineation process. Term definitions are based on the *USACE Wetlands Delineation Manual* (1987), the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1989) and the *Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region* (2006). The terms defined below have specific meaning relating to the delineation of Waters of the U.S. as prescribed by §404 of the Clean Water Act (CWA).

Terminology

Abutting: When referring to wetlands that are adjacent to a tributary, abutting defines those wetlands that are not separated from the tributary by an upland feature, such as a berm or dike.

Adjacent: Adjacent as used in "Adjacent to a traditional navigable water," is defined in USACE and EPA regulations as "bordering, contiguous, or neighboring." Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes and the like are 'adjacent wetlands.'

Atypical situation (significantly disturbed): In an atypical (significantly disturbed) situation, recent human activities or natural events have created conditions where positive indicators for hydrophytic vegetation, hydric soil, or wetland hydrology are not present or observable.

Ephemeral stream: An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Growing season: The growing season is the portion of the year when soil temperatures are above biologic zero (41° F) as defined by soil taxonomy.

PG&E Line 407 **Location**

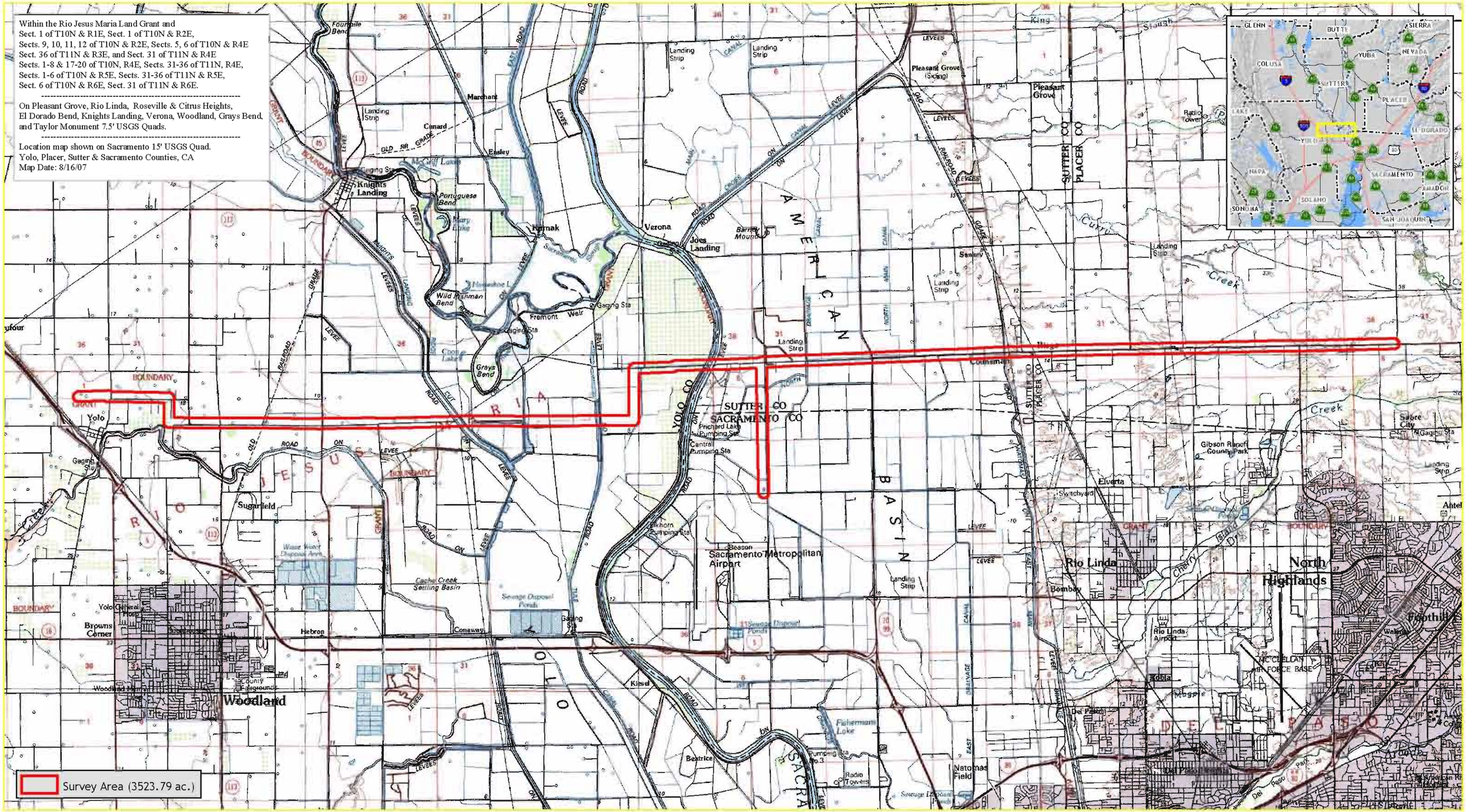


Figure 1

Hydric soil: Soil is hydric that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic (oxygen-depleted) conditions in its upper part (*i.e.* within the shallow rooting zone of herbaceous plants).

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Jurisdictional wetland: Sites that meet the definition of wetland provided below and that fall under USACE regulations pursuant to §404 of the CWA are considered jurisdictional wetlands.

Man-induced wetlands: A man-induced wetland is an area that has developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities.

Normal circumstances: This term refers to the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed.

Other Waters of the United States: Other Waters of the U.S. are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for one or more of the three wetland parameters (hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Plant Indicator Status Categories:

Obligate wetland plants (OBL) – plants that occur almost always (estimated probability 99%) in wetlands under normal conditions, but which may also occur rarely (estimated probability 1%) in non-wetlands.

Facultative wetland plants (FACW) - plants that usually occur (estimated probability 67% to 99%) in wetlands under normal conditions, but also occur (estimated probability 1% to 33%) in non-wetlands.

Facultative plants (FAC) – Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands.

Facultative upland plants (FACU) – Plants that occur sometimes (estimated probability1% to 33%) occur in wetlands, but occur more often (estimated probability 67% to 99%) in non-wetlands.

Obligate upland plants (UPL) – Plants that occur rarely (estimated probability 1%) in wetlands, but occur almost always (estimated probability 99%) in non-wetlands under natural conditions.

Ponded: Ponding is a condition in which free water covers the soil surface (e.g., in a closed depression) and is removed only by percolation, evaporation, or transpiration.

Problem area: Problem areas are those where one or more wetland parameters may be lacking because of normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events.

Relatively permanent: As defined in the *Rapanos* guidance document, a water body is "relatively permanent" if its flow is year round or its flow is continuous at least "seasonally," (e.g., typically 3 months). Wetlands adjacent to a "relatively permanent" tributary are also jurisdictional if those wetlands directly abut such a tributary.

Significant nexus: A water body is considered to have a "significant nexus" with a traditional navigable water if its flow characteristics and functions in combination with the ecologic and hydrologic functions preformed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream traditional navigable water.

Traditional navigable water: Includes all of the "navigable water of the United States," defined in 33 C.F.R. § 329, and by numerous decisions of the Federal courts, plus all other waters that are navigable-in-fact. As defined in 33 C.F.R. § 329, "Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the water body, and is not extinguished by later actions or events which impede or destroy navigable capacity."

Tributary: A tributary as defined in the *Rapanos* guidance document, means a natural, man-altered, or man-made water body that carries flow directly or indirectly into traditional navigable waters. For purposes of determining "significant nexus" with a traditional navigable water, a "tributary" is the entire reach of the stream that is of the same order (i.e., from the point of confluence, where two lower order streams meet to from the tributary, downstream to the point such tributary enters a higher order stream).

Waters of the United States: This is the encompassing term for areas under federal jurisdiction pursuant to Section 404 of the CWA. Waters of the U.S. are divided into "wetlands" and "Other Waters of the U.S."

Wetland: Wetlands are defined as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 [b], 40 CFR 230.3). To be considered under federal jurisdiction, a wetland must support positive indicators for hydrophytic vegetation, hydric soil, and wetland hydrology.

Determination of Hydrophytic Vegetation

The presence of hydrophytic vegetation was determined using the methods outlined in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1989) and the *Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region* (2006), which are approved by the USACE for use in conjunction with the *Wetlands Delineation Manual* (1987). Areas are considered to have positive indicators of hydrophytic vegetation if they pass the dominance test, meaning more than 50 percent of the dominant species are OBL, FACW, FAC (Reed 1988). Plant species were identified to the lowest taxonomy possible.

Determination of Hydric Soils

Soil survey information was reviewed for the survey area and the Natural Resources Conservation Service (NRCS) database was consulted on the local soil conditions. The use of hydric soil indicators, as outlined in the *Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region* (2006), was applied to all soil samples. Official soil series descriptions are provided in **Appendix A** and the distribution of soil map units for the site is shown in **Figure 2**.

Determination of Wetland Hydrology

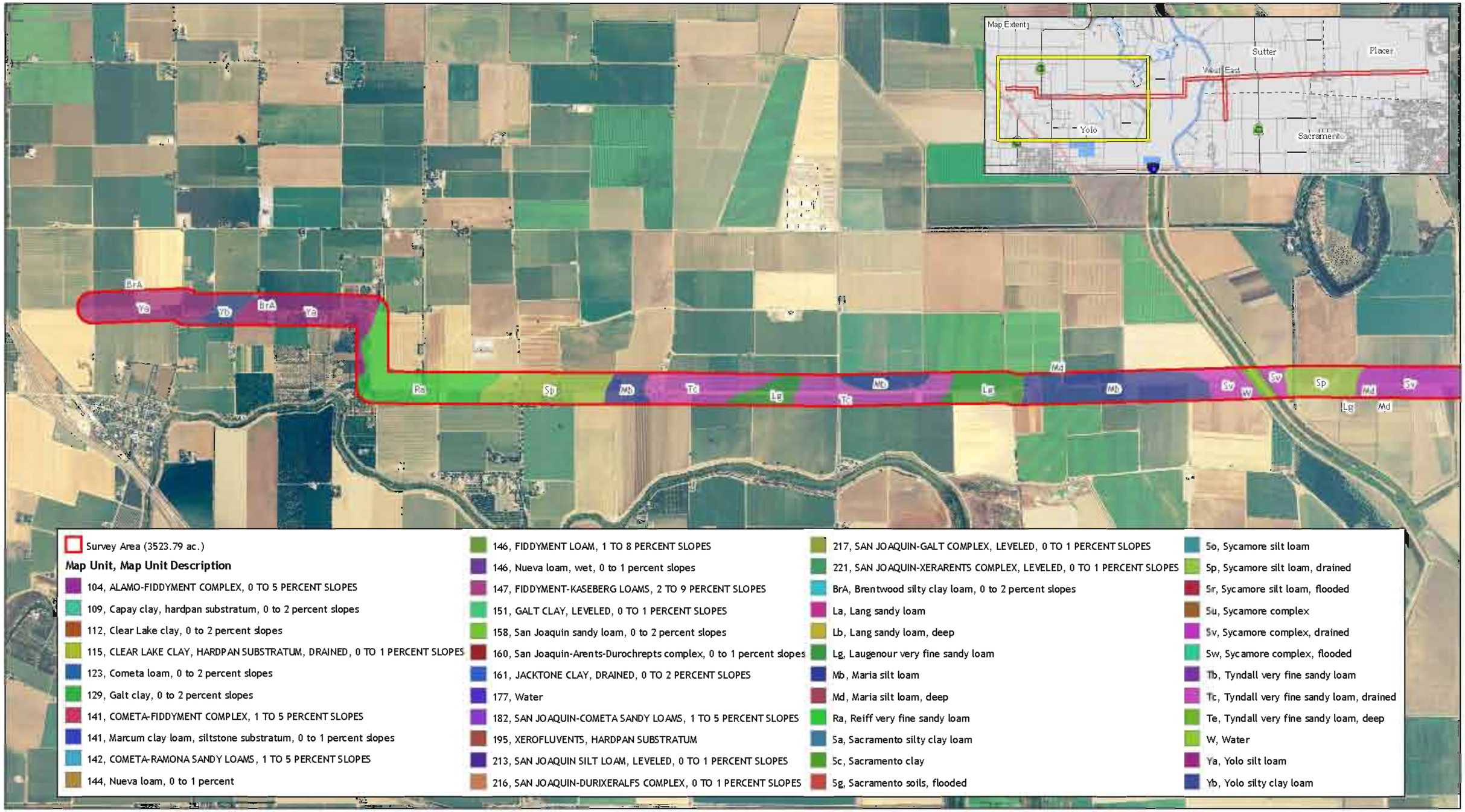
Wetland hydrology was determined to be present if a site supported one or more of the following characteristics:

- Landscape position and surface topography (e.g. position of the site relative to an up-slope water source, location within a distinct wetland drainage pattern, and concave surface topography);
- Inundation or saturation for a long duration either inferred based on field indicators or observed during repeated site visits; and
- Residual evidence of ponding or flooding resulting in field indicators such as scour marks, sediment deposits, algal matting, and drift lines.

The presence of water or saturated soil for approximately 5 to 12.5 percent of the growing season typically creates anaerobic conditions in the soil, and these conditions affect the types of plants that can grow and the types of soils that develop (Environmental Laboratory 1987).

Determination of Ordinary High Water Mark

The lateral extent of non-tidal water bodies (e.g. intermittent streams) were based on the ordinary high water mark (OHWM), which is "the line on the shore established by the fluctuations of water" (USACE 2005). The OHWM was determined based on physical characteristics of the area, including scour, multiple observed flow events (from current and historical aerial photos), shelving, changes in the character of soil, presence of mature vegetation, deposition, and topography. Due to the wide extent of some floodplains, adjacent riparian areas characterized by hydric soils, hydrophytic vegetation, and hydrology may be included within the OHWM of a non-tidal water body.

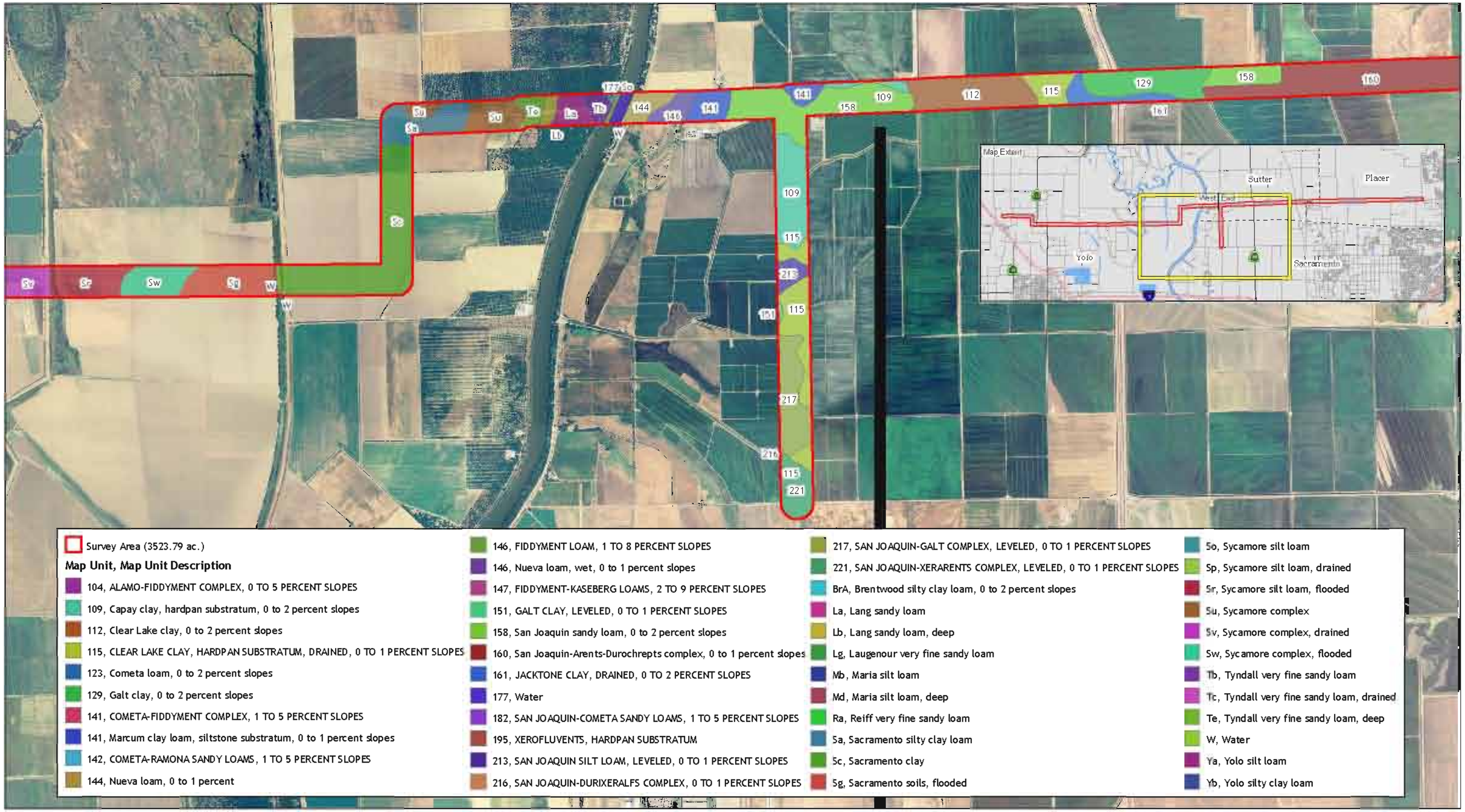


Soils Characterization derived from NRCS
Aerial Feb 2005 (NAIP)
Map Date August 17, 2007

Miles
0 1 2

GALLAWAY CONSULTING, INC

Figure 2.



Soils Characterization derived from NRCS
Aerial Feb 2005 (NAIP)
Map Date August 17, 2007

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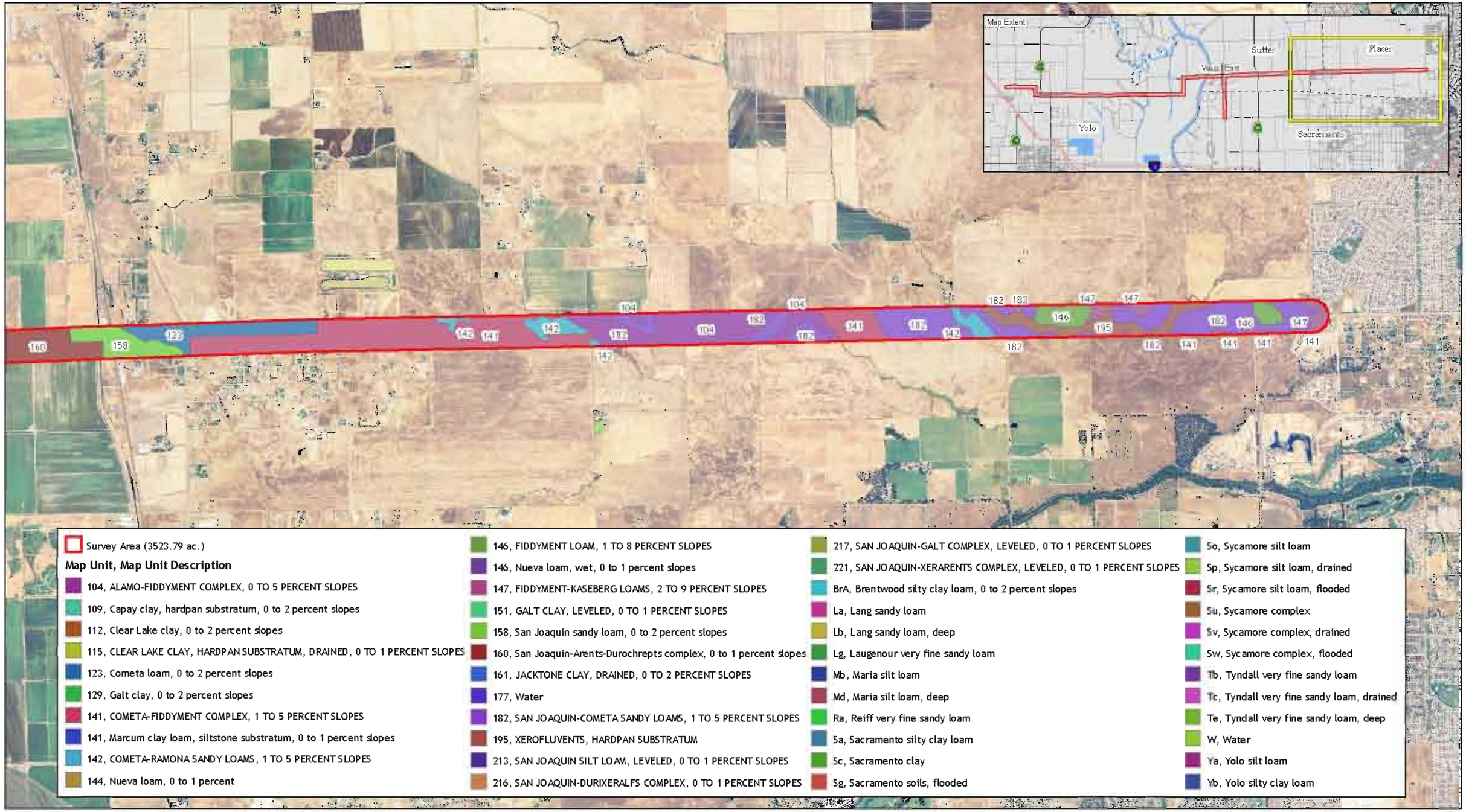
GALLAWAY CONSULTING, INC

Figure 2.



Soils Characterization derived from NRCS
Aerial Feb 2005 (NAIP)
Map Date August 17, 2007

Miles
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GALLAWAY CONSULTING, INC

Figure 2.

Determination of Jurisdiction of Artificially Irrigated Wetlands

Based on the Memorandum 2003-04, from the Regulatory Branch of the Corps, "any area exhibiting wetland characteristics sustained solely by the application of irrigation water is not regulated under Section 404 of the CWA," the review of recently verified delineations wherein rice fields were not considered jurisdictional, and because the rice fields are not being converted for non agricultural purposes, rice fields within the survey area were not delineated as jurisdictional features. The canals within the survey area are nearly entirely supported by irrigation water; however, because of the potential for canals to convey water at times when no irrigation was taking place we delineated them as jurisdictional intermittent streams.

Determination of Isolated Wetlands

On January 9, 2001, the U.S. Supreme Court issued a decision in the case of *Solid Waste Agency of Northern Cook County* v. *United States Army Corps of Engineers* (the *SWANCC* decision), 531 U.S. 159 (2001). The Court determined that the Corps' authority under Section 404 of the CWA did not extend to isolated wetlands if they are not "adjacent" to navigable waters. It held that the Corps exceeded its statutory authority by asserting CWA Section 404 jurisdiction over the ponds that SWANCC wanted to fill based solely on the use of those "non-navigable, isolated, intrastate" waters by migratory birds. The parameters defined in the SWANCC case were used to identify "non-navigable, isolated, intrastate" wetlands within the survey area. These features will still be subject to regulation under the Regional Water Quality Control Board (RWQCB) and Section 401 of the Clean Water Act.

Jurisdictional Boundary Determination and Acreage Calculation

The wetland-upland boundary was determined based on the presence or inference of positive indicators of all mandatory criteria. The site was traversed on foot to identify wetlands. Standard data sheets were used to describe plants, soils, and hydrological characteristics of wetland features and jurisdictional forms were prepared to show a significant nexus for all of the jurisdictional features onsite (**Appendix B**). Gallaway Consulting, Inc. conducted the field delineation and prepared the map and acreage calculations (**Attachment A**). A table with the acreage totals for all the features delineated within the survey area is presented in **Appendix C**. The spatial data obtained during the preparation of this delineation was collected using a Trimble GeoXT Global Positioning System (GPS) Receiver on July 21 and 24-28 and August 10 and 25, 2006, May 3, 8, and 14, June 21, and July 31, 2007. The maximum position dilution of precision (PDOP) during data collection was 7.5. No readings were taken with fewer than 5 satellites. Point data locations were recorded for 25 seconds at a rate of 1 position per second. Area and line data was recorded at a rate of 1 position per second while walking at a slow pace. All GPS data was differentially corrected for maximum accuracy using the nearest National Geodetic Survey's Continuously Operating Reference Station (CORS).

Results

A total of 108.112 acres of pre-jurisdictional Waters of the U.S. were delineated within the survey area. The types of Waters of the U.S. identified within the survey area are distinguished as willow and mixed riparian wetlands, fresh emergent wetlands, seasonal wetlands, seasonal swales, vernal pools, vernal swales, and Other Waters including culverts, ponds, relatively permanent irrigation canals and perennial streams, traditional navigable waters, and non-relatively permanent drainages (**Table 1**). These features are mapped at a 1" = 100' scale and are presented in **Attachment A**. Waters of the U.S. acreages presented in this report should be considered preliminary, subject to review and modification by the USACE during the wetland delineation verification process. The wetlands, and the data of interpretation used to delineate their jurisdictional boundaries are described below.

Table 1. Waters of the U.S. Totals Delineated within the PG&E Line 407 Survey Area.

Wetland Features			
Type	**Length (ft.)**	**Area (ft.2)**	**Acres**
Fresh Emergent Wetland Total =	n/a	155798.956	3.577
Riparian Total =	n/a	716664.529	16.452
Seasonal Swale =	n/a	91891.626	2.110
Seasonal Wetland =	n/a	942009.073	21.626
Vernal Pool =	n/a	189878.033	4.359
Vernal Swale =	n/a	58319.269	1.339
Willow Riparian =	n/a	82877.480	1.903
Wetland Features Total =	**n/a**	**2237438.967**	**51.365**
Other Waters of the U.S.			
Type	**Length (ft.)**	**Area (ft.2)**	**Acres**
Culvert Total =	5425.646	12836.605	0.295
NRPW Total =	51913.385	94843.838	2.177
RPW Total =	78208.919	1826085.369	41.921
TNW Total =	1116.699	535358.639	12.290
Pond Total =	n/a	2786.430	0.064
OWOTUS Total =	**136664.649**	**2471910.881**	**56.747**
Total WF and OWOTUS =	**136664.649**	**4709349.848**	**108.112**

Jurisdictional Features

Riparian

Riparian wetlands exist within Other Water features in the irrigation ditch on the west side of the Sacramento River and along the banks of the Sacramento River, Tule Canal, Knights Landing Ridge Cut, and other large irrigation canals and ditches onsite. There is a total of 16.452 acres of riparian wetlands and 1.903 acres of willow dominated riparian wetlands within the survey area. Vegetation within the riparian areas is dominated by an overstory of *Populus fremontii* (FACW), *Salix gooddingii* (OBL), *Salix exigua* (OBL), *Salix* ssp., and *Sambucus mexicanus* (FAC) with an

understory of *Cyperus esculentus* (FACW) and *Rubus discolor* (FACW). Hydric soils were assumed due to complete inundation of the features. All features classified as riparian wetlands display positive indicators for wetland hydrology including inundation or saturation in the upper twelve inches and distinct drainage patterns.

Fresh Emergent Wetland

Fresh emergent wetlands are those that can be defined as containing emergent vegetation such as *Typha* and *Eleocharis*. Emergent vegetation consists of rooted plants that have parts extending above the water surface for at least part of the year, and are intolerant of complete inundation over prolonged periods. Water depths vary but rarely exceed 2 meters (6.6 feet) for long periods. Ponding is a condition in which free water covers the soil surface (e.g., in a closed depression) and is removed only by percolation, evaporation, or transpiration. The survey area supports 3.577 acres of fresh emergent wetlands including Natomas East Main Drainage and Curry Creek which are completely inundated with fresh emergent species. Hydric soils were assumed due to complete inundation. Vegetation present within the fresh emergent wetlands delineated in the survey area includes *Rumex crispus* (FACW-), *Typha sp.* (OBL), *Scirpus acutus* (OBL), *Salix sp.* (FACW), *Cyperus eragrostis* (OBL), and *Polygonum hydropiper* (OBL). All features classified as fresh emergent wetlands display positive indicators for wetland hydrology including inundation, saturation in the upper twelve inches and distinct drainage patterns.

Vernal Pools and Swales

Vernal pools are defined by the positive indication of three wetland parameters: hydrophytic vegetation specific to vernal pools, hydric soils, and hydrology (*i.e.,* ponding). All three parameters must be present to satisfy the vernal pool definition, which was applied while delineating all vernal pools present on-site. In addition to supporting positive indicators for hydrophytic vegetation, hydric soil, and wetland hydrology, vernal pools exhibit unique characteristics. Vernal pools form where there is a soil layer below or at the surface that is impermeable or nearly impermeable. Precipitation and surface runoff become trapped or "perched" above this layer. Hardpans are formed by leaching, re-deposition, and cementing of silica materials from high in the soil horizon to a lower ("B") horizon. In addition, vernal pools typically occur in landscapes that, at a broad scale, are shallowly sloping or nearly level, but on a finer scale may be quite bumpy or uneven. Since appropriate combinations of climate, soil, and topography often occur over continuous areas rather than in isolated spots, vernal pools in the Central Valley tend to occur in clusters called "complexes." Within these complexes, pools may be fed or connected by low drainage pathways called "swales," which were detected throughout the site. Swales are often themselves seasonal wetlands that remain inundated with water for much of the wet season, but not long enough to support strong vernal pool characteristics. Vernal pools may remain inundated until spring or early summer, sometimes filling and emptying numerous times during the wet season. Vernal pools gradually dry down during the spring, often forming a unique "bathtub ring" of flowers from endemic vernal pool plants blooming successively at the pool margins.

Grasslands in the eastern portion of the survey area support 52 vernal pools (4.359 acres) and 9 vernal swales (1.339 acres) for a total of 5.698 acres of vernal features (**Attachment A**).

Vegetation in these vernal pools and swales was mostly dominated by *Blennosperma nanum* (OBL), *Juncus bufonius* (FACW+), *Plagiobothrys stipitatus* (OBL), *Eryngium castrense* (OBL), *Lythrum sp.* (FACW), *Polygonum arenastrum* (NL), *Polypogon monspeliensis* (FACW) and *Gratiola ebracteata* (OBL).

Seasonal Wetlands and Swales

Seasonal wetlands and swales are defined by the positive indication of three wetland parameters: hydrophytic vegetation, hydric soils, and hydrology (*i.e.,* ponding). All three parameters must be present to satisfy the wetland definition, which was applied while delineating all seasonal wetlands/swales present on-site. These features allow water to pond for a long enough period of time to support hydrophytic vegetation and hydric soils. Seasonal wetlands tend to lack standing water during the late summer months, or during prolonged dry periods. They support hydrophytic species, such as *Eleocharis* that require longer and typically deeper inundation periods than those of vernal species. These features show positive indicators for hydric soils including mottling, an organic stratum, concretions, and oxidized root channels. All features classified as seasonal wetlands display positive indicators for wetland hydrology including sediment deposits and drainage patterns.

Within the survey area 21.626 acres of seasonal wetlands and 2.110 acres of seasonal swales were delineated. Vegetation in the seasonal wetlands delineated in the survey area was dominated by *Juncus xiphioides* (OBL), *Lolium multiflorum* (FAC), *Cyperus esculentus* (FACW) *Eremocarpus setigerus* (NL), and *Polypogon monspeliensis* (FACW).

Other Waters of the United States

Other Waters of the U.S. are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features that exhibit an ordinary high-water mark but lack positive indicators for one or more of the three wetland parameters (*i.e.,* hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4). The above definition was applied while delineating all Other Waters of the U.S. Drainages exhibited an ordinary high water mark and contained bed, bank, and/or scour morphology. A total of 136664.649 linear feet (56.747 acres) of Other Waters of the U.S. were delineated within the survey area including 0.295 acre of culverts and 0.064 acre of ponds.

<u>Traditional Navigable Waters</u>

The one traditional navigable water (TNW) found within the survey area is the Sacramento River (OW 22). It cuts through the western portion of the survey area flowing north to south towards the San Francisco Bay. The Sacramento River encompasses approximately 12.290 acres of the survey area.

<u>Relatively Permanent Waters</u>

Relatively permanent waters (RPW) within the survey area include Tule Canal (OW 05), Knights Landing Ridge Cut (OW 07 and 08), the main tributary to Knights Landing Ridge Cut (OW 06),

Natomas East Main Drainage (WF 112e), Curry Creek (OW 54-55, 124, and WF 117e and 018e), and a few of the larger irrigation canals which hold water for more than 3 months out of the year (OW 01, 03, 04, 11, 13, 14, 15, 18, 19, 29-31, 37-38, 41-46, 64, 87-88, 90-118, 120-124, 127-134, 136, 138, 154). These irrigation canals transfer and deliver water to and from farmers for irrigating their agricultural fields.

Due to the constant presence of water in some of the irrigation canals, hydrophytic vegetation has begun to grow in the canals, forming fresh emergent wetlands and riparian habitats. Dominant vegetation present in the vegetated irrigation canals includes *Rubus discolor* (FACW), *Typha* ssp. (OBL), *Scirpus acutus* (OBL), *Cyperus esculentus* (FACW), *Polypogon monspeliensis* (FACW), *Eleocharis* ssp. (OBL), and *Polygonum hydropiperoides* (OBL). These canals are under the management of the farmers and the local water district, however, and are subject to occasional maintenance and clearing of the vegetation to prevent the choking-up of the canals.

The Knights Landing Ridge Cut flows into Tule Canal, which in turn flows directly into the Sacramento River. The other larger unnamed irrigation canals in the West Project flow directly into either Tule Canal, Knights Landing Ridge Cut, or the Sacramento River. In the East Project, Natomas East Main Drainage flows directly into the American River further south of the survey area and Curry Creek flows into Natomas East Main Drainage north of the survey area. The other larger unnamed irrigation canals in the East Project flow either into East Drainage Canal or West Drainage Canal which merge further south of the project area to form the Natomas Main Drainage Canal which then flows directly into the Sacramento River. There are a total of 41.921 acres of RPWs within the survey area.

Non-Relatively Permanent Waters

Approximately 2.177 acres of non-relatively permanent waters (NRPW) were delineated within the survey area. These NRPWs include ephemeral drainages and smaller irrigation ditches used to irrigate the row crop fields between OW 05 and OW 06 which don't hold water for more than 3 months out of the year. Water is pumped into the irrigation ditches from both OW 05 and OW 06 to irrigate the fields and appear to flow back into OW05 through a culvert (OW32). The NRPWs onsite include OW 33, 34, 36, 37, and 39.

Non-Jurisdictional Features

Non-jurisdictional waters within the survey area are Other Waters including irrigation ditches and seasonal wetlands which are under the control and manipulation of farmers, roadside ditches which were created in upland areas to provide runoff from the roadway, and their associated culverts. These non-jurisdictional waters are not directly or indirectly connected to a TNW or a RPW.

Significant Nexus

Relatively Permanent Waters and Wetlands that Abut Them

Per the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (May 30, 2007) and the *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision Rapanos v. United States and Carabell v. United States* a significant nexus determination is not required due to the fact that the jurisdictional irrigation canals within the survey area, including Tule Canal and the Knights Landing Ridge Cut, East Drainage Canal, West Drainage Canal, and Natomas Main Drainage Canal are non-navigable tributaries of the Sacramento River and are considered RPWs. These RPWs flow year round and flow directly/indirectly into the Sacramento River. Also, Natomas East Main Drainage and Curry Creek are RPWs which are tributaries of the American River and flow for more than 3 months out of the year. The riparian wetlands, vernal pools, seasonal wetlands and swales, and fresh emergent wetlands that occur within this project directly abut these RPW as illustrated in **Attachment A**.

Relatively Permanent Waters and Wetlands Adjacent to Them

A significant nexus determination will be required per the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (May 30, 2007) and the *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision Rapanos v. United States and Carabell v. United States.* Wetlands adjacent to but not directly abutting the RPWs (Curry Creek, Dry Creek, and Natomas East Main Drainage) within the survey area are located within hydric soils and lowland topography typical of wetlands and have all three wetland parameters. These wetlands have a significant affect on the chemical, physical, and biological integrity of the downstream TNW, the American River. Wetlands within the survey area hold floodwaters and intercept sheet flow from uplands releasing water in a more consistent manner. These wetlands collect and hold water during significant rain events acting as a biological filter collecting the first flush prior to filtering into the TNWs. In addition, they prevent erosion and sedimentation of more permanent systems by reducing flow, which in turn provides habitat for waterfowl, song birds, small mammals and federally threatened and endangered vernal pool invertebrates within the wetlands.

Isolated Waters and Non-Jurisdictional Waters

The water features within the survey area were determined to be non-jurisdictional based on the following:

1. All of the non-jurisdictional water features within the survey area occur within the California state boundaries. The water features do not cross any state lines and are not used for transportation or interstate commerce.

2. None of the non-jurisdictional water features within the survey area are tributaries to a jurisdictional TNW, RPW or non-RPW. Also, these water features do not abut nor are they adjacent to TNWs, RPWs, or non-RPWs.

3. The water features NJ 01 through 06 hold water for more than 3 months out of the year, but they flow into agricultural fields and do not have direct or indirect connectivity to a jurisdictional TNW, RPW, or non-RPW.

4. Water features NJ 20-23, 25-27, 29, 31, 33-36, 38, 40, 41, 51, 59, 61, and 68 do not hold water for more than 3 months out of the year, are under the management of farmers and are filled in every planting season, and flow only into crop fields with no connection to a jurisdictional TNW, RPW, or NRPW. This also applies to non-jurisdictional seasonal wetlands NJ 95e-105e which are under the management of a farmer and have no hydrologic connection to jurisdictional features.

5. Water features NJ 08, 09, 10, 12, 14, 15, 16, 18, 42, 43, 50, 56, 70, and 95-110 were created in upland areas by run-off from roadways and do not significantly affect the chemical, physical, or biological integrity of downstream TNWs, RPWs, or non-RPWs because they do not carry a significant amount of flow and they have no connectivity.

Soils

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) 2006 *Soil Survey of Sacramento Area, California Parts of Yolo and Sutter Counties* identified 45 different map unit descriptions within the survey area in addition to open water (**Table 2**, **Figure 2**). Soil series descriptions are presented in **Appendix A** and wetland data sheets are presented in **Appendix B**.

Table 2. Soils Found within the PG&E Line 407 Survey Area.

Map Unit Symbol	Map Unit Description	Hydric(Y or N)/ Landform
104	Alamo-Fiddyment Complex, 0 to 5 percent slopes	Y/Depressions
140	Cometa sandy loam, 1 to 5 percent slopes	Y/Depressions
141	Cometa - Fiddyment Complex, 1 to 5 percent slopes	Y/Depressions
142	Cometa -Ramona sandy loams, 1 to 5 percent slopes	Y/Depressions
146	Fiddyment loam, 1 to 8 percent slopes	Y/Depressions
147	Fiddyment -Kaseberg loams, 2 to 9 percent slopes	Y/Depressions
175	Ramona sandy loam, 2 to 9 percent slopes	Y/Drainageways
181	San Joaquin sandy loam, 1 to 5 percent slopes	Y/Depressions
182	San Joaquin -Cometa sandy loams, 1 to 5 percent slopes	Y/Depressions
194	Xerofluvents, Frequently Flooded	Y/Drainageways
195	Xerofluvents, Hardpan Substratum	Y/Depressions, Drainageways
141	Marcum clay loam, siltstone substratum, 0 to 1 percent slopes	Y/Basin Floors
144	Nueva loam, 0 to 1 percent	Y/Floodplains
146	Nueva loam, wet, 0 to 1 percent slopes	Y/Floodplains
158	San Joaquin sandy loam, 0 to 2 percent slopes	N
Ya	Yolo silt loam	Y/Alluvial Fans
Sv	Sycamore complex, drained	Y/Alluvial Fans
BrA	Brentwood silty clay loam, 0 to 2 percent slopes	N

Map Unit Symbol	Map Unit Description	Hydric(Y or N)/ Landform
Sr	Sycamore silt loam, flooded	Y/Alluvial Fans
Su	Sycamore complex	Y/Alluvial Fans, Basin Floors
Te	Tyndall very fine sandy loam, deep	Y/Alluvial Fans
La	Lang sandy loam	Y/Alluvial Fans
So	Sycamore silt loam	Y/Alluvial Fans
Sa	Sacramento silty clay loam	Y/Alluvial Fans
Tb	Tyndall very fine sandy loam	Y/Alluvial Fans
Lb	Lang sandy loam, deep	Y/Alluvial Fans
Sw	Sycamore complex, flooded	Y/Alluvial Fans, Basin Floors
Md	Maria silt loam, deep	Y/Alluvial Fans
Sc	Sacramento clay	Y/Alluvial Fans, Basin Floors
Ra	Reiff very fine sandy loam	Y/Alluvial Fans
Yb	Yolo silty clay loam	Y/Alluvial Fans
Mb	Maria silt loam	Y/Alluvial Fans
Tc	Tyndall very fine sandy loam, drained	Y/Alluvial Fans
Sg	Sacramento soils, flooded	Y/Alluvial Fans, Basin Floors
Sp	Sycamore silt loam, drained	Y/Alluvial Fans
Lg	Laugenour very fine sandy loam	Y/Alluvial Fans
W	Water	Y/Open Water
109	Capay clay, hardpan substratum, 0 to 2 percent slopes	Y/Basin Floors
112	Clear Lake clay, 0 to 2 percent slopes	Y/Basin Floors
114	Clear Lake clay, hardpan substratum, 0 to 2 percent slopes	Y/Basin Floors
123	Cometa loam, 0 to 2 percent slopes	No
129	Galt clay, 0 to 2 percent slopes	Y/Basin Floors
137	Jacktone clay, 0 to 2 percent slopes	Y/Basin Floors
141	Marcum clay loam, siltstone substratum, 0 to 1 percent slopes	Y/Basin Floors
160	San Joaquin-Arents-Durochrepts complex, 0 to 1 percent slopes	Y/Depressions

When pooled water and/or obligate plants were present, hydric soils were assumed. In areas with questionable upland/wetland distinction, soil pit samples were observed to determine the presence or absence of hydric soil indicators. We observed water in the canals and ditches onsite at depths ranging from 1-20 inches.

Vegetation

Vegetation within the survey area consisted primarily of a variety of planted agricultural crops including wheat, corn, tomato, alfalfa, sunflower, rice, and orchards producing walnuts, pecans, olives, and a variety of fruits. Disturbed annual grassland found along the roadsides and the periphery of the agricultural fields was dominated by *Brassica niger*, *Avena barbata*, *Centaurea solstitialis*, *Hordeum murinum*, *Erodium botrys*, *Bromus diandrus*, *Convulvulus arvensis*, and *Sonchus asper*. Vegetation in the wet areas within the survey area was dominated by *Typha* ssp., *Scirpus acutus*, *Polygonum hydropiperoides*, *Salix* ssp., *Cyperus eragrostis*, *Lolium multiflorum*, *Polypogon monspeliensis*, *Blennosperma nanum*, *Juncus bufonius*, *Plagiobothrys stipitatus*, *Eryngium castrense*, *Lythrum sp.*, *Gratiola ebracteata*, *Juncus xiphioides*, and *Eremocarpus setigerus*. The upland annual grassland habitat was dominated by *Aira caryophyllea, Avena*

barbata, Centaurea solstitialis, Convovulus arvensis, Bromus hordeaceous, Gastridium ventricosum, Grindelia hirsutula var. *davyi, Hemizonia fitchii, Lactuca serriola, Madia sp., Taeniatherum caput medusae,* and *Trichostema lanceolatum.*

Hydrology

Hydrology within the survey area was evident within the network of irrigation canals and ditches which contained flowing water during the dates surveyed. In the western survey area, the two main canals that run through the survey area are Tule Canal and the Knights Landing Ridge Cut. These irrigation canals are entirely dependent on the pumping of water from the Sacramento River and are heavily manipulated for agricultural and flood control purposes and are considered relatively permanent waters. Additionally, the water from these canals and ditches eventually are drained back into the Sacramento River further south of the survey area. In the eastern survey area the Natomas East Main Drainage conveys water from north to south and drains directly into the American River further south of the survey area. Additionally, Curry Creek conveys water from east to west, intersecting Baseline Road twice, before forming a confluence with Natomas East Main Drainage north of the survey area. Canals west of Natomas East Main Drainage are entirely dependent on the pumping of water from the Sacramento River via the Natomas Cross Canal and all drain into either the West Drainage Canal or the East Drainage Canal which merge to form the Natomas Main Drainage Canal, which then flows directly into the Sacramento River south of the survey area. Nearly all waterways within the project area, with the exception of Curry Creek, are heavily manipulated for agricultural and flood control purposes including Natomas East Main Drainage, formerly Steelhead Creek, which has been straightened and confined to levies. The Sacramento River, from which most water within the project area is obtained, and the American River, which nearly all water in the project area is drained into, both provide Interstate Commerce. Wetland features located in the eastern survey area all drain into either Curry Creek to the north or Dry Creek to the south, both of which form a confluence with Natomas East Main Drainage.

Impact Avoidance and Minimization Recommendations

To the most practicable extent, impacts to all wetland features and Other Waters should be avoided. When complete avoidance is not possible, impacts should be indirect and temporary, with no permanent damage to the integrity of any wetland feature or Other Water nor to the watershed that supports it. A project strategy of avoidance of indirect and temporary impacts will reduce the amount of time needed for the permitting process and will reduce or eliminate the need for off-site mitigation.

Copies of field data sheets and the jurisdictional forms are provided in **Appendix B**.

Site Photos

Non-jurisdictional irrigation canal (NJ 05) and culvert (NJ 48)

Non-jurisdictional irrigation ditch (bottom left NJ 27, top right NJ 33)

Fresh emergent wetland in vegetated irrigation canal (OW 18)

RPW (irrigation canal) – OW 11

Non-jurisdictional roadside ditch (NJ 50)

Pump pumping water from RPW (OW 06-unnamed tributary of Knights Landing Ridge Cut) into adjacent row crop field (OW 39).

Fresh emergent wetland within the vegetated irrigation canal (OW 03)

Non-jurisdictional irrigation ditch (NJ 22)

Non-jurisdictional cemented irrigation ditch (NJ 36)

Riparian wetland in irrigation ditch (WF 09w)

RPW (Tule Canal) – OW 05

Non-jurisdictional culvert (NJ 44)

Non-jurisdictional seasonal wetland (WF 97e) – a fallow rice field

Vernal pool – WF 82e

Vernal pool – WF 78e

Seasonal wetland – WF 80e

Irrigation canal – OW 30

Seasonal swale – WF 64e

Vernal pool – WF 69e

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United States Department of Agriculture

Natural Resources Conservation Service

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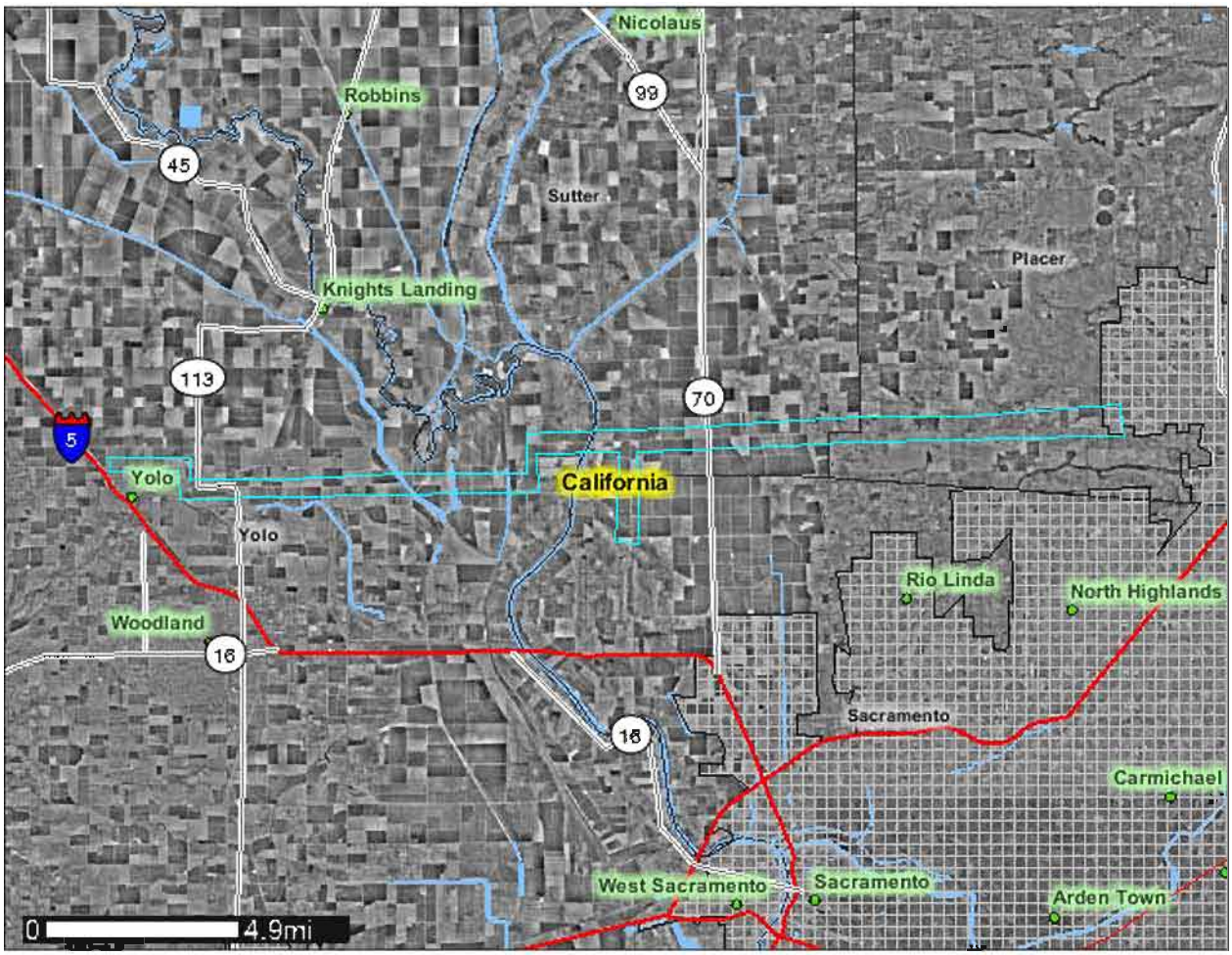
Custom Soil Resource Report for Placer County, California, Western Part; Sacramento County, California; Sutter County, California; and Yolo County, California

PG&E Line 407



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

N

Meters
0 4,000 8,000 16,000 24,000

Feet
0 15,000 30,000 60,000 90,000

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Gully
- Short Steep Slope
- Other

Political Features

Municipalities

- Cities
- Urban Areas

Water Features

- Oceans

Transportation

Roads

- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Placer County, California, Western Part
Survey Area Data: Version 4, Jan 5, 2007

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 6, Jan 8, 2007

Soil Survey Area: Sutter County, California
Survey Area Data: Version 4, Jan 8, 2007

Soil Survey Area: Yolo County, California
Survey Area Data: Version 6, Feb 27, 2007

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Date(s) aerial images were photographed: 1993; 5/23/1993; 6/12/1993; 8/17/1998; 8/18/1998; 8/21/1998; 8/22/1998; 9/12/1998; 9/13/1998; 9/16/1998; 7/28/1999

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Placer County, California, Western Part (CA620)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
104	Alamo-Fiddyment complex, 0 to 5 percent slopes	495.6	5.0%
140	Cometa sandy loam, 1 to 5 percent slopes	7.1	0.1%
141	Cometa-Fiddyment complex, 1 to 5 percent slopes	937.2	9.4%
142	Cometa-Ramona sandy loams, 1 to 5 percent slopes	118.4	1.2%
146	Fiddyment loam, 1 to 8 percent slopes	63.0	0.6%
147	Fiddyment-Kaseberg loams, 2 to 9 percent slopes	358.8	3.6%
175	Ramona sandy loam, 2 to 9 percent slopes	31.1	0.3%
181	San Joaquin sandy loam, 1 to 5 percent slopes	5.9	0.1%
182	San Joaquin-Cometa sandy loams, 1 to 5 percent slopes	750.2	7.5%
194	Xerofluvents, frequently flooded	2.9	0.0%
195	Xerofluvents, hardpan substratum	129.5	1.3%

Sacramento County, California (CA067)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
115	Clear Lake clay, hardpan substratum, drained, 0 to 1 percent slopes	150.8	1.5%
127	Cosumnes silt loam, partially drained, 0 to 2 percent slopes	6.2	0.1%
151	Galt clay, leveled, 0 to 1 percent slopes	26.3	0.3%
213	San Joaquin silt loam, leveled, 0 to 1 percent slopes	59.0	0.6%
216	San Joaquin-Durixeralfs complex, 0 to 1 percent slopes	68.1	0.7%
217	San Joaquin-Galt complex, leveled, 0 to 1 percent slopes	128.2	1.3%
221	San Joaquin-Xerarents complex, leveled, 0 to 1 percent slopes	119.8	1.2%
238	Xerarents-San Joaquin complex, 0 to 1 percent slopes	17.1	0.2%

Sutter County, California (CA101)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
109	Capay clay, hardpan substratum, 0 to 2 percent slopes	218.1	2.2%
112	Clear Lake clay, 0 to 2 percent slopes	259.4	2.6%
114	Clear Lake clay, hardpan substratum, 0 to 2 percent slopes	129.0	1.3%
123	Cometa loam, 0 to 2 percent slopes	198.7	2.0%
129	Galt clay, 0 to 2 percent slopes	162.1	1.6%
137	Jacktone clay, 0 to 2 percent slopes	144.2	1.4%
141	Marcum clay loam, siltstone substratum, 0 to 1 percent slopes	119.7	1.2%
144	Nueva loam, 0 to 1 percent	73.7	0.7%
146	Nueva loam, wet, 0 to 1 percent slopes	58.7	0.6%
158	San Joaquin sandy loam, 0 to 2 percent slopes	566.6	5.7%
160	San Joaquin-Arents-Durochrepts complex, 0 to 1 percent slopes	636.8	6.4%
177	Water	25.9	0.3%

Yolo County, California (CA113)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BrA	Brentwood silty clay loam, 0 to 2 percent slopes	21.0	0.2%
La	Lang sandy loam	71.7	0.7%
Lb	Lang sandy loam, deep	27.7	0.3%
Lg	Laugenour very fine sandy loam	397.8	4.0%
Mb	Maria silt loam	306.6	3.1%
Md	Maria silt loam, deep	89.5	0.9%
Ra	Reiff very fine sandy loam	273.1	2.7%
Rh	Riverwash	21.5	0.2%
Sa	Sacramento silty clay loam	95.0	1.0%
Sc	Sacramento clay	343.4	3.4%
Sd	Sacramento clay, drained	38.1	0.4%
Sg	Sacramento soils, flooded	157.2	1.6%
Sn	Soboba gravelly sandy loam	4.3	0.0%
So	Sycamore silt loam	15.2	0.2%
Sp	Sycamore silt loam, drained	365.9	3.7%
Sr	Sycamore silt loam, flooded	143.6	1.4%

Yolo County, California (CA113)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Su	Sycamore complex	170.7	1.7%
Sv	Sycamore complex, drained	274.1	2.8%
Sw	Sycamore complex, flooded	126.4	1.3%
Tb	Tyndall very fine sandy loam	18.2	0.2%
Tc	Tyndall very fine sandy loam, drained	327.9	3.3%
Te	Tyndall very fine sandy loam, deep	67.4	0.7%
W	Water	51.6	0.5%
Ya	Yolo silt loam	444.6	4.5%
Yb	Yolo silty clay loam	42.4	0.4%
Totals for Area of Interest (AOI)		9,954.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Placer County, California, Western Part

104—Alamo-Fiddyment complex, 0 to 5 percent slopes

Map Unit Setting

Elevation: 50 to 500 feet
Mean annual precipitation: 10 to 22 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 230 to 300 days

Map Unit Composition

Alamo and similar soils: 50 percent
Fiddyment and similar soils: 30 percent
Minor components: 20 percent

Description of Alamo

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 37 to 41 inches to duripan
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile

0 to 9 inches: Clay
9 to 37 inches: Clay
37 to 41 inches: Indurated

Description of Fiddyment

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches; 20 to 35 inches to duripan; 28 to 35 inches to duripan; 35 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile

0 to 12 inches: Loam
12 to 28 inches: Clay loam
28 to 35 inches: Indurated
35 to 39 inches: Weathered bedrock

Minor Components

San joaquin sandy loam

Percent of map unit: 10 percent

Cometa sandy loam

Percent of map unit: 5 percent

Kaselburg loam

Percent of map unit: 5 percent

140—Cometa sandy loam, 1 to 5 percent slopes

Map Unit Setting

Elevation: 20 to 400 feet
Mean annual precipitation: 10 to 23 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 260 to 300 days

Map Unit Composition

Cometa and similar soils: 85 percent
Minor components: 15 percent

Description of Cometa

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 1 to 5 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.2 inches)

Interpretive groups
Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile
0 to 18 inches: Sandy loam
18 to 29 inches: Clay
29 to 60 inches: Sandy loam

Minor Components

Kaseburg
Percent of map unit: 5 percent

Fiddyment
Percent of map unit: 5 percent

San joaquin
Percent of map unit: 4 percent

Alamo
Percent of map unit: 1 percent
Landform: Depressions

141—Cometa-Fiddyment complex, 1 to 5 percent slopes

Map Unit Setting
Elevation: 20 to 400 feet
Mean annual precipitation: 10 to 23 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 230 to 300 days

Map Unit Composition
Fiddyment and similar soils: 35 percent
Cometa and similar soils: 35 percent
Minor components: 30 percent

Description of Cometa

Setting
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities
Slope: 1 to 5 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e
Ecological site: CLAYPAN (R017XD093CA)

Typical profile

0 to 18 inches: Sandy loam
18 to 29 inches: Clay
29 to 60 inches: Sandy loam

Description of Fiddyment

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from siltstone

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: 20 to 35 inches to duripan; 28 to 35 inches to duripan; 35 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e
Ecological site: CLAYPAN (R017XD093CA)

Typical profile

0 to 12 inches: Loam
12 to 28 inches: Clay loam
28 to 35 inches: Indurated
35 to 39 inches: Weathered bedrock

Minor Components

San joaquin

Percent of map unit: 10 percent

Kaseburg

Percent of map unit: 10 percent

Ramona

Percent of map unit: 5 percent

Alamo

Percent of map unit: 5 percent
Landform: Depressions

142—Cometa-Ramona sandy loams, 1 to 5 percent slopes

Map Unit Setting

Elevation: 20 to 3,500 feet
Mean annual precipitation: 10 to 23 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 320 days

Map Unit Composition

Cometa and similar soils: 50 percent
Ramona and similar soils: 30 percent
Minor components: 20 percent

Description of Cometa

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile

0 to 18 inches: Sandy loam
18 to 29 inches: Clay
29 to 60 inches: Sandy loam

Description of Ramona

Setting

Landform: Terraces

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3e

Typical profile

0 to 6 inches: Sandy loam
6 to 14 inches: Loam
14 to 55 inches: Sandy clay loam
55 to 73 inches: Gravelly sandy loam

Minor Components

San joaquin

Percent of map unit: 5 percent

Fiddyment

Percent of map unit: 5 percent

Alamo

Percent of map unit: 5 percent
Landform: Depressions

Xerofluvent

Percent of map unit: 5 percent
Landform: Drainageways

146—Fiddyment loam, 1 to 8 percent slopes

Map Unit Setting

Elevation: 50 to 280 feet
Mean annual precipitation: 19 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 230 to 300 days

Map Unit Composition

Fiddyment and similar soils: 85 percent
Minor components: 15 percent

Description of Fiddyment

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from siltstone

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: 20 to 35 inches to duripan; 28 to 35 inches to duripan; 35 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Typical profile

0 to 12 inches: Loam
12 to 28 inches: Clay loam
28 to 35 inches: Indurated
35 to 39 inches: Weathered bedrock

Minor Components

Cometa

Percent of map unit: 5 percent

Kaseburg

Percent of map unit: 5 percent

San joaquin

Percent of map unit: 3 percent

Alamo

Percent of map unit: 2 percent
Landform: Depressions

147—Fiddyment-Kaseberg loams, 2 to 9 percent slopes

Map Unit Setting

Elevation: 50 to 280 feet
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 230 to 300 days

Map Unit Composition

Fiddyment and similar soils: 50 percent

Kaseberg and similar soils: 30 percent
Minor components: 20 percent

Description of Fiddyment

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from siltstone

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 20 to 35 inches to duripan; 28 to 35 inches to duripan; 35 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e
Ecological site: CLAYPAN (R018XD082CA)

Typical profile

0 to 12 inches: Loam
12 to 28 inches: Clay loam
28 to 35 inches: Indurated
35 to 39 inches: Weathered bedrock

Description of Kaseberg

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from siltstone

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 16 to 17 inches to duripan; 17 to 21 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e
Ecological site: CLAYPAN (R018XD082CA)

Typical profile

0 to 16 inches: Loam
16 to 17 inches: Indurated
17 to 21 inches: Weathered bedrock

Minor Components

Unnamed, gravelly

Percent of map unit: 10 percent

Alamo

Percent of map unit: 10 percent
Landform: Depressions

175—Ramona sandy loam, 2 to 9 percent slopes

Map Unit Setting

Elevation: 250 to 3,500 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 320 days

Map Unit Composition

Ramona and similar soils: 85 percent
Minor components: 15 percent

Description of Ramona

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability (nonirrigated): 3e

Typical profile

0 to 6 inches: Sandy loam
6 to 14 inches: Fine sandy loam
14 to 55 inches: Sandy clay loam
55 to 73 inches: Gravelly sandy loam

Minor Components

Cometa

Percent of map unit: 5 percent

Kilaga

Percent of map unit: 5 percent

San joaquin

Percent of map unit: 4 percent

Unnamed

Percent of map unit: 1 percent
Landform: Drainageways

181—San Joaquin sandy loam, 1 to 5 percent slopes

Map Unit Setting

Elevation: 20 to 500 feet
Mean annual precipitation: 10 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition

San joaquin and similar soils: 80 percent
Minor components: 20 percent

Description of San Joaquin

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: 35 to 50 inches to duripan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e

Ecological site: CLAYPAN (R017XD093CA)

Typical profile

0 to 15 inches: Sandy loam
15 to 35 inches: Clay loam
35 to 50 inches: Indurated
50 to 60 inches: Stratified sandy loam to loam

Minor Components

Cometa

Percent of map unit: 10 percent

Fiddyment

Percent of map unit: 5 percent

Unnamed

Percent of map unit: 3 percent

Alamo

Percent of map unit: 2 percent
Landform: Depressions

182—San Joaquin-Cometa sandy loams, 1 to 5 percent slopes

Map Unit Setting

Elevation: 20 to 500 feet
Mean annual precipitation: 10 to 23 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition

San joaquin and similar soils: 40 percent
Cometa and similar soils: 30 percent
Minor components: 30 percent

Description of San Joaquin

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: 35 to 50 inches to duripan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e
Ecological site: CLAYPAN (R017XD093CA)

Typical profile

0 to 15 inches: Sandy loam
15 to 35 inches: Clay loam
35 to 50 inches: Indurated
50 to 60 inches: Stratified sandy loam to loam

Description of Cometa

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 4e
Ecological site: CLAYPAN (R017XD093CA)

Typical profile

0 to 18 inches: Sandy loam
18 to 29 inches: Clay
29 to 60 inches: Sandy loam

Minor Components

Ramona

Percent of map unit: 10 percent

Fiddyment

Percent of map unit: 10 percent

Alamo

Percent of map unit: 5 percent
Landform: Depressions

Kaseburg

Percent of map unit: 5 percent

194—Xerofluvents, frequently flooded

Map Unit Setting

Elevation: 0 to 1,500 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 250 to 270 days

Map Unit Composition

Xerofluvents, frequently flooded, and similar soils: 90 percent
Minor components: 10 percent

Description of Xerofluvents, Frequently Flooded

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 30 to 57 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile

0 to 15 inches: Stratified loamy sand to fine sandy loam
15 to 37 inches: Stratified loamy sand to fine sandy loam to silt loam
37 to 55 inches: Stratified loam to silty clay loam to clay

Minor Components

Unnamed

Percent of map unit: 10 percent
Landform: Drainageways

195—Xerofluvents, hardpan substratum

Map Unit Setting

Elevation: 300 to 3,500 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 200 to 300 days

Map Unit Composition

Xerofluvents and similar soils: 85 percent
Minor components: 15 percent

Description of Xerofluvents

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: 20 to 36 inches to duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 3w

Typical profile

0 to 40 inches: Stratified loam to clay loam
40 to 44 inches: Indurated

Minor Components

Alamo

Percent of map unit: 10 percent
Landform: Depressions

Unnamed

Percent of map unit: 3 percent
Landform: Drainageways

Unnamed

Percent of map unit: 2 percent
Landform: Drainageways

Sacramento County, California

115—Clear Lake clay, hardpan substratum, drained, 0 to 1 percent slopes

Map Unit Setting

Elevation: 0 to 100 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition

Clear lake and similar soils: 85 percent
Minor components: 15 percent

Description of Clear Lake

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 48 to 64 inches to duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability (nonirrigated): 3s

Typical profile

0 to 15 inches: Clay
15 to 34 inches: Clay
34 to 48 inches: Clay loam
48 to 64 inches: Cemented

Minor Components

Cosumnes

Percent of map unit: 8 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

San joaquin

Percent of map unit: 7 percent

127—Cosumnes silt loam, partially drained, 0 to 2 percent slopes

Map Unit Setting

Elevation: 10 to 70 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition

Cosumnes and similar soils: 85 percent
Minor components: 15 percent

Description of Cosumnes

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 3w

Typical profile

0 to 8 inches: Silt loam
8 to 21 inches: Stratified silty clay loam to clay
21 to 43 inches: Stratified clay loam to clay
43 to 60 inches: Stratified clay loam to clay

Minor Components

Clear lake

Percent of map unit: 4 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Columbia

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Sailboat

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Egbert

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Stratified unnamed

Percent of map unit: 1 percent

151—Galt clay, leveled, 0 to 1 percent slopes

Map Unit Setting

Elevation: 10 to 150 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition

Galt and similar soils: 85 percent
Minor components: 15 percent

Description of Galt

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 32 to 60 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile

0 to 13 inches: Clay
13 to 32 inches: Clay
32 to 60 inches: Cemented

Minor Components

Clear lake

Percent of map unit: 4 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

San joaquin

Percent of map unit: 4 percent

Urban land

Percent of map unit: 3 percent

Overburden/hardpan unnamed

Percent of map unit: 2 percent

Rarely flooded, unnamed

Percent of map unit: 2 percent

213—San Joaquin silt loam, leveled, 0 to 1 percent slopes

Map Unit Setting

Elevation: 20 to 500 feet
Mean annual precipitation: 10 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition

San joaquin and similar soils: 85 percent
Minor components: 15 percent

Description of San Joaquin

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 28 to 54 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.7 inches)

Interpretive groups
Land capability classification (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile
0 to 23 inches: Silt loam
23 to 28 inches: Clay loam
28 to 54 inches: Indurated
54 to 60 inches: Stratified sandy loam to loam

Minor Components

Bruella
Percent of map unit: 3 percent

Durixeralfs
Percent of map unit: 3 percent

Galt
Percent of map unit: 2 percent
Landform: Depressions

Hedge
Percent of map unit: 2 percent

Kimball
Percent of map unit: 2 percent

Xerarents
Percent of map unit: 2 percent

Rarely flooded, unnamed
Percent of map unit: 1 percent

216—San Joaquin-Durixeralfs complex, 0 to 1 percent slopes

Map Unit Setting
Elevation: 20 to 500 feet
Mean annual precipitation: 10 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition
San joaquin and similar soils: 55 percent
Durixeralfs and similar soils: 35 percent
Minor components: 10 percent

Description of San Joaquin

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 28 to 54 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile

0 to 23 inches: Silt loam
23 to 28 inches: Clay loam
28 to 54 inches: Indurated
54 to 60 inches: Stratified sandy loam to loam

Description of Durixeralfs

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 20 to 60 inches to duripan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile

0 to 6 inches: Clay
6 to 20 inches: Clay loam
20 to 60 inches: Indurated

Minor Components

Galt

Percent of map unit: 4 percent
Landform: Depressions

Kimball

Percent of map unit: 4 percent

Xerarents

Percent of map unit: 2 percent

217—San Joaquin-Galt complex, leveled, 0 to 1 percent slopes

Map Unit Setting

Elevation: 20 to 500 feet
Mean annual precipitation: 10 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition

San joaquin and similar soils: 45 percent
Galt and similar soils: 40 percent
Minor components: 15 percent

Description of San Joaquin

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 20 to 46 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile

0 to 15 inches: Silt loam
15 to 20 inches: Clay loam
20 to 46 inches: Indurated
46 to 60 inches: Stratified sandy loam to loam

Description of Galt

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 38 to 60 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile

0 to 6 inches: Silt loam
6 to 19 inches: Clay
19 to 38 inches: Clay
38 to 60 inches: Cemented

Minor Components

Clear lake

Percent of map unit: 4 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Durixeralfs

Percent of map unit: 4 percent

Xerarents

Percent of map unit: 4 percent

Kimball

Percent of map unit: 2 percent

Rarely flooded, unnamed

Percent of map unit: 1 percent

221—San Joaquin-Xerarents complex, leveled, 0 to 1 percent slopes

Map Unit Setting

Elevation: 0 to 2,500 feet

Mean annual precipitation: 10 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition

San joaquin and similar soils: 45 percent
Xerarents and similar soils: 40 percent
Minor components: 15 percent

Description of San Joaquin

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 28 to 54 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile

0 to 23 inches: Silt loam
23 to 28 inches: Clay loam
28 to 54 inches: Indurated
54 to 60 inches: Stratified sandy loam to loam

Description of Xerarents

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 60 inches: Variable

Minor Components

Clear lake

Percent of map unit: 3 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Columbia

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Galt

Percent of map unit: 2 percent
Landform: Terraces

Sailboat

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Durixeralfs

Percent of map unit: 2 percent

Kimball

Percent of map unit: 2 percent

Rarely flooded, unnamed

Percent of map unit: 1 percent

238—Xerarents-San Joaquin complex, 0 to 1 percent slopes

Map Unit Setting

Elevation: 0 to 2,500 feet
Mean annual precipitation: 10 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition

Xerarents and similar soils: 65 percent
San joaquin and similar soils: 20 percent
Minor components: 15 percent

Description of Xerarents

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile

0 to 60 inches: Variable

Description of San Joaquin

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 35 to 60 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 3s

Typical profile

0 to 13 inches: Fine sandy loam
13 to 30 inches: Loam
30 to 35 inches: Clay loam
35 to 60 inches: Indurated
60 to 67 inches: Stratified loamy coarse sand to loam

Minor Components

Clear lake

Percent of map unit: 3 percent
Landform: Basin floors

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Columbia
Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Sailboat
Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Durixeralfs
Percent of map unit: 2 percent

Red bluff
Percent of map unit: 2 percent

Redding
Percent of map unit: 2 percent

Rarely flooded, unnamed
Percent of map unit: 1 percent

Sutter County, California

109—Capay clay, hardpan substratum, 0 to 2 percent slopes

Map Unit Setting

Elevation: 20 to 50 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition

Capay, clay, hardpan substratum, and similar soils: 80 percent
Minor components: 20 percent

Description of Capay, Clay, Hardpan Substratum

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 42 to 46 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability (nonirrigated): 4s

Typical profile

0 to 26 inches: Clay
26 to 42 inches: Clay
42 to 46 inches: Cemented
46 to 60 inches: Clay loam, loam

Minor Components

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors

Galt

Percent of map unit: 5 percent
Landform: Rims

Jacktone

Percent of map unit: 5 percent
Landform: Basin floors

Capay, weakly cem pan substr

Percent of map unit: 5 percent
Landform: Basin floors

112—Clear Lake clay, 0 to 2 percent slopes

Map Unit Setting

Elevation: 20 to 50 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition

Clear lake, clay, and similar soils: 90 percent
Minor components: 10 percent

Description of Clear Lake, Clay

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile

0 to 42 inches: Clay
42 to 60 inches: Clay

Minor Components

Capay
Percent of map unit: 4 percent
Landform: Basin floors

Oswald
Percent of map unit: 3 percent
Landform: Basin floors

Subaco
Percent of map unit: 3 percent
Landform: Flood plains

114—Clear Lake clay, hardpan substratum, 0 to 2 percent slopes

Map Unit Setting
Elevation: 10 to 40 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition
Clear lake, clay, hardpan substratum, and similar soils: 80 percent
Minor components: 20 percent

Description of Clear Lake, Clay, Hardpan Substratum

Setting
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: 40 to 60 inches to duripan
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.3 inches)

Interpretive groups
Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile
0 to 14 inches: Clay
14 to 35 inches: Clay
35 to 48 inches: Clay loam

48 to 60 inches: Cemented

Minor Components

Capay
Percent of map unit: 5 percent
Landform: Basin floors

Jacktone
Percent of map unit: 5 percent
Landform: Basin floors

Galt
Percent of map unit: 5 percent
Landform: Basin floors

Clear lake clay
Percent of map unit: 5 percent
Landform: Basin floors

123—Cometa loam, 0 to 2 percent slopes

Map Unit Setting
Elevation: 30 to 60 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition
Cometa, loam, and similar soils: 75 percent
Minor components: 25 percent

Description of Cometa, Loam

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed clayey alluvium

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.4 inches)

Interpretive groups
Land capability classification (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile

0 to 16 inches: Loam
16 to 60 inches: Clay

Minor Components

San joaquin

Percent of map unit: 13 percent

Snelling

Percent of map unit: 12 percent

129—Galt clay, 0 to 2 percent slopes

Map Unit Setting

Elevation: 10 to 40 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition

Galt, clay, and similar soils: 85 percent
Minor components: 15 percent

Description of Galt, Clay

Setting

Landform: Rims
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mixed

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability (nonirrigated): 4s

Typical profile

0 to 10 inches: Clay
10 to 21 inches: Clay
21 to 42 inches: Cemented
42 to 62 inches: Loam

Minor Components

Capay
Percent of map unit: 5 percent
Landform: Basin floors

Clear lake
Percent of map unit: 5 percent
Landform: Basin floors

Jacktone
Percent of map unit: 5 percent
Landform: Basin floors

137—Jacktone clay, 0 to 2 percent slopes

Map Unit Setting
Elevation: 10 to 30 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition
Jacktone, clay, and similar soils: 85 percent
Minor components: 15 percent

Description of Jacktone, Clay

Setting
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mixed

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: 35 to 39 inches to duripan; 39 to 61 inches to cemented horizon
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.3 inches)

Interpretive groups
Land capability classification (irrigated): 3w
Land capability (nonirrigated): 4w

Typical profile
0 to 25 inches: Clay

25 to 35 inches: Clay

Minor Components

Capay

Percent of map unit: 5 percent
Landform: Basin floors

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors

Galt

Percent of map unit: 5 percent
Landform: Rims

141—Marcum clay loam, siltstone substratum, 0 to 1 percent slopes

Map Unit Setting

Elevation: 20 to 80 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition

Marcum, clay loam, siltstone substratum, and similar soils: 75 percent
Minor components: 25 percent

Description of Marcum, Clay Loam, Siltstone Substratum

Setting

Landform: Terraces, rims
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium derived from mixed

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 40 to 80 inches to paralithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability (nonirrigated): 4s

Typical profile

0 to 16 inches: Clay loam
16 to 28 inches: Clay loam
28 to 40 inches: Silty clay, clay
40 to 43 inches: Clay loam
43 to 47 inches: Weathered bedrock

Minor Components

Conejo

Percent of map unit: 7 percent

Oswald

Percent of map unit: 6 percent
Landform: Basin floors

Gridley

Percent of map unit: 6 percent

Tisdale

Percent of map unit: 6 percent

144—Nueva loam, 0 to 1 percent

Map Unit Setting

Elevation: 20 to 50 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition

Nueva, loam, and similar soils: 85 percent
Minor components: 15 percent

Description of Nueva, Loam

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium derived from mixed

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile

0 to 17 inches: Loam
17 to 42 inches: Stratified sandy loam to silt loam
42 to 60 inches: Clay loam

Minor Components

Columbia

Percent of map unit: 8 percent
Landform: Flood plains

Shanghai

Percent of map unit: 7 percent
Landform: Flood plains

146—Nueva loam, wet, 0 to 1 percent slopes

Map Unit Setting

Elevation: 20 to 50 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition

Nueva, loam, wet, and similar soils: 85 percent
Minor components: 15 percent

Description of Nueva, Loam, Wet

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium derived from mixed

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile

0 to 17 inches: Loam
17 to 42 inches: Stratified sandy loam to silt loam
42 to 60 inches: Clay loam

Minor Components

Columbia

Percent of map unit: 8 percent
Landform: Flood plains

Shanghai

Percent of map unit: 7 percent
Landform: Flood plains

158—San Joaquin sandy loam, 0 to 2 percent slopes

Map Unit Setting

Elevation: 30 to 60 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition

San joaquin, sandy loam, and similar soils: 75 percent
Minor components: 25 percent

Description of San Joaquin, Sandy Loam

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile

0 to 16 inches: Sandy loam
16 to 20 inches: Clay

20 to 40 inches: Indurated
40 to 60 inches: Stratified sandy loam to loam

Minor Components

Cometa
Percent of map unit: 10 percent

Snelling
Percent of map unit: 10 percent

Unnamed, leveled
Percent of map unit: 5 percent

160—San Joaquin-Arents-Durochrepts complex, 0 to 1 percent slopes

Map Unit Setting
Elevation: 20 to 50 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 280 days

Map Unit Composition
San joaquin, sandy loam, and similar soils: 30 percent
Durochrepts and similar soils: 25 percent
Arents and similar soils: 25 percent
Minor components: 20 percent

Description of San Joaquin, Sandy Loam

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: 16 to 20 inches to abrupt textural change; 20 to 40 inches to duripan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 1.9 inches)

Interpretive groups
Land capability classification (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile

0 to 16 inches: Sandy loam
16 to 20 inches: Clay
20 to 40 inches: Indurated
40 to 60 inches: Stratified sandy loam to loam

Description of Arents

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability (nonirrigated): 4s

Typical profile

0 to 60 inches: Variable

Description of Durochrepts

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 5 to 20 inches to duripan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 7s
Land capability (nonirrigated): 7s

Typical profile

0 to 16 inches: Sandy loam
16 to 20 inches: Indurated

Minor Components

Cometa

Percent of map unit: 10 percent

Galt

Percent of map unit: 5 percent
Landform: Depressions

Snelling

Percent of map unit: 5 percent

177—Water

Map Unit Composition

Water: 100 percent

Yolo County, California

BrA—Brentwood silty clay loam, 0 to 2 percent slopes

Map Unit Setting

Elevation: 50 to 400 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 280 days

Map Unit Composition

Brentwood and similar soils: 85 percent
Minor components: 15 percent

Description of Brentwood

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile

0 to 10 inches: Silty clay loam
10 to 35 inches: Silty clay loam
35 to 60 inches: Silty clay loam

Minor Components

Yolo

Percent of map unit: 5 percent

Zamora

Percent of map unit: 5 percent

Rincon

Percent of map unit: 3 percent

Myers

Percent of map unit: 2 percent

La—Lang sandy loam

Map Unit Setting

Elevation: 10 to 30 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 64 degrees F
Frost-free period: 280 days

Map Unit Composition

Lang and similar soils: 85 percent
Minor components: 15 percent

Description of Lang

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability (nonirrigated): 4e

Typical profile

0 to 6 inches: Sandy loam
6 to 47 inches: Stratified sand to loamy fine sand
47 to 85 inches: Stratified sand to silt loam

Minor Components

Tyndall

Percent of map unit: 5 percent

Sycamore

Percent of map unit: 4 percent
Landform: Alluvial fans

Valdez

Percent of map unit: 4 percent
Landform: Alluvial fans

Unnamed

Percent of map unit: 2 percent
Landform: Alluvial fans

Lb—Lang sandy loam, deep

Map Unit Setting

Elevation: 10 to 30 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 64 degrees F
Frost-free period: 280 days

Map Unit Composition

Lang and similar soils: 85 percent
Minor components: 15 percent

Description of Lang

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 4w

Typical profile

0 to 6 inches: Sandy loam
6 to 47 inches: Stratified sand to loamy fine sand
47 to 85 inches: Stratified silty clay loam to clay

Minor Components

Tyndall

Percent of map unit: 5 percent

Sycamore

Percent of map unit: 4 percent
Landform: Alluvial fans

Valdez

Percent of map unit: 4 percent

Landform: Alluvial fans

Unnamed

Percent of map unit: 2 percent
Landform: Alluvial fans

Lg—Laugenour very fine sandy loam

Map Unit Setting

Elevation: 10 to 50 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 250 to 330 days

Map Unit Composition

Laugenour and similar soils: 85 percent
Minor components: 15 percent

Description of Laugenour

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile

0 to 11 inches: Very fine sandy loam
11 to 20 inches: Stratified very fine sandy loam to silt loam
20 to 68 inches: Stratified loamy sand to fine sandy loam

Minor Components

Lang

Percent of map unit: 5 percent

Maria

Percent of map unit: 3 percent
Landform: Alluvial fans

Tyndall
Percent of map unit: 3 percent

Soboba
Percent of map unit: 2 percent

Unnamed
Percent of map unit: 2 percent
Landform: Alluvial fans

Mb—Maria silt loam

Map Unit Setting
Elevation: 10 to 80 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 64 degrees F
Frost-free period: 280 days

Map Unit Composition
Maria and similar soils: 85 percent
Minor components: 15 percent

Description of Maria

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.8 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile
0 to 13 inches: Silt loam
13 to 72 inches: Silt loam

Minor Components

Laugenour
Percent of map unit: 4 percent

Landform: Alluvial fans

Riverwash
Percent of map unit: 4 percent
Landform: Alluvial fans

Sycamore
Percent of map unit: 4 percent
Landform: Alluvial fans

Merritt
Percent of map unit: 3 percent
Landform: Alluvial fans

Md—Maria silt loam, deep

Map Unit Setting
Elevation: 10 to 80 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 64 degrees F
Frost-free period: 280 days

Map Unit Composition
Maria and similar soils: 85 percent
Minor components: 10 percent

Description of Maria

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.9 inches)

Interpretive groups
Land capability classification (irrigated): 2s
Land capability (nonirrigated): 4s

Typical profile
0 to 13 inches: Silt loam
13 to 40 inches: Silt loam
40 to 60 inches: Clay

Minor Components

Merritt

Percent of map unit: 10 percent
Landform: Alluvial fans

Ra—Reiff very fine sandy loam

Map Unit Setting

Elevation: 30 to 70 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 240 to 275 days

Map Unit Composition

Reiff and similar soils: 85 percent
Minor components: 15 percent

Description of Reiff

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed coarse-loamy alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile

0 to 16 inches: Very fine sandy loam
16 to 60 inches: Stratified sandy loam to loam

Minor Components

Yolo

Percent of map unit: 5 percent

Sycamore

Percent of map unit: 4 percent
Landform: Alluvial fans

Tyndall
Percent of map unit: 4 percent

Unnamed
Percent of map unit: 2 percent

Rh—Riverwash

Map Unit Setting
Elevation: 0 to 500 feet
Mean annual precipitation: 17 to 20 inches
Frost-free period: 230 to 280 days

Map Unit Composition
Riverwash: 85 percent
Minor components: 15 percent

Description of Riverwash

Setting
Landform: Channels on streams
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed sandy and gravelly alluvium

Properties and qualities
Slope: 0 to 2 percent
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Frequency of flooding: Frequent
Available water capacity: Very low (about 2.9 inches)

Interpretive groups
Land capability (nonirrigated): 8

Typical profile
0 to 6 inches: Gravelly sand
6 to 60 inches: Stratified gravelly coarse sand to sandy loam

Minor Components

Loamy alluvial land
Percent of map unit: 10 percent

Soboba
Percent of map unit: 5 percent

Sa—Sacramento silty clay loam

Map Unit Setting
Elevation: -10 to 60 feet
Mean annual precipitation: 17 inches
Mean annual air temperature: 61 degrees F

Frost-free period: 275 days

Map Unit Composition

Sacramento and similar soils: 85 percent
Minor components: 15 percent

Description of Sacramento

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed clayey alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile

0 to 16 inches: Silty clay loam
16 to 53 inches: Clay
53 to 60 inches: Clay

Minor Components

Merritt

Percent of map unit: 5 percent
Landform: Alluvial fans

Omni

Percent of map unit: 5 percent
Landform: Basin floors

Sycamore

Percent of map unit: 5 percent
Landform: Alluvial fans

Sc—Sacramento clay

Map Unit Setting

Elevation: -10 to 60 feet
Mean annual precipitation: 17 inches

Mean annual air temperature: 61 degrees F
Frost-free period: 275 days

Map Unit Composition
Sacramento and similar soils: 85 percent
Minor components: 15 percent

Description of Sacramento

Setting
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed clayey alluvium

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Moderate (about 7.1 inches)

Interpretive groups
Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile
0 to 16 inches: Clay
16 to 53 inches: Clay
53 to 60 inches: Clay

Minor Components

Clear lake
Percent of map unit: 3 percent
Landform: Basin floors

Merritt
Percent of map unit: 3 percent
Landform: Alluvial fans

Omni
Percent of map unit: 3 percent
Landform: Basin floors

Willows
Percent of map unit: 3 percent
Landform: Basin floors

Sycamore
Percent of map unit: 3 percent

Landform: Alluvial fans

Sd—Sacramento clay, drained

Map Unit Setting

Elevation: -10 to 60 feet
Mean annual precipitation: 17 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 275 days

Map Unit Composition

Sacramento and similar soils: 85 percent
Minor components: 15 percent

Description of Sacramento

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed clayey alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability (nonirrigated): 4s

Typical profile

0 to 16 inches: Clay
16 to 53 inches: Clay
53 to 60 inches: Clay

Minor Components

Clear lake

Percent of map unit: 4 percent
Landform: Basin floors

Merritt

Percent of map unit: 4 percent
Landform: Alluvial fans

Sycamore

Percent of map unit: 4 percent
Landform: Alluvial fans

Willows

Percent of map unit: 3 percent
Landform: Basin floors

Sg—Sacramento soils, flooded

Map Unit Setting

Elevation: -10 to 60 feet
Mean annual precipitation: 17 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 275 days

Map Unit Composition

Sacramento and similar soils: 85 percent
Minor components: 15 percent

Description of Sacramento

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed clayey alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile

0 to 16 inches: Silty clay loam
16 to 53 inches: Clay
53 to 60 inches: Clay

Minor Components

Capay

Percent of map unit: 5 percent

Landform: Alluvial fans

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors

Willows

Percent of map unit: 5 percent
Landform: Basin floors

Sn—Soboba gravelly sandy loam

Map Unit Setting

Elevation: 30 to 400 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 175 to 250 days

Map Unit Composition

Soboba and similar soils: 85 percent
Minor components: 15 percent

Description of Soboba

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Recent sandy and gravelly alluvium derived from igneous rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability (nonirrigated): 4s

Typical profile

0 to 4 inches: Gravelly sandy loam
4 to 60 inches: Stratified very cobbly sand to very gravelly loamy sand

Minor Components

Loamy alluvial land

Percent of map unit: 3 percent

Arbuckle
Percent of map unit: 3 percent

Reiff, sandy loam
Percent of map unit: 3 percent

Riverwash
Percent of map unit: 3 percent
Landform: Channels

Reiff, gravelly loam
Percent of map unit: 3 percent

So—Sycamore silt loam

Map Unit Setting
Elevation: 0 to 60 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 280 days

Map Unit Composition
Sycamore and similar soils: 85 percent
Minor components: 15 percent

Description of Sycamore

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 11.4 inches)

Interpretive groups
Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile
0 to 14 inches: Silt loam
14 to 60 inches: Silt loam

Minor Components

Tyndall
Percent of map unit: 4 percent

Merritt
Percent of map unit: 4 percent

Maria
Percent of map unit: 4 percent
Landform: Alluvial fans

Yolo
Percent of map unit: 3 percent

Sp—Sycamore silt loam, drained

Map Unit Setting
Elevation: 0 to 60 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 280 days

Map Unit Composition
Sycamore and similar soils: 85 percent
Minor components: 15 percent

Description of Sycamore

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 11.4 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile
0 to 14 inches: Silt loam
14 to 60 inches: Silt loam

Minor Components

Maria
Percent of map unit: 3 percent
Landform: Alluvial fans

Valdez
Percent of map unit: 3 percent
Landform: Alluvial fans

Merritt
Percent of map unit: 3 percent

Tyndall
Percent of map unit: 3 percent

Yolo
Percent of map unit: 3 percent

Sr—Sycamore silt loam, flooded

Map Unit Setting
Elevation: 0 to 60 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 280 days

Map Unit Composition
Sycamore and similar soils: 85 percent
Minor components: 15 percent

Description of Sycamore

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Very slightly saline to moderately saline (4.0 to 16.0 mmhos/cm)
Available water capacity: High (about 11.4 inches)

Interpretive groups
Land capability classification (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile

0 to 14 inches: Silt loam
14 to 60 inches: Silt loam

Minor Components

Maria

Percent of map unit: 4 percent
Landform: Alluvial fans

Merritt

Percent of map unit: 4 percent

Tyndall

Percent of map unit: 4 percent

Valdez

Percent of map unit: 3 percent
Landform: Alluvial fans

Su—Sycamore complex

Map Unit Setting

Elevation: 0 to 60 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 280 days

Map Unit Composition

Sycamore and similar soils: 60 percent
Sycamore and similar soils: 30 percent
Minor components: 10 percent

Description of Sycamore

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability (nonirrigated): 4w

Typical profile

0 to 14 inches: Silty clay loam
14 to 44 inches: Silty clay loam
44 to 60 inches: Silty clay

Description of Sycamore

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile

0 to 14 inches: Silt loam
14 to 44 inches: Silt loam
44 to 60 inches: Silty clay

Minor Components

Sacramento

Percent of map unit: 3 percent
Landform: Basin floors

Merritt

Percent of map unit: 3 percent
Landform: Alluvial fans

Marvin

Percent of map unit: 3 percent

Unnamed

Percent of map unit: 1 percent

Sv—Sycamore complex, drained

Map Unit Setting

Elevation: 0 to 60 feet

Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 280 days

Map Unit Composition
Sycamore and similar soils: 60 percent
Sycamore and similar soils: 25 percent
Minor components: 13 percent

Description of Sycamore

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.7 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile
0 to 14 inches: Silty clay loam
14 to 44 inches: Silty clay loam
44 to 60 inches: Silty clay

Description of Sycamore

Setting
Landform: Alluvial fans
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: None

Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.7 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile
0 to 14 inches: Silt loam
14 to 44 inches: Silt loam
44 to 60 inches: Silty clay

Minor Components

Marvin
Percent of map unit: 4 percent

Merritt
Percent of map unit: 3 percent
Landform: Alluvial fans

Sacramento
Percent of map unit: 3 percent
Landform: Alluvial fans

Unnamed
Percent of map unit: 3 percent

Sw—Sycamore complex, flooded

Map Unit Setting
Elevation: 0 to 60 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 275 to 300 days

Map Unit Composition
Sycamore and similar soils: 60 percent
Sycamore and similar soils: 25 percent
Minor components: 13 percent

Description of Sycamore

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 36 to 72 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile

0 to 14 inches: Silty clay loam
14 to 44 inches: Silty clay loam
44 to 60 inches: Silty clay

Description of Sycamore

Setting

Landform: Alluvial flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile

0 to 14 inches: Silt loam
14 to 44 inches: Silt loam
44 to 60 inches: Silty clay

Minor Components

Marvin

Percent of map unit: 4 percent

Merritt

Percent of map unit: 3 percent
Landform: Alluvial fans

Sacramento

Percent of map unit: 3 percent
Landform: Basin floors

Unnamed

Percent of map unit: 3 percent

Tb—Tyndall very fine sandy loam

Map Unit Setting

Elevation: 0 to 70 feet
Mean annual precipitation: 17 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 280 days

Map Unit Composition

Tyndall and similar soils: 85 percent
Minor components: 15 percent

Description of Tyndall

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile

0 to 16 inches: Very fine sandy loam
16 to 60 inches: Very fine sandy loam

Minor Components

Langenour

Percent of map unit: 3 percent
Landform: Alluvial fans

Sycamore

Percent of map unit: 3 percent
Landform: Alluvial fans

Unnamed
Percent of map unit: 3 percent

Reiff
Percent of map unit: 3 percent

Lang
Percent of map unit: 3 percent

Tc—Tyndall very fine sandy loam, drained

Map Unit Setting
Elevation: 0 to 70 feet
Mean annual precipitation: 17 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 280 days

Map Unit Composition
Tyndall and similar soils: 85 percent
Minor components: 13 percent

Description of Tyndall

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
Available water capacity: High (about 9.6 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile
0 to 16 inches: Very fine sandy loam
16 to 60 inches: Very fine sandy loam

Minor Components

Loamy alluvial land
Percent of map unit: 4 percent

Sacramento

Percent of map unit: 3 percent
Landform: Alluvial fans

Sycamore

Percent of map unit: 3 percent
Landform: Alluvial fans

Unnamed

Percent of map unit: 3 percent

Te—Tyndall very fine sandy loam, deep

Map Unit Setting

Elevation: 0 to 70 feet
Mean annual precipitation: 17 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 280 days

Map Unit Composition

Tyndall and similar soils: 85 percent
Minor components: 13 percent

Description of Tyndall

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
Available water capacity: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile

0 to 16 inches: Very fine sandy loam
16 to 40 inches: Very fine sandy loam
40 to 60 inches: Clay

Minor Components

Lang
Percent of map unit: 5 percent

Unnamed
Percent of map unit: 5 percent

Sycamore
Percent of map unit: 3 percent
Landform: Alluvial fans

W—Water

Map Unit Composition
Water: 100 percent

Ya—Yolo silt loam

Map Unit Setting
Elevation: 30 to 400 feet
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 270 days

Map Unit Composition
Yolo and similar soils: 85 percent
Minor components: 14 percent

Description of Yolo

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy alluvium derived from sedimentary rock

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 11.0 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile

0 to 26 inches: Silt loam
26 to 65 inches: Silt loam

Minor Components

Sycamore

Percent of map unit: 2 percent
Landform: Alluvial fans

Zamora

Percent of map unit: 2 percent

Soboba

Percent of map unit: 2 percent

Reiff

Percent of map unit: 2 percent

Loamy alluvial land

Percent of map unit: 2 percent

Brentwood

Percent of map unit: 2 percent

Arbuckle

Percent of map unit: 2 percent

Yb—Yolo silty clay loam

Map Unit Setting

Elevation: 30 to 400 feet
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 270 days

Map Unit Composition

Yolo and similar soils: 85 percent
Minor components: 15 percent

Description of Yolo

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy alluvium derived from sedimentary rock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 11.0 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c

Typical profile
0 to 26 inches: Silty clay loam
26 to 65 inches: Silty clay loam

Minor Components

Sycamore
Percent of map unit: 5 percent
Landform: Alluvial fans

Zamora
Percent of map unit: 5 percent

Brentwood
Percent of map unit: 5 percent

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Sacramento River
Jurisdictional Determination Form

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:CA County/parish/borough: Yolo, Sutter City: n/a
Center coordinates of site (lat/long in degree decimal format): Lat. 38° N, Long. 121° W.
Universal Transverse Mercator: 613377 4287987
Name of nearest waterbody: Sacramento River
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Sacramento River
Name of watershed or Hydrologic Unit Code (HUC): Sacramento River

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- ☐ Waters subject to the ebb and flow of the tide.
- ☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: The Sacramento River crosses through the project site and is used for interstate and foreign commerece.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☒ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 67918.152 linear feet: width (ft) and/or 34.141 acres.
   Wetlands: 7.605 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known):unknown.

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **Irrigation ditches privately used by farmers which carry water only into fields for irrigation and roadside ditches which did not hold a signifigant amount of water were determined not to be jurisdictional**.

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: **Sacramento River, evaluated further in separate JD form**.

Summarize rationale supporting determination: It is a known TNW.

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": Riparian habitat within 50 feet of Sacramento River.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 27000 sac river **square miles**
Drainage area: 1680 **acres**
Average annual rainfall: 20.78 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☒ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **1 (or less)** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **1 (or less)** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: n/a.

Identify flow route to TNW[5]: Irrigation canals flow through a culvert into the Sacramento River.
Tributary stream order, if known: n/a.

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☒ Artificial (man-made). Explain: water is diverted from the Sacramento River.
- ☒ Manipulated (man-altered). Explain: converted to irrigation canal.

Tributary properties with respect to top of bank (estimate):
Average width: 35 feet
Average depth: unk feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: Ludwigia peploides (40%)	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Banks are man-made including levees.
Presence of run/riffle/pool complexes. Explain: Due to the highly disturbed nature of the tributaries, complete run/riffle/pool complexes are not present.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:
Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Water in the irrigation ditch is actively pumped during the growing season for crops.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: No ordinary high water mark water regularly manipulated for use in irrigation.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: slightly turbid slow-moving water.
Identify specific pollutants, if known: unknown.

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[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): 30 feet.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☒ Aquatic/wildlife diversity. Explain findings: migratory birds.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings:Riparian habitat protected by CEQA.
  - ☐ Aquatic/wildlife diversity. Explain findings:observed migratory song birds.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: water filtration, wildlife habitat.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☒ TNWs: linear feet width (ft), Or, 12.290 acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Canals provide irrigation water for agricultural fields during the growing season and provide for flood control.
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: **21.851** acres.
Identify type(s) of waters: **irrigation canals and roadside ditches with significant flow and connectivity**.

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **The riparian wetland (WF 121w) directly abuts the RPW Old River at Gray's Bend which flows directly into the Sacramento River. Old River flows year round and is fed by the Sacramento River.**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: **7.605** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:**All the non-jurisdictional (NJ) roadside ditches and irrigation canals nearby the Sacramento River do not appear to make any connection to a juricdictional water body and only flow into agricultural fields. The roadside ditches are created in uplands and are only used to collect runoff from the roads and do not contain a significant amount of flow to create a significant nexus and do not form a connection to a jurisdictional water body.**
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☒ Other non-wetland waters: 3.46 acres. List type of aquatic resource: irrigation and roadside ditches which have no connectivity and/or no significant flow.
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: Delineation of Waters of the U.S. document.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Delineation of Waters of the U.S. document.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Delineation of Waters of the U.S. document.
or ☒ Other (Name & Date): Delineation of Waters of the U.S. document.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☒ Applicable/supporting scientific literature: Delineation of Waters of the U.S. document.

☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: On the east side of the Sacramento River, the RPW irrigation canals flowing through the survey area all lead into either the West Drainage Canal or the East Drainage Canal. These two canals merge to form the Natomas Main Drainage Canal which flows directly into the Sacramento River.

Tule Canal
Jurisdictional Determination Form

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:CA County/parish/borough: Yolo, Sutter City: n/a
Center coordinates of site (lat/long in degree decimal format): Lat. 38.73417° **N**, Long. -121.70361° **W**.
Universal Transverse Mercator: 613377 4287987
Name of nearest waterbody: Sacramento River
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Sacramento River
Name of watershed or Hydrologic Unit Code (HUC): Sacramento River

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- ☐ Waters subject to the ebb and flow of the tide.
- ☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: The Sacramento River crosses through the project site and is used for interstate and foreign commerece.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☒ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☒ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 33939.501linear feet: width (ft) and/or 36.115 acres.
   Wetlands: 12.435 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known):unknown.

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **Irrigation ditches privately used by farmers which carried water only into fields for irrigation and roadside ditches which did not hold a signifigant amount of water were determined not to be jurisdictional**.

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: **Sacramento River, evaluated further in separate JD form**.

Summarize rationale supporting determination: It is a known TNW.

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 27000 **square miles**
Drainage area: 1680 **acres**
Average annual rainfall: 20.78 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **5-10** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: n/a.

Identify flow route to TNW[5]: Irrigation canals flow into Knights Landing Ridge Cut. Water then flows from the Knights Landing Ridge Cut, to Tule Canal, to the Sacramento River.

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: n/a.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☒ Artificial (man-made). Explain: water is diverted from the Sacramento River.
- ☒ Manipulated (man-altered). Explain: converted to irrigation canal.

Tributary properties with respect to top of bank (estimate):
Average width: 115 feet
Average depth: unk feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: Ludwigia peploides (40%)	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Banks are man-made including levees.
Presence of run/riffle/pool complexes. Explain: Due to the highly disturbed nature of the tributaries, complete run/riffle/pool complexes are not present.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:
Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Knights Landing Ridge Cut provides flood control, and water in the Ridge Cut is actively pumped during the growing season for crops.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☒ Bed and banks
- ☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

- ☒ Discontinuous OHWM.[7] Explain:No ordinary high water mark, water regularly manipulated for irigation.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: slightly turbid slow-moving water.
Identify specific pollutants, if known: unknown.

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): 30 feet.
☒ Wetland fringe. Characteristics: .
☒ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☒ Aquatic/wildlife diversity. Explain findings: migratory birds.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: 3.152 acres
Wetland type. Explain:Riparian.
Wetland quality. Explain:moderate.
Project wetlands cross or serve as state boundaries. Explain: n/a.

(b) General Flow Relationship with Non-TNW:
Flow is: **No Flow**. Explain: .

Surface flow is: **Overland sheetflow**
Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **5-10** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to/from navigable waters.**
Estimate approximate location of wetland as within the **2-year or less** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: no standing water at time of delineation.
Identify specific pollutants, if known: unknown.

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/percent cover. Explain: .
☒ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☒ Other environmentally-sensitive species. Explain findings:Riparian habitat protected by CEQA.
- ☒ Aquatic/wildlife diversity. Explain findings:observed migratory song birds.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: water filtration, wildlife habitat.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Canals provide irrigation water for agricultural fields during the growing season and provide for flood control.
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **unknown** linear feet**115**width (ft).
☐ Other non-wetland waters: **0**acres.
Identify type(s) of waters: **riparian**.

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☒ Other non-wetland waters: **0.328** acres.
Identify type(s) of waters: **irrigation ditches.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **A riparian corridor exists along the banks of the Tule Canal .**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: **3.152** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

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[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:**All the non-jurisdictional (NJ) roadside ditches and irrigation canals nearby the Tule Canal do not appear to make any connection to a juricdictional water body and only flow into agricultural fields.**
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: 1.
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☒ Other non-wetland waters: 3.46 acres. List type of aquatic resource: irrigation and roadside ditches.
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: Delineation of Waters of the U.S. document.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Delineation of Waters of the U.S. document.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Delineation of Waters of the U.S. document.
or ☒ Other (Name & Date): Delineation of Waters of the U.S. document .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☒ Applicable/supporting scientific literature: Delineation of Waters of the U.S. document.
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Tule Canal does not have a watershed or drainage area since water is pumped in and out of the feature. The review area is assumed to be the entire project area, features discussed in this JD form are associated with Tule Canal.

Knights Landing Ridge Cut
Jurisdictional Determination Form

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:CA County/parish/borough: Yolo, Sutter City: n/a
Center coordinates of site (lat/long in degree decimal format): Lat. 38° N, Long. 121° W.
Universal Transverse Mercator: 613377 4287987
Name of nearest waterbody: Sacramento River
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Sacramento River
Name of watershed or Hydrologic Unit Code (HUC): Sacramento River

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- ☐ Waters subject to the ebb and flow of the tide.
- ☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: The Sacramento River crosses through the project site and is used for interstate and foreign commerece.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☒ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 33939.501linear feet: width (ft) and/or 36.115 acres.
   Wetlands: 12.435 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known):unknown.

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **Irrigation ditches privately used by farmers which carry water only into fields for irrigation and roadside ditches which did not hold a signifigant amount of water were determined not to be jurisdictional**.

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: **Sacramento River, evaluated further in separate JD form**.

Summarize rationale supporting determination: It is a known TNW.

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 27000 **square miles**
Drainage area: 1680 **acres**
Average annual rainfall: 20.78 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** tributaries before entering TNW.

Project waters are **5-10** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: n/a.

Identify flow route to TNW[5]: Irrigation canals flow into Knights Landing Ridge Cut. Water then flows from the Knights Landing Ridge Cut, to Tule Canal, to the Sacramento River.

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: n/a.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☒ Artificial (man-made). Explain: water is diverted from the Sacramento River.
- ☒ Manipulated (man-altered). Explain: converted to irrigation canal.

Tributary properties with respect to top of bank (estimate):
Average width: 115 feet
Average depth: unk feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: Ludwigia peploides (40%)	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Banks are man-made including levees.
Presence of run/riffle/pool complexes. Explain: Due to the highly disturbed nature of the tributaries, complete run/riffle/pool complexes are not present.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:
Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Knights Landing Ridge Cut provides flood control, and water in the Ridge Cut is actively pumped during the growing season for crops.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☒ Bed and banks
- ☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

- ☐ Discontinuous OHWM.[7] Explain: No ordinary high water mark water regularly manipulated for use in irrigation.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: slightly turbid slow-moving water.
Identify specific pollutants, if known: unknown.

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[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): 30 feet.
☒ Wetland fringe. Characteristics: .
☒ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☒ Aquatic/wildlife diversity. Explain findings: migratory birds.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: 3.971 acres
Wetland type. Explain:Riparian.
Wetland quality. Explain:moderate.
Project wetlands cross or serve as state boundaries. Explain: n/a.

(b) General Flow Relationship with Non-TNW:
Flow is: **No Flow**. Explain: .

Surface flow is**: Overland sheetflow**
Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **5-10** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to/from navigable waters.**
Estimate approximate location of wetland as within the **2-year or less** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: no standing water at time of delineation.
Identify specific pollutants, if known: unknown.

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/percent cover. Explain: .
☒ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☒ Other environmentally-sensitive species. Explain findings:Riparian habitat protected by CEQA.
- ☒ Aquatic/wildlife diversity. Explain findings:observed migratory song birds.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately (3.971) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: water filtration, wildlife habitat.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Canals provide irrigation water for agricultural fields during the growing season and provide for flood control.
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **31,680** linear feet**115**width (ft).
☐ Other non-wetland waters: **0**acres.
Identify type(s) of waters: **riparian**.

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **A riparian corridor exists along the banks of the Knights Landing Ridge Cut and the main tributary to the Knights Landing Ridge Cut (OW 06).**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: **3.971**acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

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[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:**All the non-jurisdictional (NJ) roadside ditches and irrigation canals nearby the Knights Landing Ridge Cut do not appear to make any connection to a juricdictional water body and only flow into agricultural fields. The roadside ditches are created in uplands and are only used to collect runoff from the roads and do not contain a significant amount of flow to create a significant nexus and do not form a connection to a jurisdictional water body.**
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☒ Other non-wetland waters: acres. List type of aquatic resource: irrigation and roadside ditches.
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: Delineation of Waters of the U.S. document.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Delineation of Waters of the U.S. document.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Delineation of Waters of the U.S. document.
or ☒ Other (Name & Date): Delineation of Waters of the U.S. document.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☒ Applicable/supporting scientific literature: Delineation of Waters of the U.S. document.
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Knights Landing Ridge Cut does not have a watershed or drainage area since water is pumped in and out of the feature. The review area is assumed to be the entire project area, features discussed in this JD form are associated with Knights Landing Ridge Cut.

Natomas East Main Drainage
Jurisdictional Determination Form

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:CA County/parish/borough: Placer/Sutter City:
Center coordinates of site (lat/long in degree decimal format): Lat. 38.7522° **N**, Long. 121.4331° **W**.
Universal Transverse Mercator: 10
Name of nearest waterbody: Natomas East Main Drainage
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: American River
Name of watershed or Hydrologic Unit Code (HUC): 18020111 and 18020127

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☒ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: width (ft) and/or 4.692 acres.
   Wetlands: 33.861 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known):Approximately 4 feet.

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **Roadside ditches which did not form a direct connection with jurisdictional features, only contain water**

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

runoff from adjacent roads, and did not hold a significant amount of water to satisfy the significant nexus determination were determined to be non-jurisdictional.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: **no TNWs are present in the eastern portion of this project**.

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": n/a.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: approximately 245.828 **square miles**
Drainage area: the eastern most portion of the project area drains approximately 2.5 **square miles**
Average annual rainfall: 20.78 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☒ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **20-25** river miles from TNW.
Project waters are **5-10** river miles from RPW.
Project waters are **10-15** aerial (straight) miles from TNW.
Project waters are **2-5** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: No, but Natomas East Main Drainage serves as the county line between Sutter and Placer Counties.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Other waters onsite flow directly into Natomas East Main Drainage which then flows directly into the American River. Wetlands in the project area abutt or are adjacent to Curry Creek or other unnamed drainages in the area which then flow into Natomas East Main Drainage.
Tributary stream order, if known: 3.

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: the waters onsite are natural but their courses have been changed due to agricultural grading and residential building construction. The Natomas East Main Drainage in particular has been significantly straightened and is confined by levees.

Tributary properties with respect to top of bank (estimate):
Average width: 6 feet
Average depth: 3 feet
Average side slopes: **Vertical (1:1 or less).**

Primary tributary substrate composition (check all that apply):
☒ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/% cover: Typha ssp. (100%)
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: the water is slow moving due to the presence of vegetation in the channels.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: The Natomas East Main Drainage collects water from natural tributaries and irrigation canals as well, so water is present in the Drainage year round due to the irrigation of agricultural crops produced nearby. Curry Creek, the tributary of Natomas East Main Drainage, has an intermittent but not seasonal flow of water.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☐ changes in the character of soil
☐ shelving
☒ vegetation matted down, bent, or absent
☐ leaf litter disturbed or washed away
☒ sediment deposition
☐ water staining
☐ other (list):
☒ the presence of litter and debris
☐ destruction of terrestrial vegetation
☐ the presence of wrack line
☐ sediment sorting
☒ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

- ☐ tidal gauges
- ☐ other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: Water is slow moving and brown (not clear) due to the inflow of sediments from agricultural and overland runoff.

Identify specific pollutants, if known: Probably chemicals used during agriculture production and runoff from roads.

(iv) Biological Characteristics. Channel supports (check all that apply):

☐ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☒ Aquatic/wildlife diversity. Explain findings: Migratory birds most likely utilize the area.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: Types found wihtin the project area include vernal pools, seasonal wetlands, and seasonal swales.
Wetland quality. Explain: Wetland quality onsite is fair due to the proximity to Riego Road which can cause pollutants to settle in the wetlands.
Project wetlands cross or serve as state boundaries. Explain: No.

(b) General Flow Relationship with Non-TNW:
Flow is: **Ephemeral flow**. Explain: .

Surface flow is: **Discrete and confined**
Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☒ Not directly abutting
☒ Discrete wetland hydrologic connection. Explain: The wetland features on the north side of Riego Road flow discretely into Curry Creek and the wetlands on the south side of Riego Road flow discretely into Dry Creek, a tributary of Natomas East Main Drainage.
☐ Ecological connection. Explain: .
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **10-15** river miles from TNW.
Project waters are **5-10** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Water in the wetlands was clear but occationally contained debris/trash from the nearby road.
Identify specific pollutants, if known: unknown - from runoff from the roads.

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/percent cover. Explain: .
☐ Habitat for:
☒ Federally Listed species. Explain findings: A few of the vernal pools onsite were determined to contain vernal pool invertebrates.
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **30 (or more)**
Approximately (33.861) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
WF 08e-14e, 17e-18e, 20e, 22e-33e, 116e-117e - Yes they abut Curry Creek			5.395 ac
WF 124e-134e, 90e-92e, 112e - Yes they abut Natomas East Main Drainage			15.341 ac
WF 51e-56e - Yes they abut an unnamed tributary (OW 64)			1.637 ac
WF 01e-07e, 15e-16e, 34e-49e, 58e, 63e-64e, 66e-75e, 106e, 111e, 113e, 115e, 118e - No they are adjacent to Dry Creek			9.415 ac
WF 50e, 57e, 59e, 60e-62e, 110e, 114e - No they are adjacent to Curry Creek			0.593 ac
WF 77e-89e, 94e, 107e-109e, 119e-120e - No they are adjacent to Natomas East Main Drainage			1.480 ac

Summarize overall biological, chemical and physical functions being performed: These wetland features collect water during flooding events and during precipitation events which helps to filter the runoff from pollutants.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☒ Tributary waters: **3515.88** linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☒ Tributary waters: **489.788** linear feet width (ft).
   ☒ Other non-wetland waters: **18363.96 linear feet** acres.
   Identify type(s) of waters: **Roadside ditches and ephemeral drainages leading to wetlands.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: **22.373** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: **11.488** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: **roadside ditches.**
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☒ Other non-wetland waters: 12459.26 linear feet acres. List type of aquatic resource: Roadside ditches.
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☐ U.S. Geological Survey map(s). Cite scale & quad name: .

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[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☐ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): .
  or ☒ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: This jurisdictional form only addresses Waters of the U.S. on the eastern end of the project area. Additionally, WF 124e-134e all drain into C 122 and are hence directly connected to the Natomas East Main Drainage .

Type	Designation	Label	Avg. Width (ft.)	Length (ft.)	Area (ft.^{2})	Acres
Wetland Features						
Fresh Emergent Wetla	Abutting	WF018e	n/a	n/a	119915.713	2.753
Fresh Emergent Wetla	Adjacent	WF063e	n/a	n/a	7051.716	0.162
Fresh Emergent Wetla	Abutting	WF112e	n/a	n/a	14761.418	0.339
Fresh Emergent Wetla	Abutting	WF112e	n/a	n/a	14070.109	0.323
Riparian	Abutting	WF054e	n/a	n/a	7576.328	0.174
Riparian	Adjacent	WF111e	n/a	n/a	1885.866	0.043
Riparian	Abutting	WF01w	n/a	n/a	61348.533	1.408
Riparian	Abutting	WF02w	n/a	n/a	32497.179	0.746
Riparian	Abutting	WF03w	n/a	n/a	46777.921	1.074
Riparian	Abutting	WF04w	n/a	n/a	32365.323	0.743
Riparian	Abutting	WF05w	n/a	n/a	89500.921	2.055
Riparian	Abutting	WF06w	n/a	n/a	47804.003	1.097
Riparian	Abutting	WF07w	n/a	n/a	20635.668	0.474
Riparian	Abutting	WF08w	n/a	n/a	127869.244	2.935
Riparian	Abutting	WF121w	n/a	n/a	68205.880	1.566
Riparian	Abutting	WF122w	n/a	n/a	107894.434	2.477
Riparian	Abutting	WF123w	n/a	n/a	72303.230	1.660
Seasonal Swale	Adjacent	WF002e	n/a	n/a	4290.700	0.099
Seasonal Swale	Abutting	WF022e	n/a	n/a	13090.389	0.301
Seasonal Swale	Abutting	WF023e	n/a	n/a	5649.693	0.130
Seasonal Swale	Abutting	WF025e	n/a	n/a	9157.076	0.210
Seasonal Swale	Abutting	WF030e	n/a	n/a	4324.830	0.099
Seasonal Swale	Abutting	WF033e	n/a	n/a	4325.135	0.099
Seasonal Swale	Adjacent	WF064e	n/a	n/a	18899.784	0.434
Seasonal Swale	Adjacent	WF081e	n/a	n/a	1829.801	0.042
Seasonal Swale	Adjacent	WF087e	n/a	n/a	8261.508	0.190
Seasonal Swale	Adjacent	WF113e	n/a	n/a	15124.908	0.347
Seasonal Swale	Adjacent	WF114e	n/a	n/a	6937.802	0.159
Seasonal Wetland	Adjacent	WF001e	n/a	n/a	2153.707	0.049
Seasonal Wetland	Adjacent	WF007e	n/a	n/a	46738.859	1.073
Seasonal Wetland	Abutting	WF026e	n/a	n/a	3856.908	0.089
Seasonal Wetland	Abutting	WF029e	n/a	n/a	706.882	0.016
Seasonal Wetland	Adjacent	WF046e	n/a	n/a	39320.039	0.903
Seasonal Wetland	Adjacent	WF048e	n/a	n/a	58161.835	1.335
Seasonal Wetland	Adjacent	WF049e	n/a	n/a	55883.750	1.283
Seasonal Wetland	Adjacent	WF050e	n/a	n/a	5250.852	0.121
Seasonal Wetland	Abutting	WF051e	n/a	n/a	7853.007	0.180
Seasonal Wetland	Abutting	WF052e	n/a	n/a	13233.125	0.304
Seasonal Wetland	Abutting	WF053e	n/a	n/a	7501.482	0.172
Seasonal Wetland	Abutting	WF055e	n/a	n/a	8512.286	0.195
Seasonal Wetland	Abutting	WF056e	n/a	n/a	26626.948	0.611
Seasonal Wetland	Adjacent	WF059e	n/a	n/a	3844.809	0.088
Seasonal Wetland	Adjacent	WF060e	n/a	n/a	1999.442	0.046
Seasonal Wetland	Adjacent	WF061e	n/a	n/a	2188.812	0.050
Seasonal Wetland	Adjacent	WF062e	n/a	n/a	2082.430	0.048
Seasonal Wetland	Adjacent	WF068e	n/a	n/a	2750.279	0.063
Seasonal Wetland	Adjacent	WF079e	n/a	n/a	1714.649	0.039
Seasonal Wetland	Adjacent	WF080e	n/a	n/a	5974.891	0.137

Type	Designation	Label	Avg. Width (ft.)	Length (ft.)	Area (ft.^{2})	Acres
Seasonal Wetland	Adjacent	WF088e	n/a	n/a	4917.411	0.113
Seasonal Wetland	Adjacent	WF094e	n/a	n/a	914.343	0.021
Seasonal Wetland	Adjacent	WF107e	n/a	n/a	193.202	0.004
Seasonal Wetland	Adjacent	WF108e	n/a	n/a	381.044	0.009
Seasonal Wetland	Adjacent	WF109e	n/a	n/a	193.018	0.004
Seasonal Wetland	Adjacent	WF110e	n/a	n/a	1867.438	0.043
Seasonal Wetland	Abutting	WF124e	n/a	n/a	96079.770	2.206
Seasonal Wetland	Abutting	WF125e	n/a	n/a	106408.337	2.443
Seasonal Wetland	Abutting	WF126e	n/a	n/a	102832.983	2.361
Seasonal Wetland	Abutting	WF127e	n/a	n/a	46843.234	1.075
Seasonal Wetland	Abutting	WF128e	n/a	n/a	23085.542	0.530
Seasonal Wetland	Abutting	WF129e	n/a	n/a	84709.458	1.945
Seasonal Wetland	Abutting	WF130e	n/a	n/a	19330.850	0.444
Seasonal Wetland	Abutting	WF131e	n/a	n/a	43504.426	0.999
Seasonal Wetland	Abutting	WF132e	n/a	n/a	25985.904	0.597
Seasonal Wetland	Abutting	WF133e	n/a	n/a	57914.228	1.330
Seasonal Wetland	Abutting	WF134e	n/a	n/a	30492.892	0.700
Vernal Pool	Adjacent	WF003e	n/a	n/a	6608.195	0.152
Vernal Pool	Adjacent	WF004e	n/a	n/a	1212.329	0.028
Vernal Pool	Adjacent	WF005e	n/a	n/a	219.970	0.005
Vernal Pool	Abutting	WF008e	n/a	n/a	4122.915	0.095
Vernal Pool	Abutting	WF009e	n/a	n/a	1693.310	0.039
Vernal Pool	Abutting	WF010e	n/a	n/a	1027.041	0.024
Vernal Pool	Abutting	WF011e	n/a	n/a	2651.878	0.061
Vernal Pool	Abutting	WF012e	n/a	n/a	9619.427	0.221
Vernal Pool	Abutting	WF013e	n/a	n/a	1490.675	0.034
Vernal Pool	Abutting	WF014e	n/a	n/a	2576.502	0.059
Vernal Pool	Adjacent	WF015e	n/a	n/a	186.971	0.004
Vernal Pool	Adjacent	WF016e	n/a	n/a	6940.569	0.159
Vernal Pool	Abutting	WF020e	n/a	n/a	6721.209	0.154
Vernal Pool	Abutting	WF024e	n/a	n/a	4438.688	0.102
Vernal Pool	Abutting	WF031e	n/a	n/a	5125.524	0.118
Vernal Pool	Abutting	WF032e	n/a	n/a	2674.899	0.061
Vernal Pool	Adjacent	WF035e	n/a	n/a	3540.926	0.081
Vernal Pool	Adjacent	WF036e	n/a	n/a	1706.005	0.039
Vernal Pool	Adjacent	WF037e	n/a	n/a	4367.672	0.100
Vernal Pool	Adjacent	WF038e	n/a	n/a	6502.399	0.149
Vernal Pool	Adjacent	WF039e	n/a	n/a	2594.266	0.060
Vernal Pool	Adjacent	WF040e	n/a	n/a	2957.804	0.068
Vernal Pool	Adjacent	WF041e	n/a	n/a	4022.187	0.092
Vernal Pool	Adjacent	WF042e	n/a	n/a	278.132	0.006
Vernal Pool	Adjacent	WF043e	n/a	n/a	19811.008	0.455
Vernal Pool	Adjacent	WF044e	n/a	n/a	14887.712	0.342
Vernal Pool	Adjacent	WF045e	n/a	n/a	2388.876	0.055
Vernal Pool	Adjacent	WF047e	n/a	n/a	6516.356	0.150
Vernal Pool	Adjacent	WF057e	n/a	n/a	1676.959	0.038
Vernal Pool	Adjacent	WF058e	n/a	n/a	937.802	0.022
Vernal Pool	Adjacent	WF066e	n/a	n/a	198.935	0.005
Vernal Pool	Adjacent	WF069e	n/a	n/a	6772.749	0.155

Type	Designation	Label	Avg. Width (ft.)	Length (ft.)	Area (ft.^{2})	Acres
Vernal Pool	Adjacent	WF070e	n/a	n/a	1204.902	0.028
Vernal Pool	Adjacent	WF071e	n/a	n/a	243.080	0.006
Vernal Pool	Adjacent	WF072e	n/a	n/a	2543.299	0.058
Vernal Pool	Adjacent	WF073e	n/a	n/a	257.781	0.006
Vernal Pool	Adjacent	WF074e	n/a	n/a	2076.847	0.048
Vernal Pool	Adjacent	WF075e	n/a	n/a	980.550	0.023
Vernal Pool	Adjacent	WF077e	n/a	n/a	1125.022	0.026
Vernal Pool	Adjacent	WF078e	n/a	n/a	2987.915	0.069
Vernal Pool	Adjacent	WF082e	n/a	n/a	2356.539	0.054
Vernal Pool	Adjacent	WF083e	n/a	n/a	27337.834	0.628
Vernal Pool	Adjacent	WF084e	n/a	n/a	1193.467	0.027
Vernal Pool	Adjacent	WF085e	n/a	n/a	281.725	0.006
Vernal Pool	Adjacent	WF086e	n/a	n/a	733.869	0.017
Vernal Pool	Adjacent	WF089e	n/a	n/a	2736.225	0.063
Vernal Pool	Abutting	WF090e	n/a	n/a	1122.451	0.026
Vernal Pool	Abutting	WF091e	n/a	n/a	893.856	0.021
Vernal Pool	Abutting	WF092e	n/a	n/a	1429.140	0.033
Vernal Pool	Abutting	WF116e	n/a	n/a	2331.935	0.054
Vernal Pool	Abutting	WF117e	n/a	n/a	412.351	0.009
Vernal Pool	Adjacent	WF119e	n/a	n/a	1159.353	0.027
Vernal Swale	Adjacent	WF006e	n/a	n/a	1813.559	0.042
Vernal Swale	Abutting	WF017e	n/a	n/a	5586.255	0.128
Vernal Swale	Abutting	WF027e	n/a	n/a	6979.149	0.160
Vernal Swale	Abutting	WF028e	n/a	n/a	16533.640	0.380
Vernal Swale	Adjacent	WF034e	n/a	n/a	4657.636	0.107
Vernal Swale	Adjacent	WF067e	n/a	n/a	11683.738	0.268
Vernal Swale	Adjacent	WF106e	n/a	n/a	1403.168	0.032
Vernal Swale	Adjacent	WF115e	n/a	n/a	9011.699	0.207
Vernal Swale	Adjacent	WF118e	n/a	n/a	490.313	0.011
Vernal Swale	Adjacent	WF120e	n/a	n/a	160.111	0.004
Willow Riparian	Abutting	WF09w	n/a	n/a	82877.480	1.903
				Fresh Emergent Wetland Total =	**155798.956**	**3.577**
				Riparian Total =	**716664.529**	**16.452**
				Seasonal Swale =	**91891.626**	**2.110**
				Seasonal Wetland =	**942009.073**	**21.626**
				Vernal Pool =	**189878.033**	**4.359**
				Vernal Swale =	**58319.269**	**1.339**
				Willow Riparian =	**82877.480**	**1.903**
				Wetland Features Total =	**2237438.967**	**51.365**
Other Waters of the U.S.						
Culvert	Culvert	C01	4	43.557	174.229	0.004
Culvert	Culvert	C02	3	27.970	83.909	0.002
Culvert	Culvert	C03	3	43.774	131.321	0.003
Culvert	Culvert	C04	3	19.298	57.895	0.001
Culvert	Culvert	C05	3	41.282	123.845	0.003
Culvert	Culvert	C06	3	31.760	95.281	0.002
Culvert	Culvert	C07	3	29.892	89.677	0.002
Culvert	Culvert	C08	4	58.745	234.982	0.005
Culvert	Culvert	C09	1.5	188.485	282.727	0.006

Type	Designation	Label	Avg. Width (ft.)	Length (ft.)	Area (ft.^{2})	Acres
Culvert	Culvert	C10	1.5	128.497	192.745	0.004
Culvert	Culvert	C101	1.5	20.639	30.959	0.001
Culvert	Culvert	C102	1	28.721	28.721	0.001
Culvert	Culvert	C103	2	82.380	164.759	0.004
Culvert	Culvert	C104	1.5	34.785	52.178	0.001
Culvert	Culvert	C105	1.5	25.114	37.670	0.001
Culvert	Culvert	C106	2	25.109	50.218	0.001
Culvert	Culvert	C107	2	15.452	30.903	0.001
Culvert	Culvert	C108	1.5	21.264	31.896	0.001
Culvert	Culvert	C109	1	48.385	48.385	0.001
Culvert	Culvert	C11	1.5	35.999	53.999	0.001
Culvert	Culvert	C110	1.5	34.392	51.588	0.001
Culvert	Culvert	C111	1	23.952	23.952	0.001
Culvert	Culvert	C112	1	26.215	26.215	0.001
Culvert	Culvert	C113	0.5	56.263	28.131	0.001
Culvert	Culvert	C114	0.5	180.831	90.416	0.002
Culvert	Culvert	C117	1	49.359	49.359	0.001
Culvert	Culvert	C119	1	41.445	41.445	0.001
Culvert	Culvert	C12	1.5	41.982	62.972	0.001
Culvert	Culvert	C120	1	49.526	49.526	0.001
Culvert	Culvert	C121	1.5	20.848	31.272	0.001
Culvert	Culvert	C122	1.5	20.856	31.284	0.001
Culvert	Culvert	C13	1.5	46.944	70.416	0.002
Culvert	Culvert	C14	1	29.614	29.614	0.001
Culvert	Culvert	C15	2	84.347	168.693	0.004
Culvert	Culvert	C16	2	87.366	174.733	0.004
Culvert	Culvert	C17	8	53.015	424.121	0.010
Culvert	Culvert	C18	3	64.558	193.674	0.004
Culvert	Culvert	C19	3	76.830	230.490	0.005
Culvert	Culvert	C20	1.5	18.570	27.855	0.001
Culvert	Culvert	C21	1	13.540	13.540	0.000
Culvert	Culvert	C22	2	22.926	45.852	0.001
Culvert	Culvert	C23	2	37.417	74.835	0.002
Culvert	Culvert	C24	3	67.536	202.607	0.005
Culvert	Culvert	C25	2	21.628	43.256	0.001
Culvert	Culvert	C26	3.5	12.051	42.179	0.001
Culvert	Culvert	C27	4	38.990	155.960	0.004
Culvert	Culvert	C28	1	15.712	15.712	0.000
Culvert	Culvert	C29	3	30.804	92.411	0.002
Culvert	Culvert	C30	2.5	36.264	90.660	0.002
Culvert	Culvert	C31	1.5	15.089	22.634	0.001
Culvert	Culvert	C32	1.5	14.397	21.595	0.000
Culvert	Culvert	C33	2	61.961	123.922	0.003
Culvert	Culvert	C34	1	47.935	47.935	0.001
Culvert	Culvert	C35	1	20.778	20.778	0.000
Culvert	Culvert	C36	1.5	14.397	21.595	0.000
Culvert	Culvert	C37	2	20.534	41.068	0.001
Culvert	Culvert	C38	2	54.065	108.131	0.002
Culvert	Culvert	C39	1.5	37.022	55.532	0.001

Type	Designation	Label	Avg. Width (ft.)	Length (ft.)	Area (ft.^{2})	Acres
Culvert	Culvert	C40	1.5	16.038	24.056	0.001
Culvert	Culvert	C41	2.5	40.752	101.880	0.002
Culvert	Culvert	C42	3.5	64.985	227.446	0.005
Culvert	Culvert	C43	3	37.146	111.438	0.003
Culvert	Culvert	C44	3	140.273	420.820	0.010
Culvert	Culvert	C45	1.5	11.686	17.528	0.000
Culvert	Culvert	C46	1.5	8.696	13.043	0.000
Culvert	Culvert	C47	10.5	38.070	399.734	0.009
Culvert	Culvert	C48	2	57.394	114.789	0.003
Culvert	Culvert	C49	2	56.431	112.862	0.003
Culvert	Culvert	C50	2	40.213	80.427	0.002
Culvert	Culvert	C51	2	15.624	31.248	0.001
Culvert	Culvert	C52	4	31.967	127.866	0.003
Culvert	Culvert	C53	4	20.698	82.792	0.002
Culvert	Culvert	C55	0.5	25.808	12.904	0.000
Culvert	Culvert	C56	1	70.569	70.569	0.002
Culvert	Culvert	C57	3	77.761	233.282	0.005
Culvert	Culvert	C58	3	69.586	208.757	0.005
Culvert	Culvert	C59	1	19.851	19.851	0.000
Culvert	Culvert	C60	1	33.663	33.663	0.001
Culvert	Culvert	C61	2	58.677	117.353	0.003
Culvert	Culvert	C62	2	52.519	105.038	0.002
Culvert	Culvert	C64	1.5	27.793	41.689	0.001
Culvert	Culvert	C65	1	30.395	30.395	0.001
Culvert	Culvert	C66	2	24.305	48.611	0.001
Culvert	Culvert	C67	2.5	108.359	270.897	0.006
Culvert	Culvert	C68	2	95.638	191.276	0.004
Culvert	Culvert	C69	3	23.531	70.593	0.002
Culvert	Culvert	C70	1	27.879	27.879	0.001
Culvert	Culvert	C71	3	203.999	611.997	0.014
Culvert	Culvert	C72	3	181.339	544.016	0.012
Culvert	Culvert	C73	2	21.294	42.589	0.001
Culvert	Culvert	C74	2	42.589	85.177	0.002
Culvert	Culvert	C75	2	26.769	53.539	0.001
Culvert	Culvert	C76	2	27.454	54.908	0.001
Culvert	Culvert	C77	2	31.532	63.065	0.001
Culvert	Culvert	C78	2	45.949	91.897	0.002
Culvert	Culvert	C79	2	24.002	48.004	0.001
Culvert	Culvert	C80	2	23.306	46.613	0.001
Culvert	Culvert	C81	2	45.289	90.578	0.002
Culvert	Culvert	C82	2	27.420	54.839	0.001
Culvert	Culvert	C83	2	30.878	61.755	0.001
Culvert	Culvert	C84	2	202.197	404.395	0.009
Culvert	Culvert	C85	2	101.200	202.401	0.005
Culvert	Culvert	C86	2	34.155	68.310	0.002
Culvert	Culvert	C87	2	34.250	68.500	0.002
Culvert	Culvert	C88	8	58.973	471.784	0.011
Culvert	Culvert	C89	2	51.439	102.879	0.002
Culvert	Culvert	C90	4	30.302	121.207	0.003

Type	Designation	Label	Avg. Width (ft.)	Length (ft.)	Area (ft.^{2})	Acres
Culvert	Culvert	C91	2	47.399	94.798	0.002
Culvert	Culvert	C92	20	30.723	614.455	0.014
Culvert	Culvert	C93	2	25.457	50.915	0.001
Culvert	Culvert	C94	2	28.663	57.326	0.001
Culvert	Culvert	C95	2	64.027	128.053	0.003
Culvert	Culvert	C96	1	23.676	23.676	0.001
Culvert	Culvert	C97	2	15.763	31.525	0.001
Culvert	Culvert	C98	2	43.300	86.600	0.002
Culvert	Culvert	C99	2	34.929	69.857	0.002
Ephemeral	NRPW	OW125	6	268.927	1519.138	0.035
Roadside Ditch	NRPW	OW126	5	297.733	1488.667	0.034
Ephemeral	NRPW	OW135	5.5	220.862	1214.738	0.028
Roadside Ditch	NRPW	OW142	2	128.023	256.045	0.006
Roadside Ditch	NRPW	OW143	1.5	178.732	268.099	0.006
Roadside Ditch	NRPW	OW144	1.5	702.260	1053.389	0.024
Roadside Ditch	NRPW	OW146	2	1321.432	2642.863	0.061
Roadside Ditch	NRPW	OW147	2	854.957	1709.915	0.039
Roadside Ditch	NRPW	OW148	1.5	669.606	1004.409	0.023
Roadside Ditch	NRPW	OW149	1.5	689.692	1034.538	0.024
Roadside Ditch	NRPW	OW150	1.5	605.113	907.669	0.021
Roadside Ditch	NRPW	OW153	1.5	1426.310	2139.465	0.049
Roadside Ditch	NRPW	OW155	1	117.217	117.217	0.003
Irrigation Ditch	NRPW	OW23	1.5	2224.098	3336.148	0.077
Irrigation Ditch	NRPW	OW24	1.5	2394.665	3591.997	0.082
Irrigation Ditch	NRPW	OW25	1.5	2247.889	3371.833	0.077
Irrigation Ditch	NRPW	OW26	1.5	1687.659	2531.488	0.058
Irrigation Ditch	NRPW	OW27	1.5	983.621	1475.431	0.034
Roadside Ditch	NRPW	OW32	1.5	993.080	1489.621	0.034
Roadside Ditch	NRPW	OW33	1.5	3170.089	4755.133	0.109
Roadside Ditch	NRPW	OW34	3	513.413	1540.238	0.035
Roadside Ditch	NRPW	OW35	2	2051.174	4102.349	0.094
Roadside Ditch	NRPW	OW36	3	1653.594	4960.781	0.114
Roadside Ditch	NRPW	OW39	2	2760.966	5521.933	0.127
Roadside Ditch	NRPW	OW40	3	1814.670	5444.010	0.125
Roadside Ditch	NRPW	OW47	1	1302.160	1302.160	0.030
Roadside Ditch	NRPW	OW48	1	730.639	730.639	0.017
Roadside Ditch	NRPW	OW49	1	3197.990	3197.990	0.073
Roadside Ditch	NRPW	OW50	1	4336.660	4336.660	0.100
Roadside Ditch	NRPW	OW51	1.5	705.023	1057.535	0.024
Roadside Ditch	NRPW	OW52	1	1175.967	1175.967	0.027
Roadside Ditch	NRPW	OW53	1.5	1942.812	2914.218	0.067
Roadside Ditch	NRPW	OW56	1	555.730	555.730	0.013
Roadside Ditch	NRPW	OW57	1	147.270	147.270	0.003
Roadside Ditch	NRPW	OW58	1	219.260	219.260	0.005
Roadside Ditch	NRPW	OW59	1	120.527	120.527	0.003
Roadside Ditch	NRPW	OW60	1	301.943	301.943	0.007
Roadside Ditch	NRPW	OW61	1	1232.608	1232.608	0.028
Ephemeral	NRPW	OW62	2	760.767	1521.535	0.035
Roadside Ditch	NRPW	OW63	1	1069.186	1069.186	0.025

Type	Designation	Label	Avg. Width (ft.)	Length (ft.)	Area (ft.^{2})	Acres
Roadside Ditch	NRPW	OW84	1	15.886	15.886	0.000
Roadside Ditch	NRPW	OW85	1	670.664	670.664	0.015
Roadside Ditch	NRPW	OW86	1	116.404	116.404	0.003
Roadside Ditch	NRPW	OW89	5	3336.108	16680.542	0.383
Pond	Pond	OW158	n/a	n/a	483.844	0.011
Pond	Pond	OW159	n/a	n/a	958.728	0.022
Pond	Pond	OW160	n/a	n/a	1343.858	0.031
Irrigation Canal	RPW	OW01	25	566.804	14418.651	0.331
Irrigation Canal	RPW	OW02	20	990.578	20219.892	0.464
Irrigation Canal	RPW	OW03	30	3426.541	101557.095	2.331
Irrigation Canal	RPW	OW04	35	2053.099	72309.101	1.660
Perrenial Stream	RPW	OW05	116	817.518	95208.943	2.186
Perrenial Stream	RPW	OW06	113	1003.075	113135.017	2.597
Perrenial Stream	RPW	OW07	106	1224.273	130191.972	2.989
Perrenial Stream	RPW	OW08	99	1215.441	120807.566	2.773
Irrigation Canal	RPW	OW100	10	558.826	5622.902	0.129
Irrigation Canal	RPW	OW101	11	669.110	7126.393	0.164
Irrigation Canal	RPW	OW102	11	1376.133	15156.305	0.348
Irrigation Canal	RPW	OW103	13	419.238	5550.071	0.127
Irrigation Canal	RPW	OW104	12	432.090	5081.682	0.117
Irrigation Canal	RPW	OW105	9	620.676	5277.962	0.121
Irrigation Canal	RPW	OW106	15	231.965	3503.525	0.080
Irrigation Canal	RPW	OW107	9	1838.691	16766.505	0.385
Irrigation Canal	RPW	OW108	10	323.919	3148.473	0.072
Irrigation Canal	RPW	OW109	11	948.980	10716.252	0.246
Irrigation Canal	RPW	OW11	33	4091.171	135409.736	3.109
Irrigation Canal	RPW	OW110	20	456.802	9104.835	0.209
Irrigation Canal	RPW	OW111	10	1368.159	14120.092	0.324
Irrigation Canal	RPW	OW112	16	1342.788	20835.050	0.478
Irrigation Canal	RPW	OW113	18	124.938	2211.954	0.051
Irrigation Canal	RPW	OW114	14	572.944	8142.255	0.187
Irrigation Canal	RPW	OW115	17	135.255	2356.584	0.054
Irrigation Canal	RPW	OW116	11	1727.566	19818.921	0.455
Irrigation Canal	RPW	OW117	18	419.680	7390.445	0.170
Irrigation Canal	RPW	OW118	14	1486.216	20787.093	0.477
Irrigation Canal	RPW	OW120	10	586.041	5675.215	0.130
Irrigation Canal	RPW	OW121	9	959.124	8724.159	0.200
Irrigation Canal	RPW	OW122	7	2524.123	17966.638	0.412
Irrigation Canal	RPW	OW123	13	490.265	6445.100	0.148
Irrigation Canal	RPW	OW124	5	159.537	821.914	0.019
Irrigation Canal	RPW	OW127	16	498.838	8087.429	0.186
Irrigation Canal	RPW	OW128	11	3330.897	36997.801	0.849
Irrigation Canal	RPW	OW129	23	507.676	11821.432	0.271
Irrigation Canal	RPW	OW13	12	895.427	10829.301	0.249
Irrigation Canal	RPW	OW130	23	526.735	12157.645	0.279
Irrigation Canal	RPW	OW131	35	503.389	17836.596	0.409
Irrigation Canal	RPW	OW132	32	506.284	15978.963	0.367
Irrigation Canal	RPW	OW133	14	90.131	1244.862	0.029
Irrigation Canal	RPW	OW134	10	413.495	3975.804	0.091

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Irrigation Canal	RPW	OW136	11	25.808	272.342	0.006
Irrigation Canal	RPW	OW138	10	624.183	6202.029	0.142
Irrigation Canal	RPW	OW14	22	911.639	20044.983	0.460
Irrigation Canal	RPW	OW15	24	430.407	10372.481	0.238
Irrigation Canal	RPW	OW154	11	449.698	4872.701	0.112
Intermittent	RPW	OW156	22	1038.123	22320.459	0.512
Irrigation Canal	RPW	OW18	34	4474.313	154241.597	3.541
Irrigation Canal	RPW	OW19	57	402.34	23068.673	0.530
Irrigation Canal	RPW	OW29	28	502.486	13964.104	0.321
Irrigation Canal	RPW	OW30	24	5871.020	143660.211	3.298
Irrigation Canal	RPW	OW31	24	414.813	9820.037	0.225
Irrigation Canal	RPW	OW37	20	494.010	9839.744	0.226
Irrigation Canal	RPW	OW38	15	1874.860	27972.660	0.642
Irrigation Canal	RPW	OW41	8	321.189	2540.169	0.058
Irrigation Canal	RPW	OW42	28	508.310	14038.661	0.322
Irrigation Canal	RPW	OW43	49	542.511	26642.802	0.612
Irrigation Canal	RPW	OW44	40	545.045	22030.602	0.506
Irrigation Canal	RPW	OW46	8	460.915	3815.986	0.088
Intermittent	RPW	OW54	8	1358.639	10541.255	0.242
Intermittent	RPW	OW55	9	1891.267	17537.733	0.403
Irrigation Canal	RPW	OW64	8	265.983	2127.863	0.049
Irrigation Canal	RPW	OW64	11	264.449	2916.862	0.067
Irrigation Canal	RPW	OW87	12	405.815	4994.721	0.115
Irrigation Canal	RPW	OW88	11	2030.535	22430.530	0.515
Irrigation Canal	RPW	OW90	7	1530.056	11256.621	0.258
Irrigation Canal	RPW	OW91	9	927.413	8594.903	0.197
Irrigation Canal	RPW	OW92	5	436.538	2182.689	0.050
Irrigation Canal	RPW	OW92	11	436.753	4992.365	0.115
Irrigation Canal	RPW	OW93	14	1899.072	26163.231	0.601
Irrigation Canal	RPW	OW94	13	87.095	1116.843	0.026
Irrigation Canal	RPW	OW95	18	473.305	8671.071	0.199
Irrigation Canal	RPW	OW96	10	1065.270	10188.931	0.234
Irrigation Canal	RPW	OW97	13	733.348	9814.647	0.225
Irrigation Canal	RPW	OW98	11	495.752	5563.931	0.128
Irrigation Canal	RPW	OW99	11	1581.524	16732.799	0.384
TNW	TNW	OW22	479	1116.699	535358.639	12.290
			Culvert Total =	**5425.646**	**12836.605**	**0.295**
			NRPW Total =	**51913.385**	**94843.838**	**2.177**
			RPW Total =	**78208.919**	**1826085.369**	**41.921**
			TNW Total =	**1116.699**	**535358.639**	**12.290**
			Pond Total =	**n/a**	**2786.430**	**0.064**
			OWOTUS Total =	**136664.649**	**2471910.881**	**56.747**

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	Type	Length (ft.)	Area (ft.2)	Acres
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	Riparian Total =	n/a	716664.529	16.452
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	Seasonal Wetland =	n/a	942009.073	21.626
	Vernal Pool =	n/a	189878.033	4.359
	Vernal Swale =	n/a	58319.269	1.339
	Willow Riparian =	n/a	82877.480	1.903
	Wetland Features Total =	n/a	2237438.967	51.365
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	Pond Total =	n/a	2786.430	0.064
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Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007 Revised: August 21, 2007

Feet
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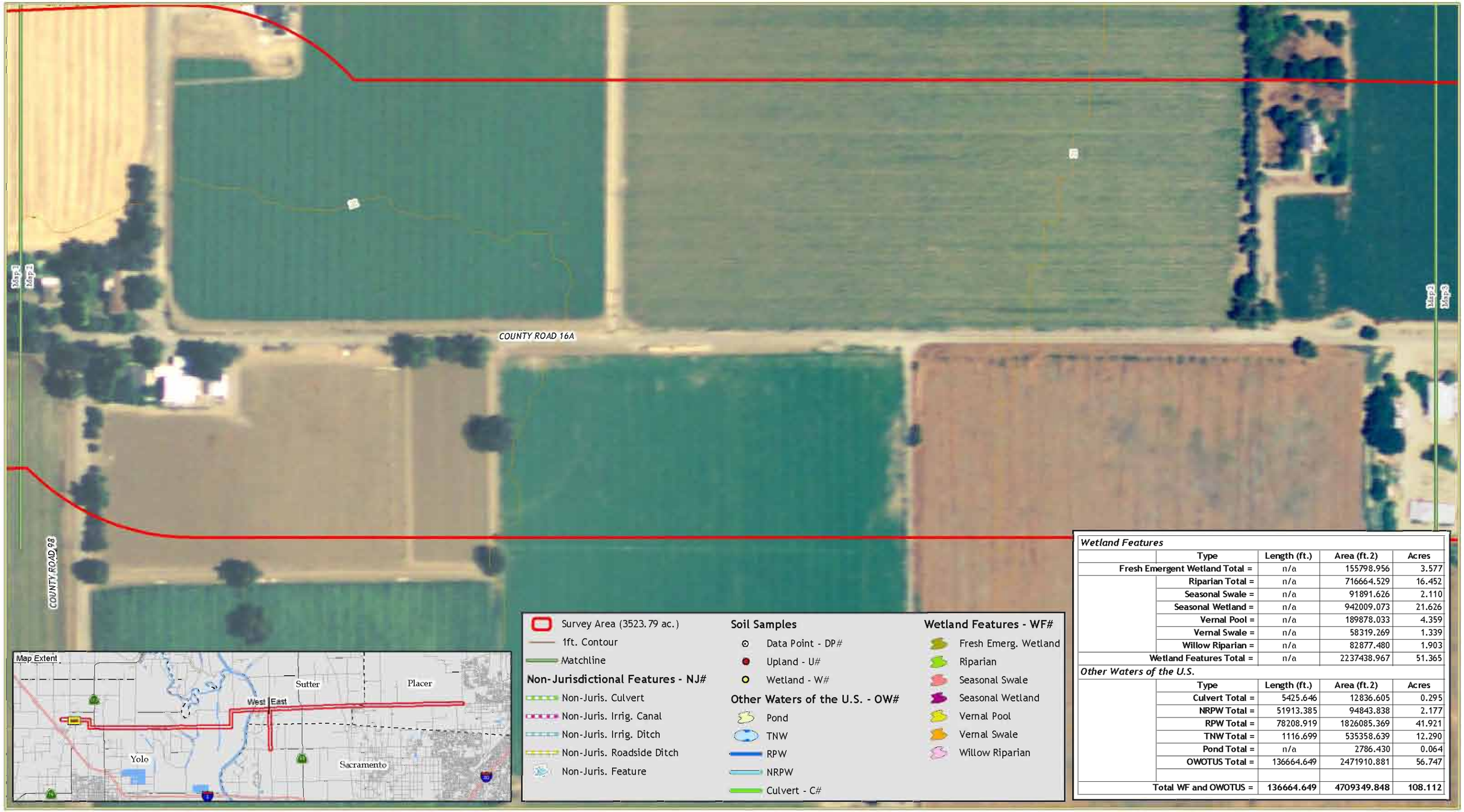
GALLAWAY CONSULTING, INC.



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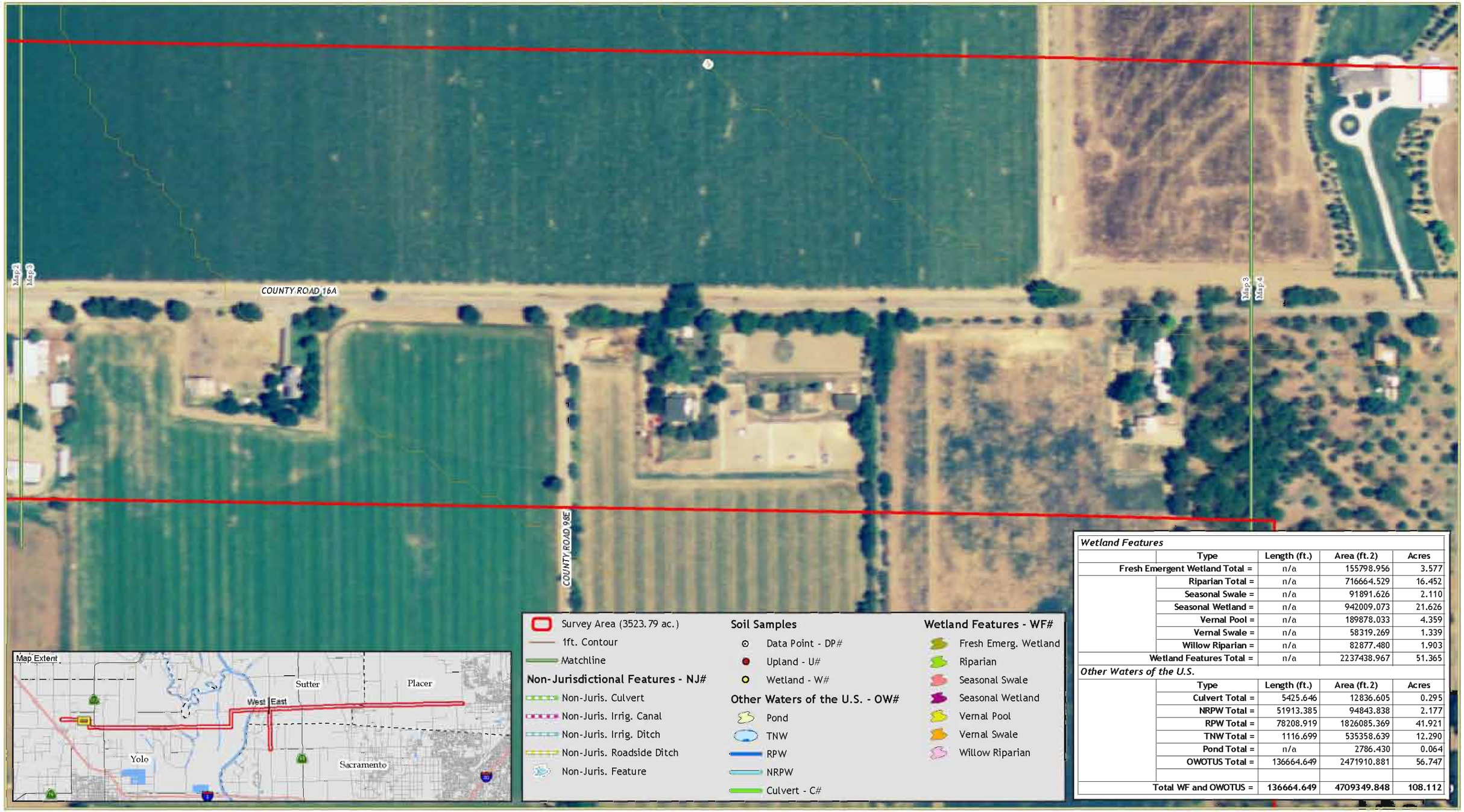

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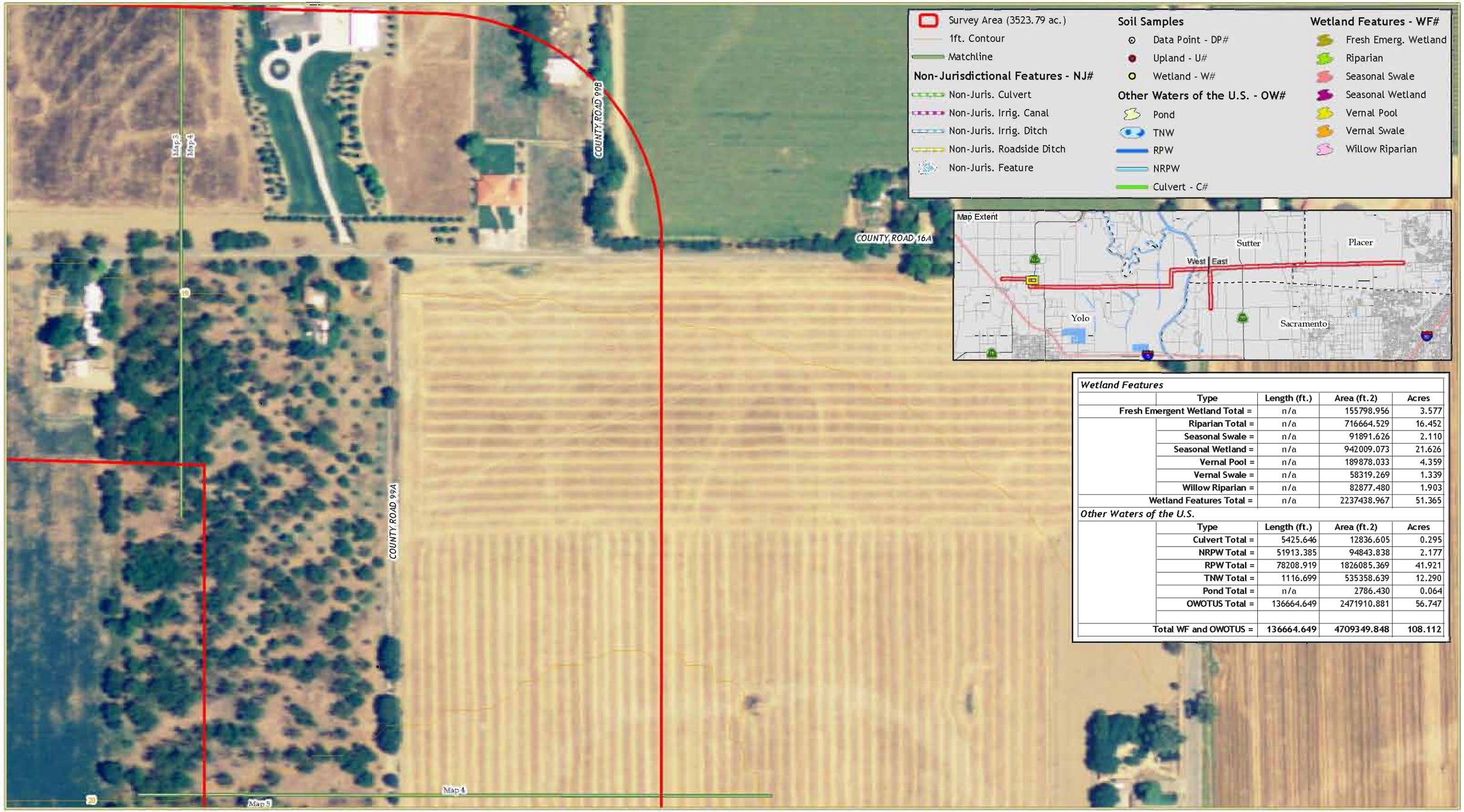

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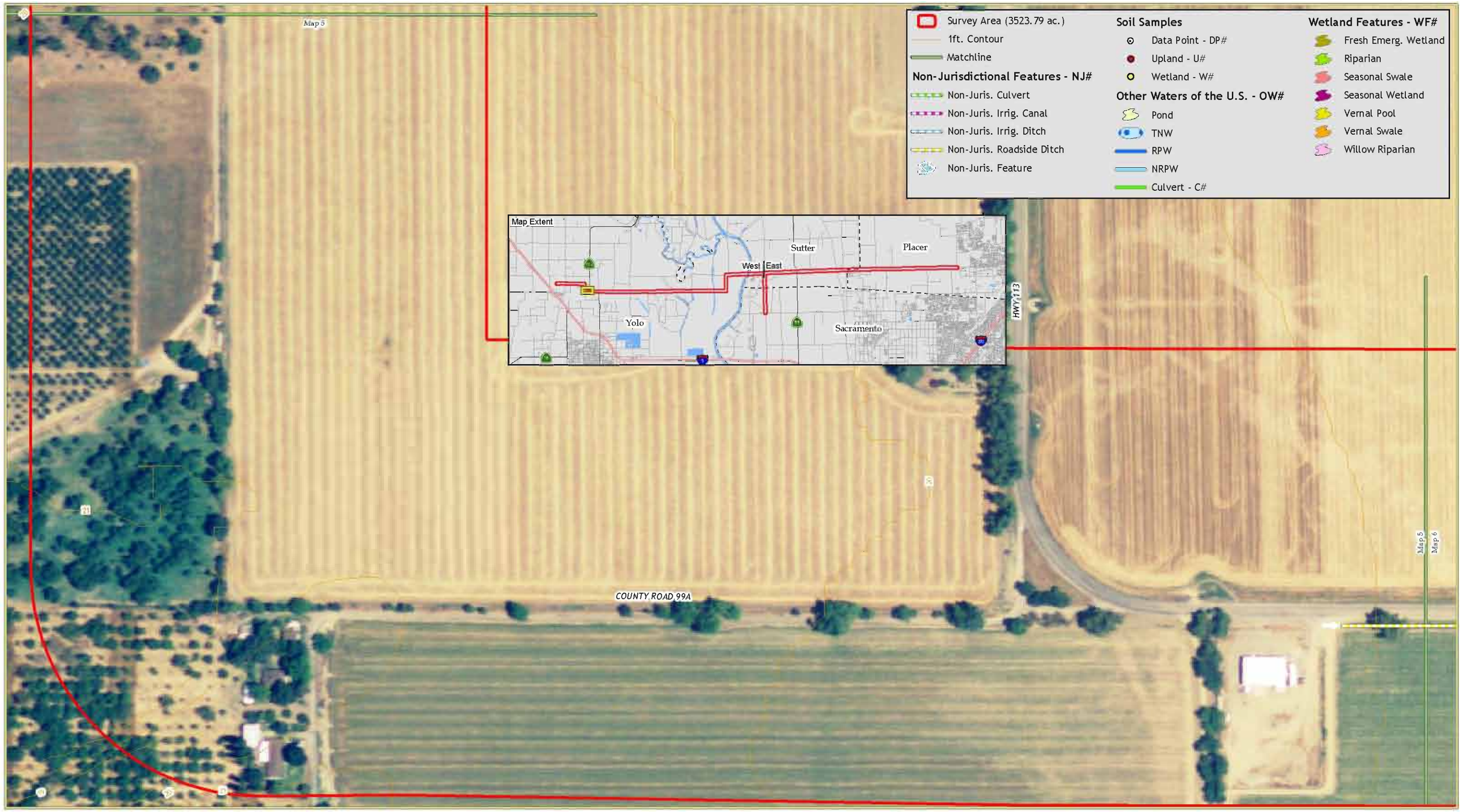

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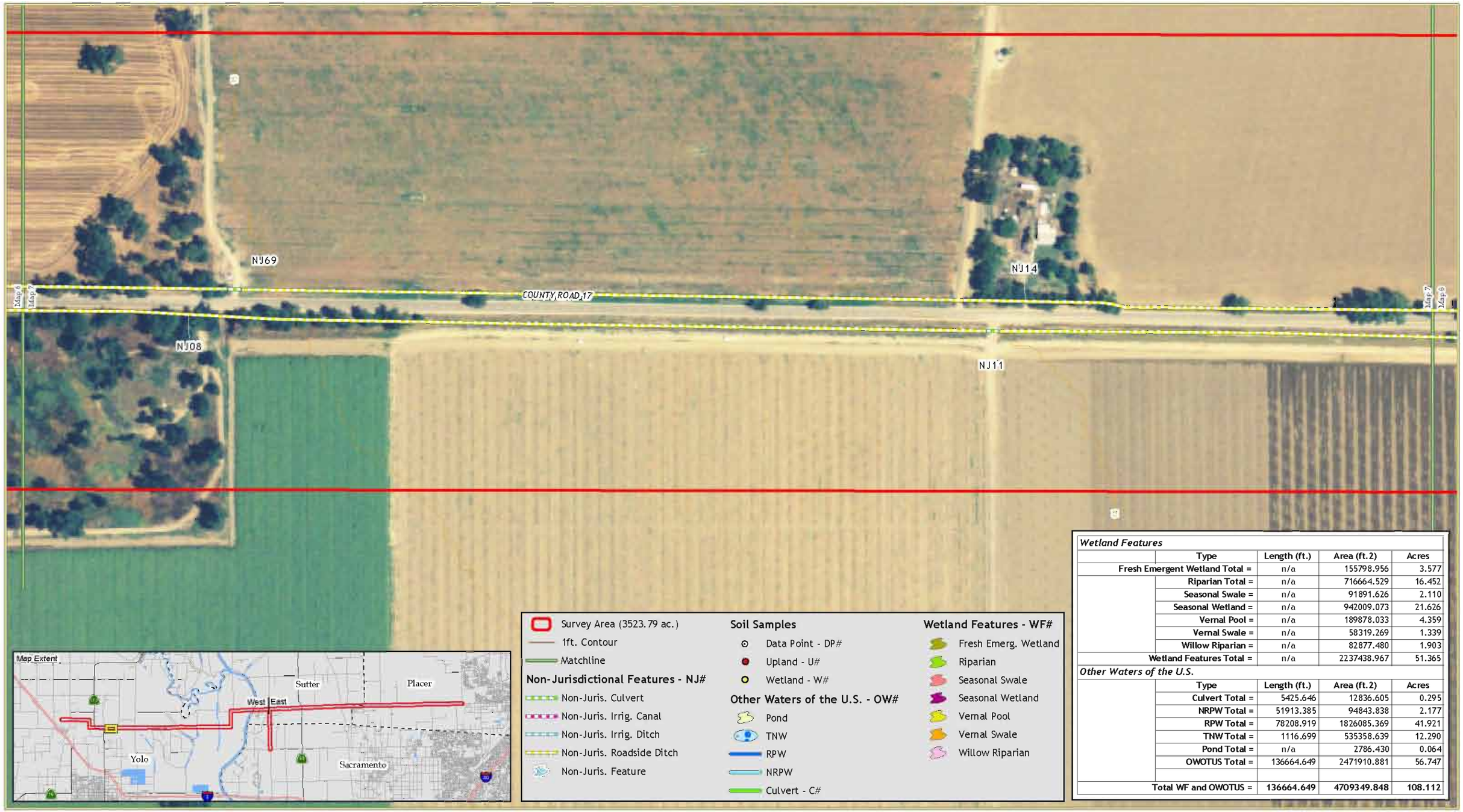

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Total WF and OWOTUS =		136664.649	4709349.848	108.112

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Feet
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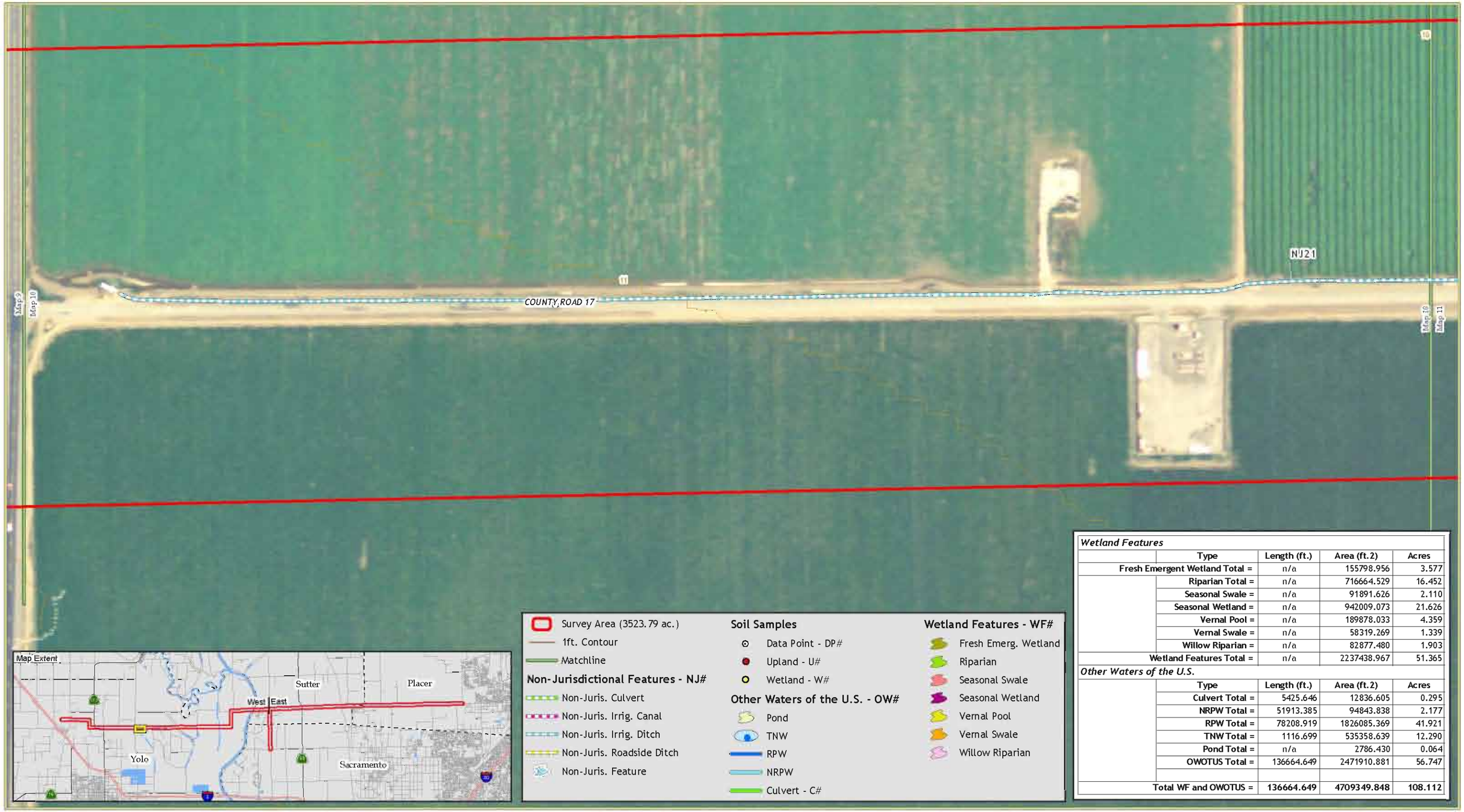

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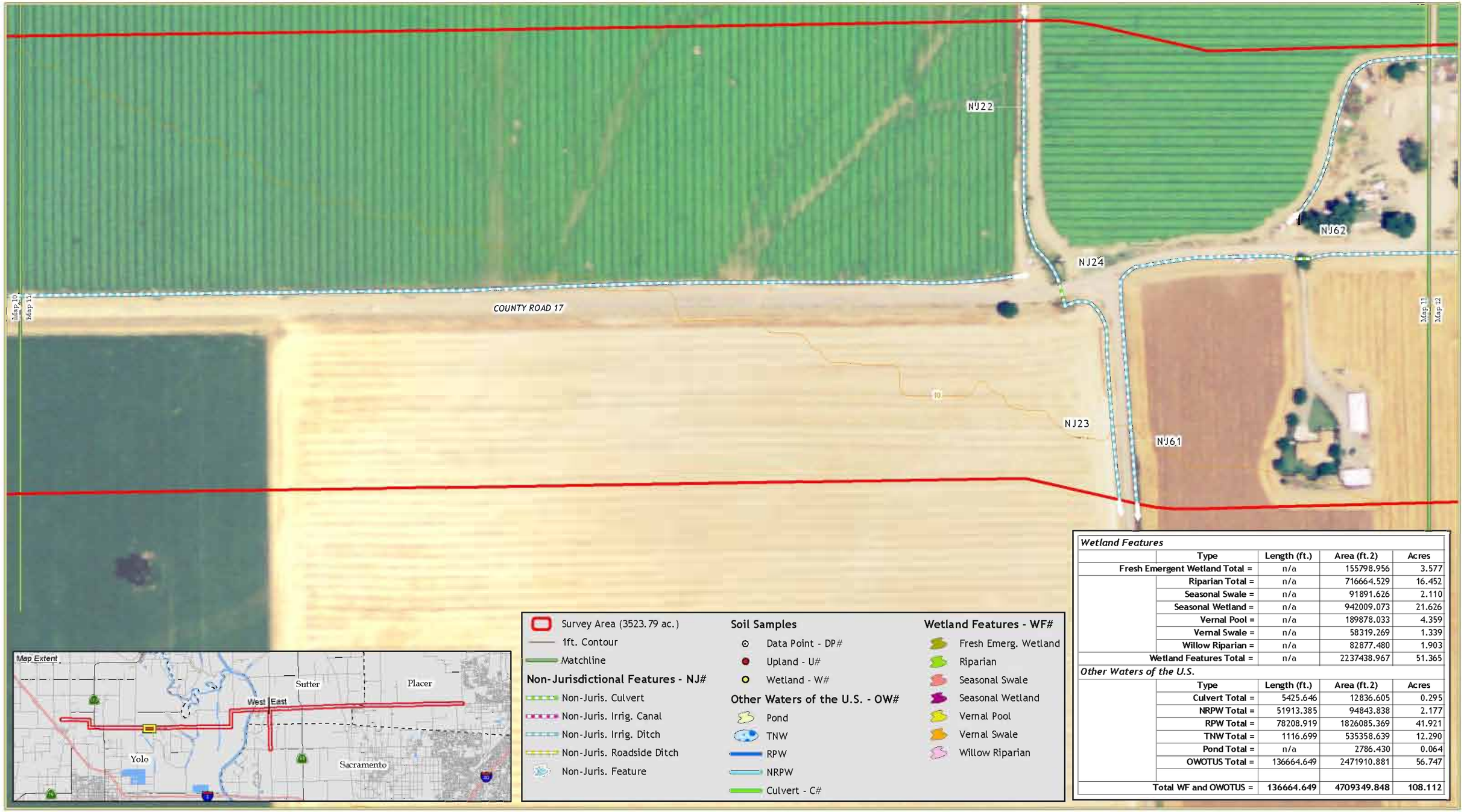

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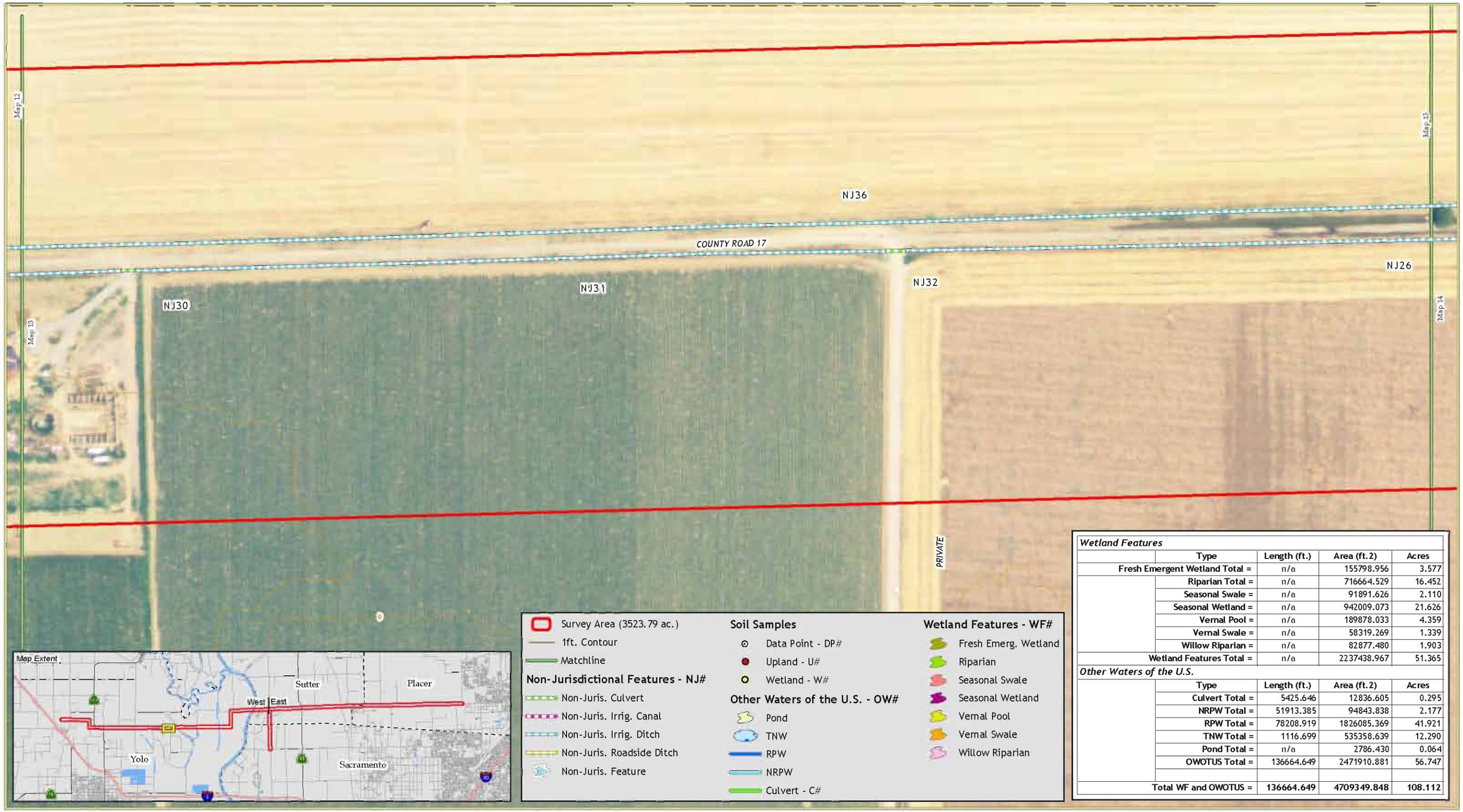

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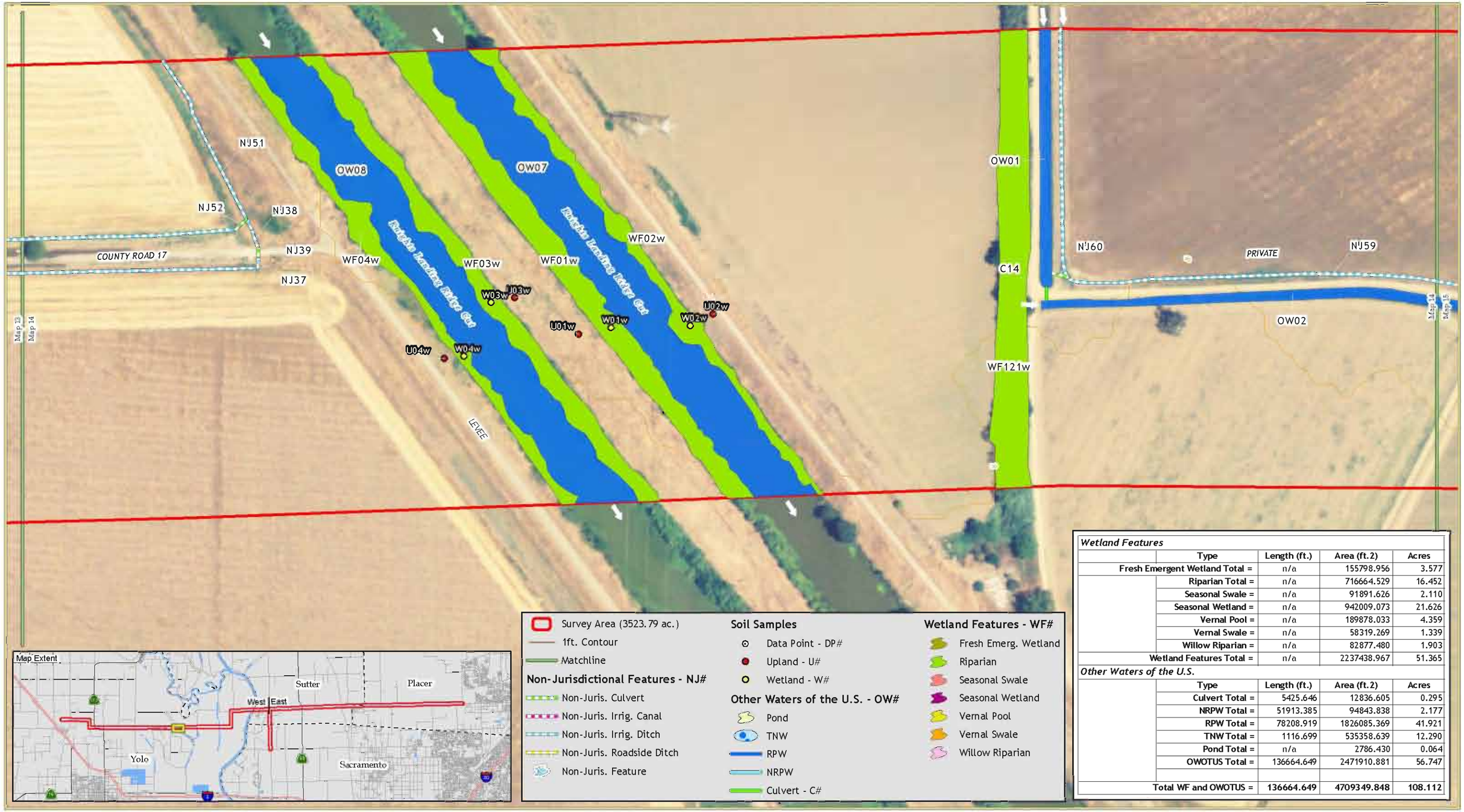

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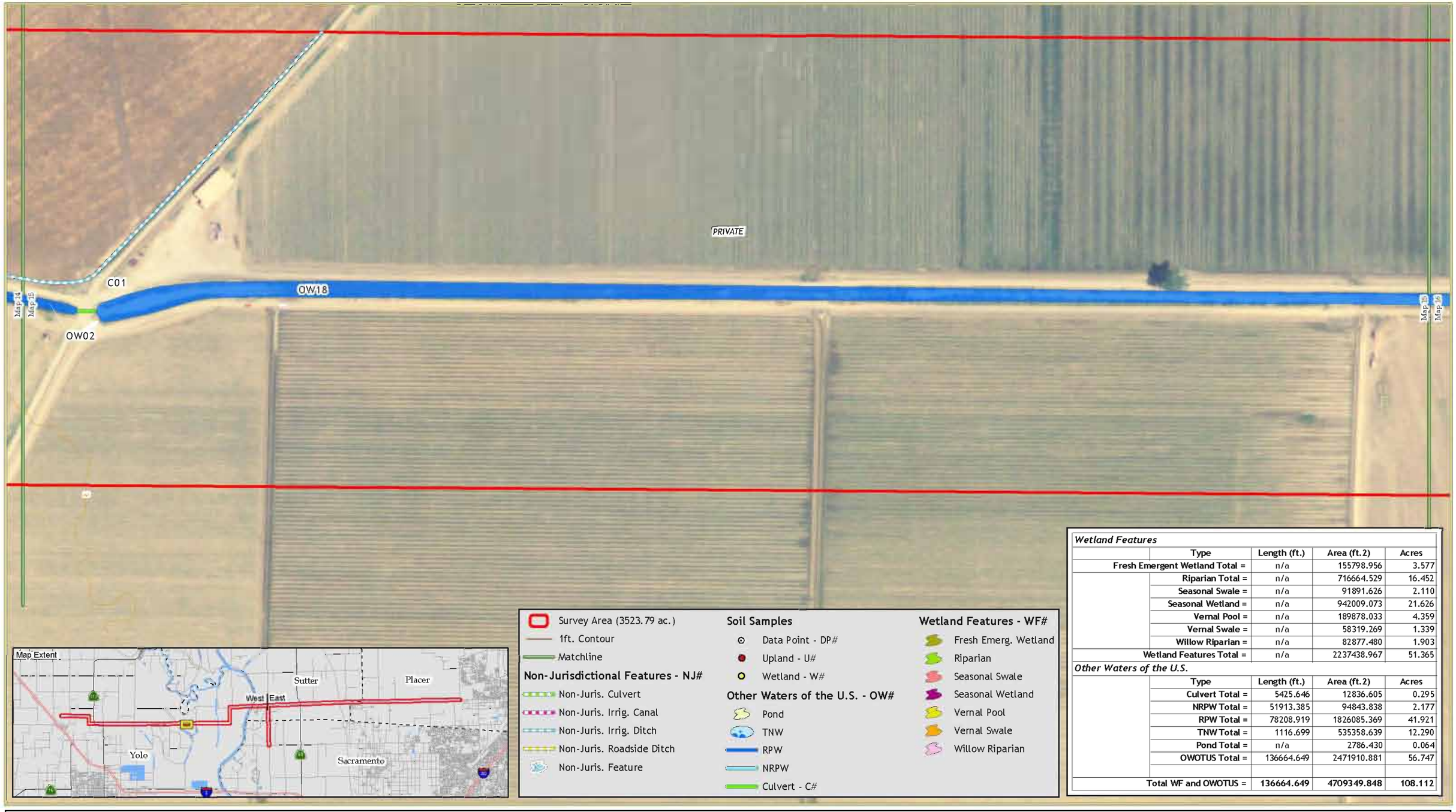

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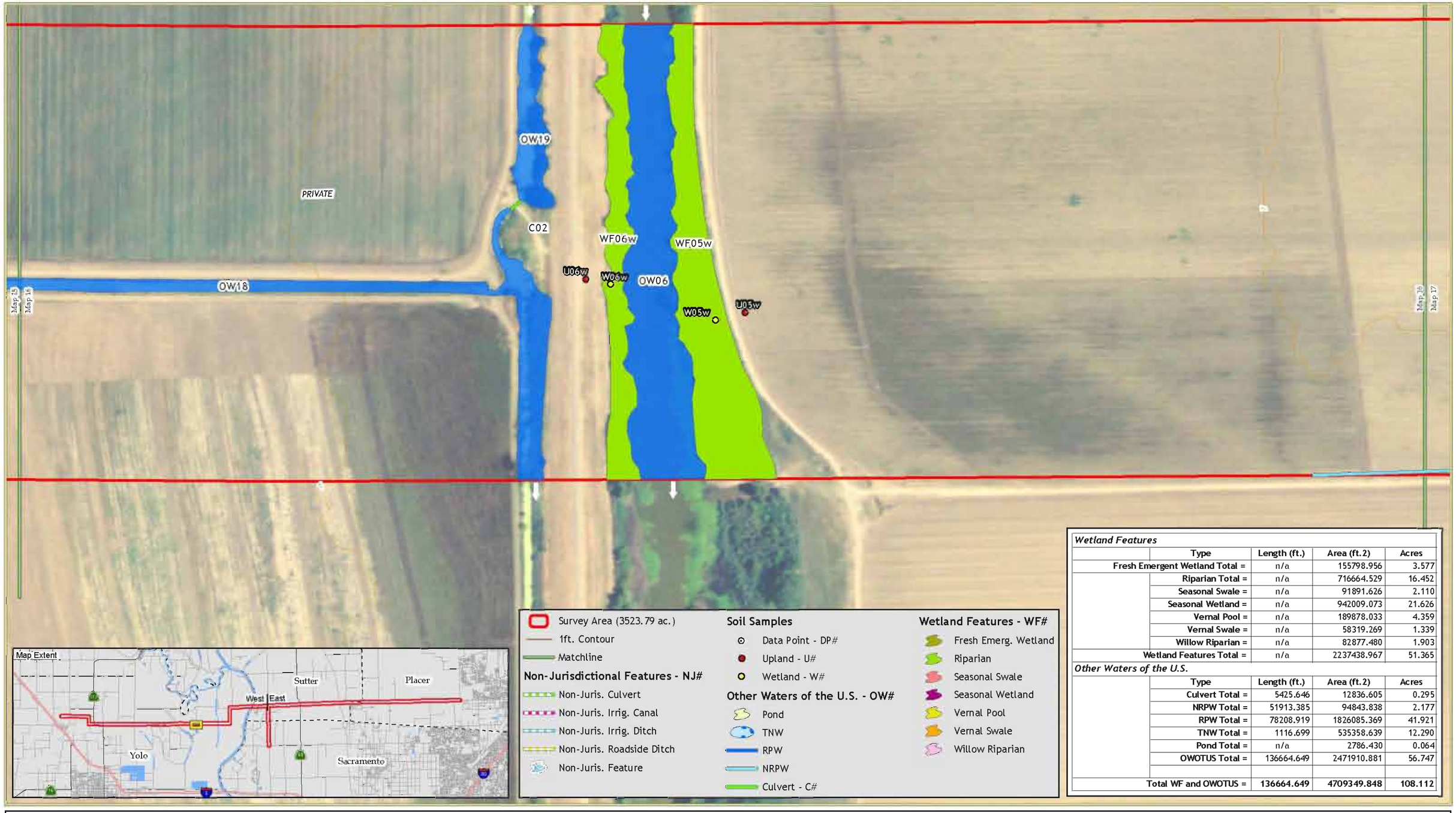

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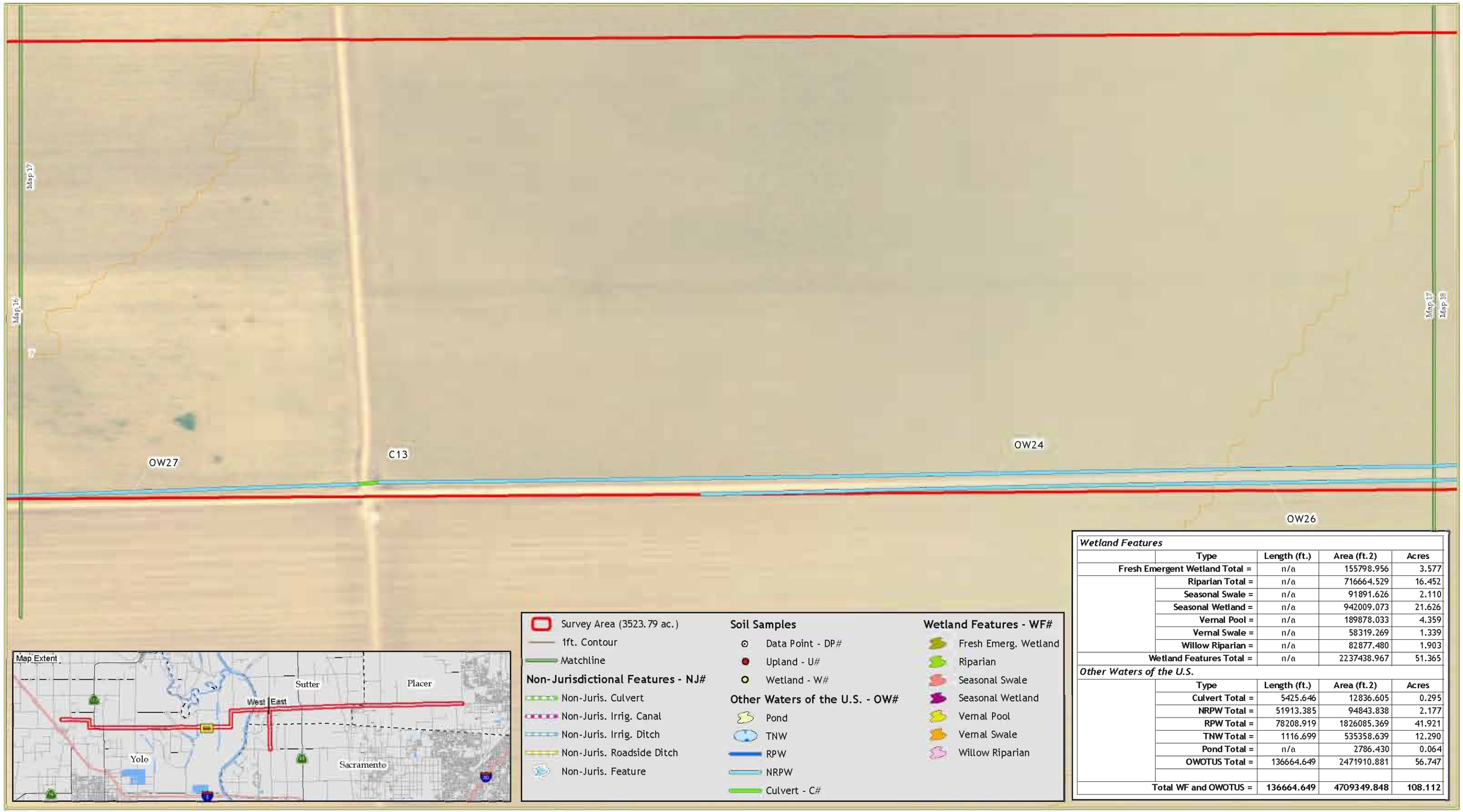

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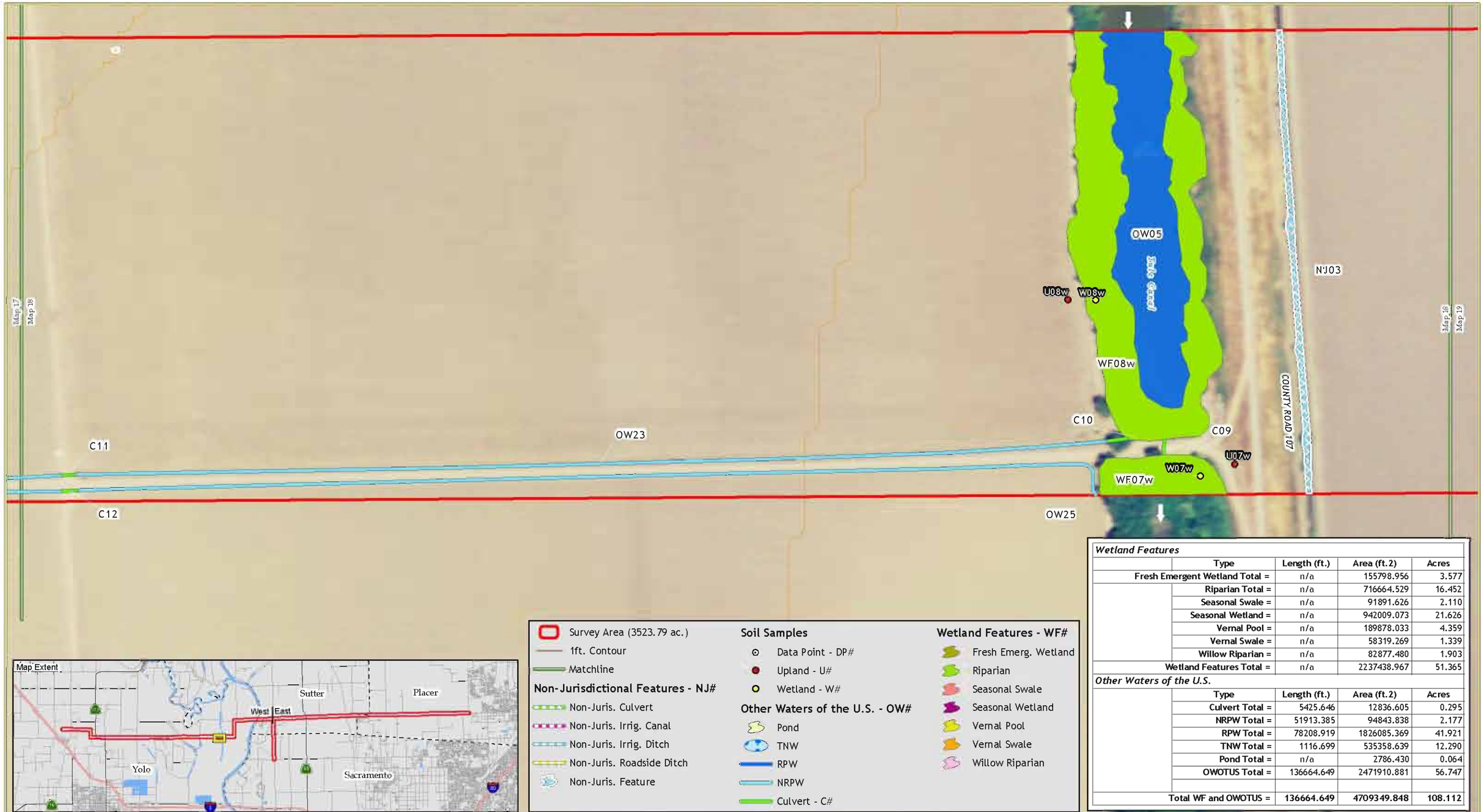

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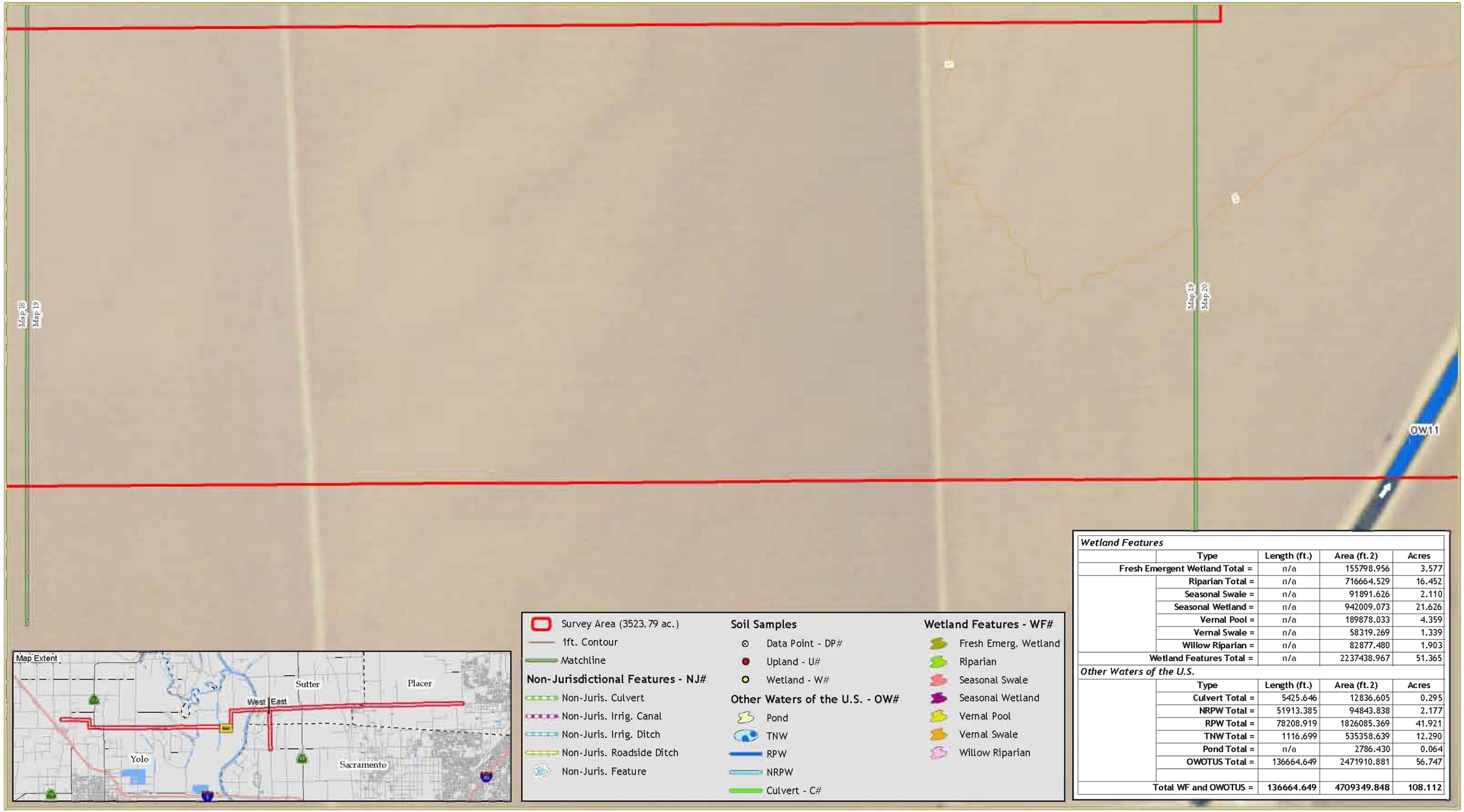

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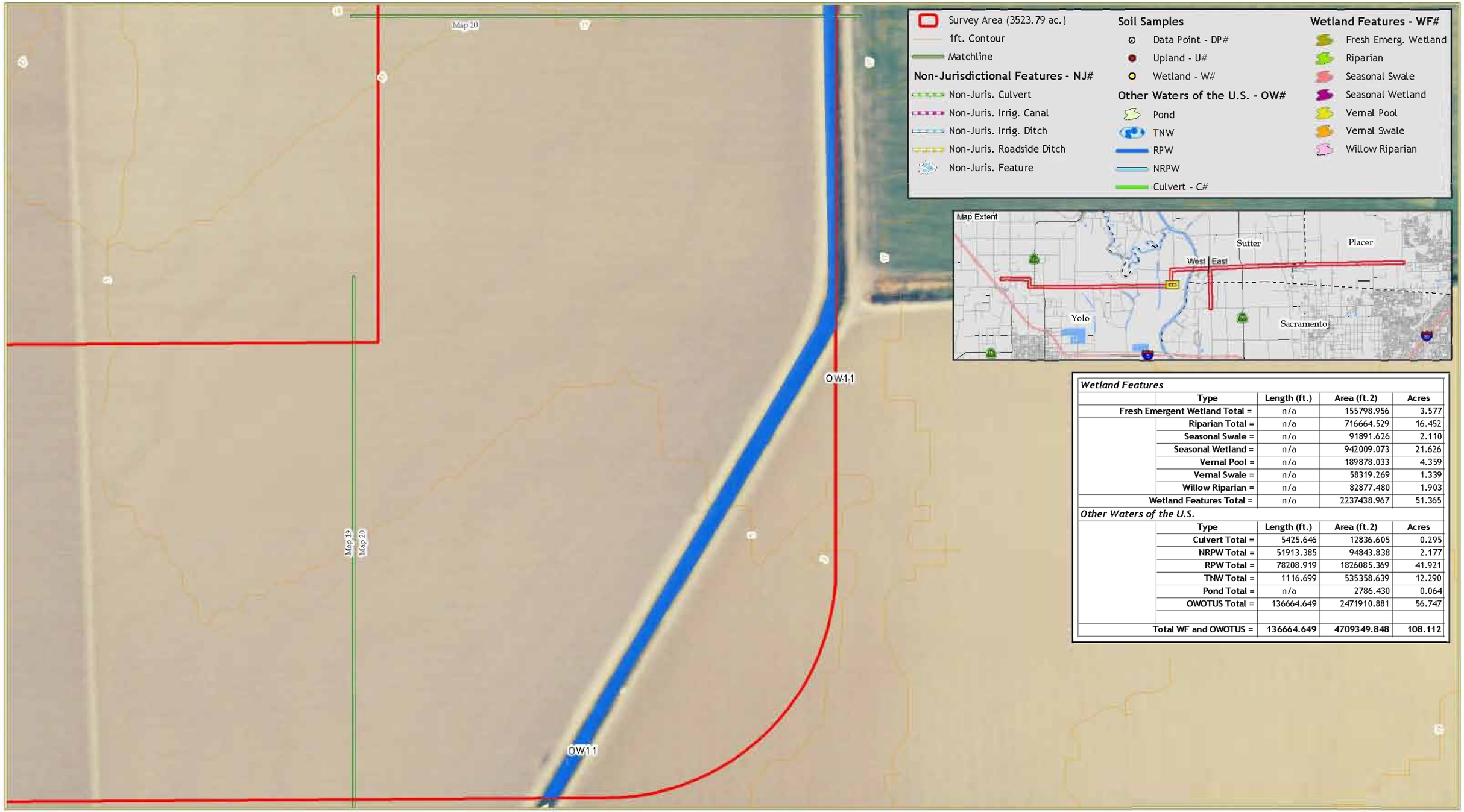

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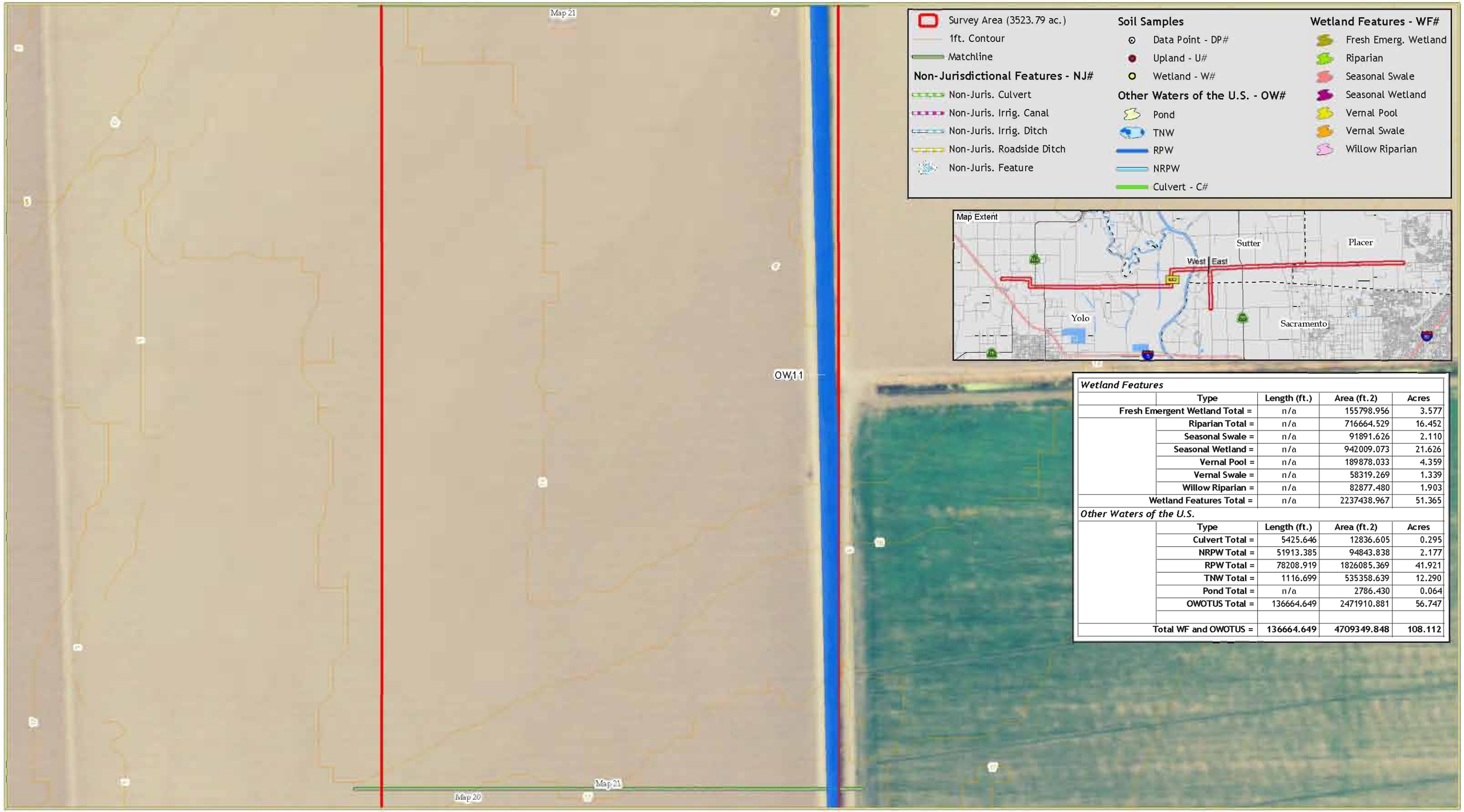

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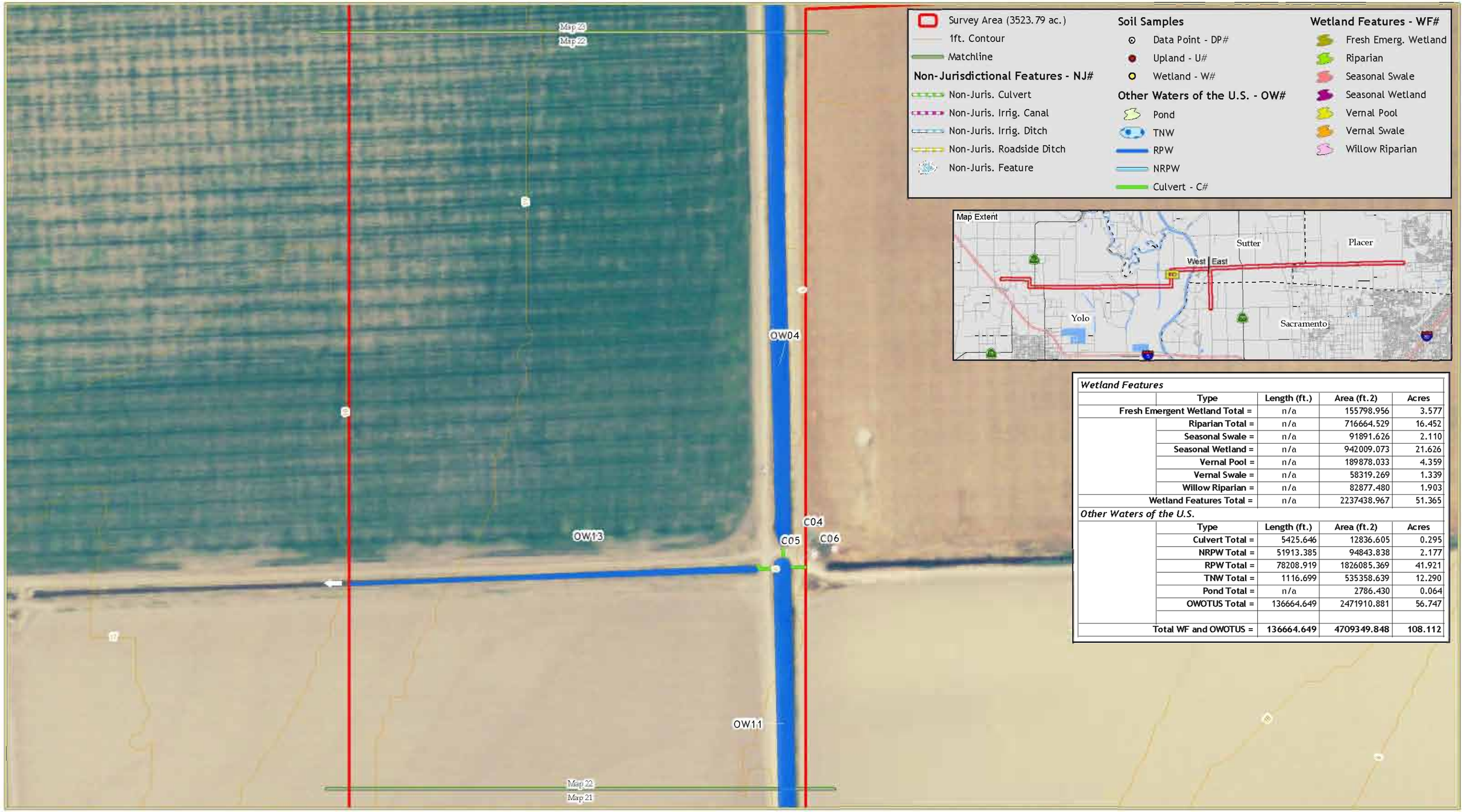

Wetland Features				
	Type	Length (ft.)	Area (ft.2)	Acres
	Fresh Emergent Wetland Total =	n/a	155798.956	3.577
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	Seasonal Swale =	n/a	91891.626	2.110
	Seasonal Wetland =	n/a	942009.073	21.626
	Vernal Pool =	n/a	189878.033	4.359
	Vernal Swale =	n/a	58319.269	1.339
	Willow Riparian =	n/a	82877.480	1.903
	Wetland Features Total =	n/a	2237438.967	51.365
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	Type	Length (ft.)	Area (ft.2)	Acres
	Culvert Total =	5425.646	12836.605	0.295
	NRPW Total =	51913.385	94843.838	2.177
	RPW Total =	78208.919	1826085.369	41.921
	TNW Total =	1116.699	535358.639	12.290
	Pond Total =	n/a	2786.430	0.064
	OWOTUS Total =	136664.649	2471910.881	56.747
	Total WF and OWOTUS =	136664.649	4709349.848	108.112

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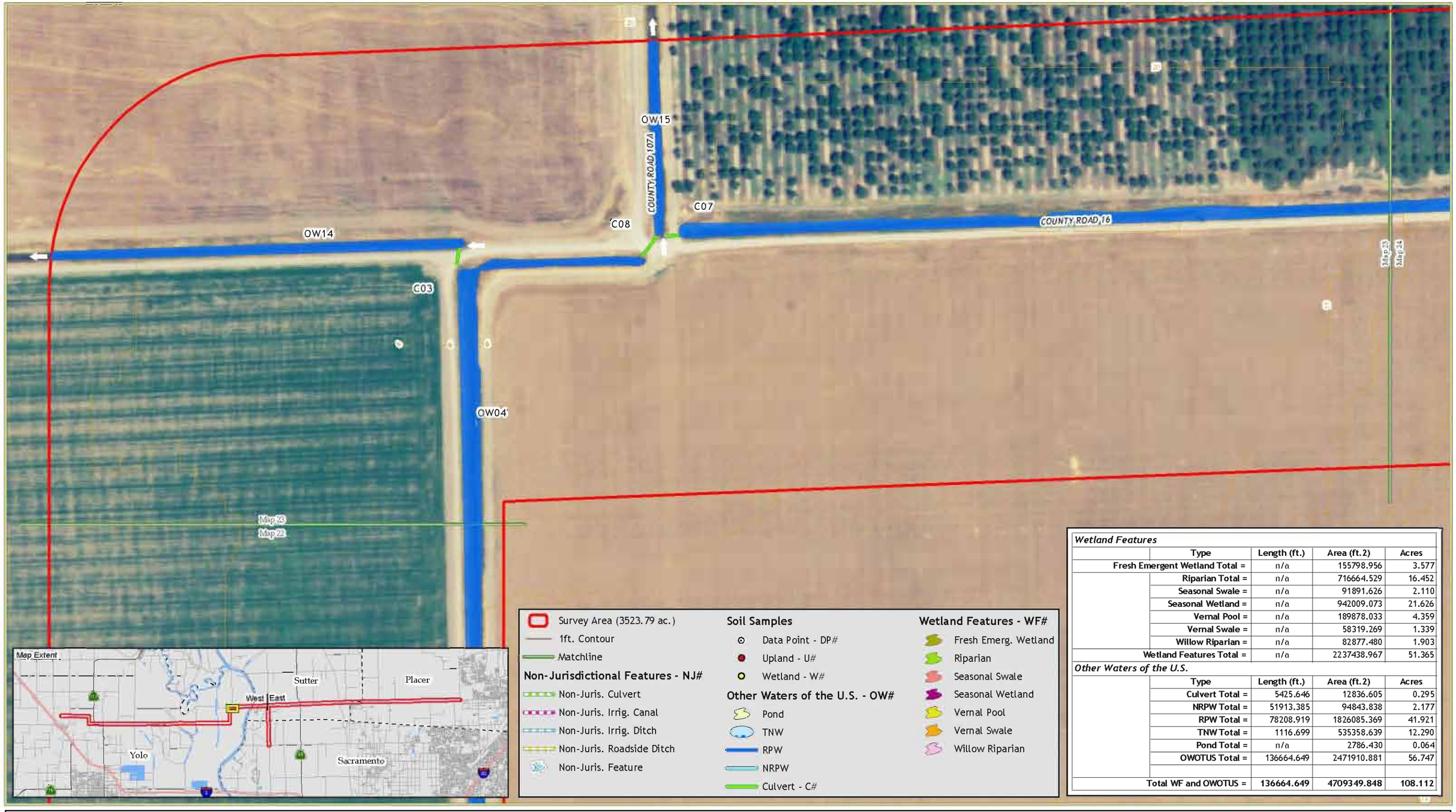

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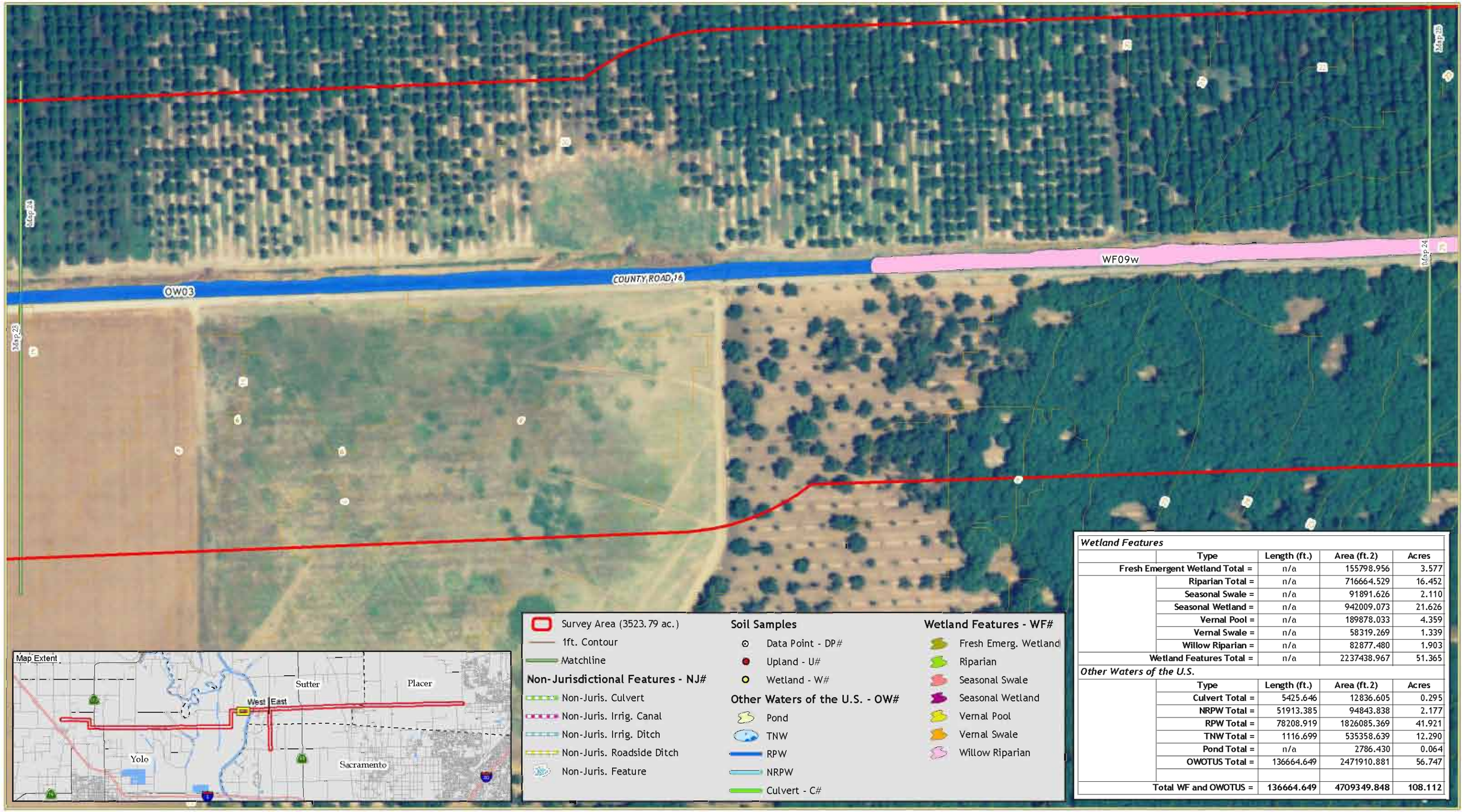

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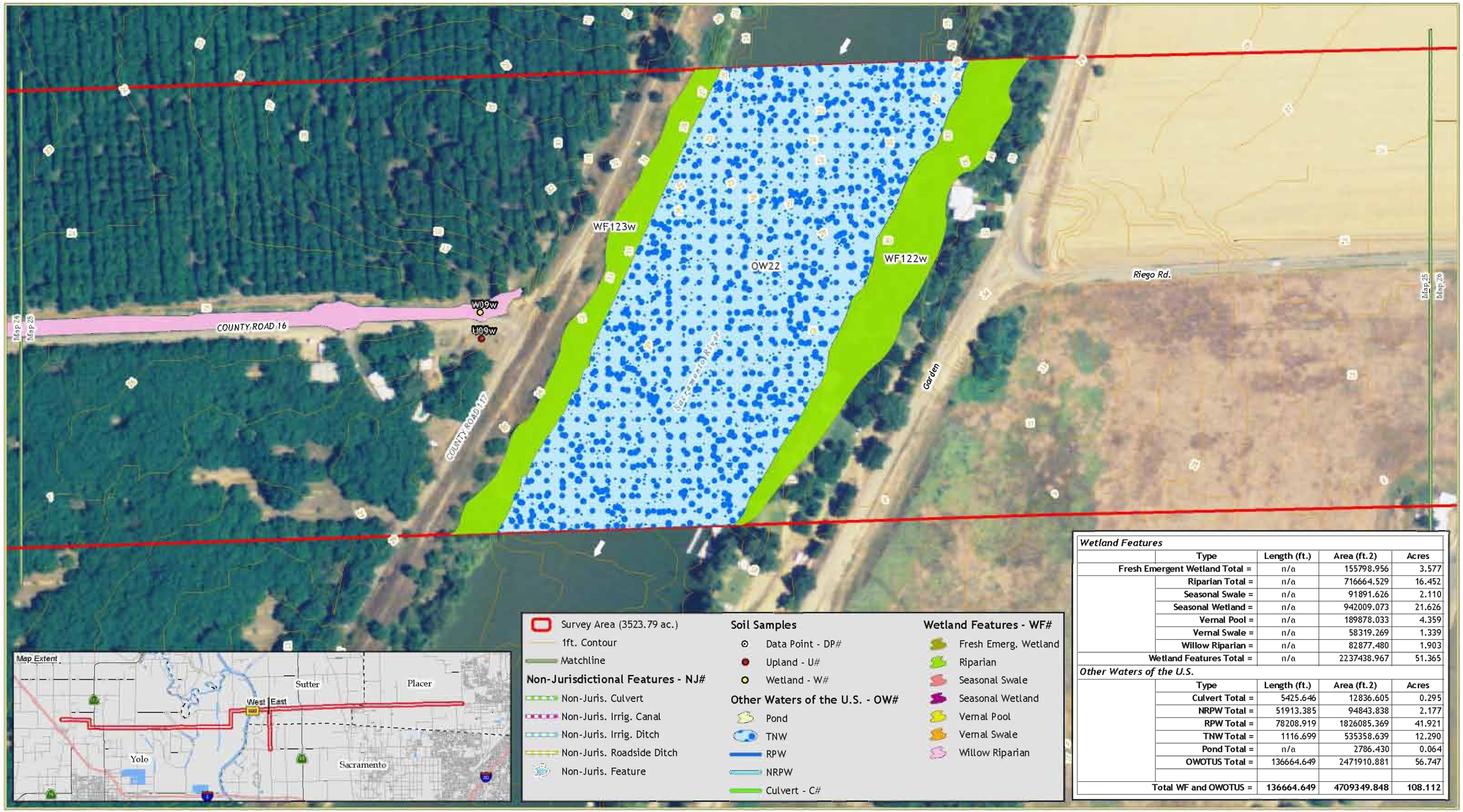

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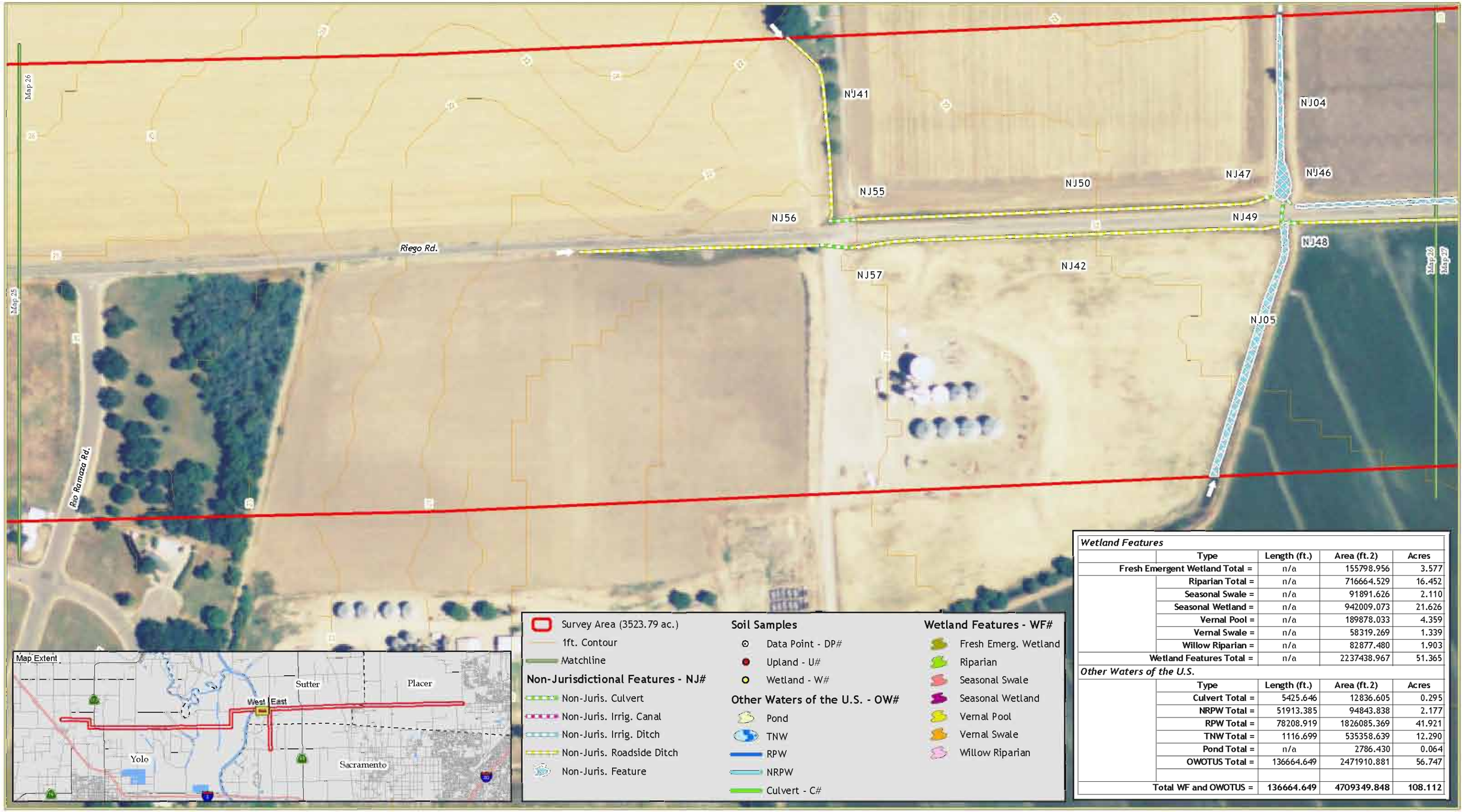

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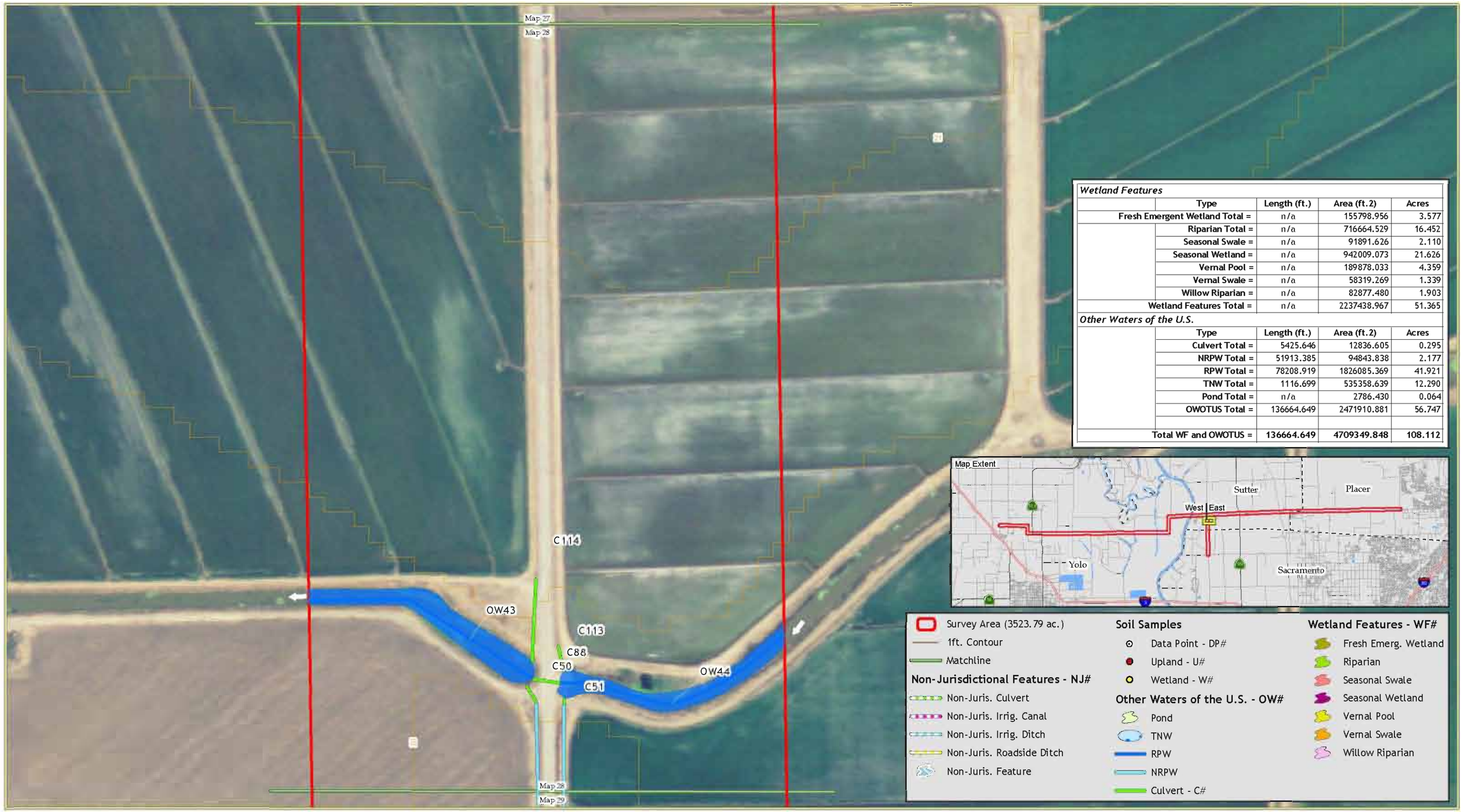

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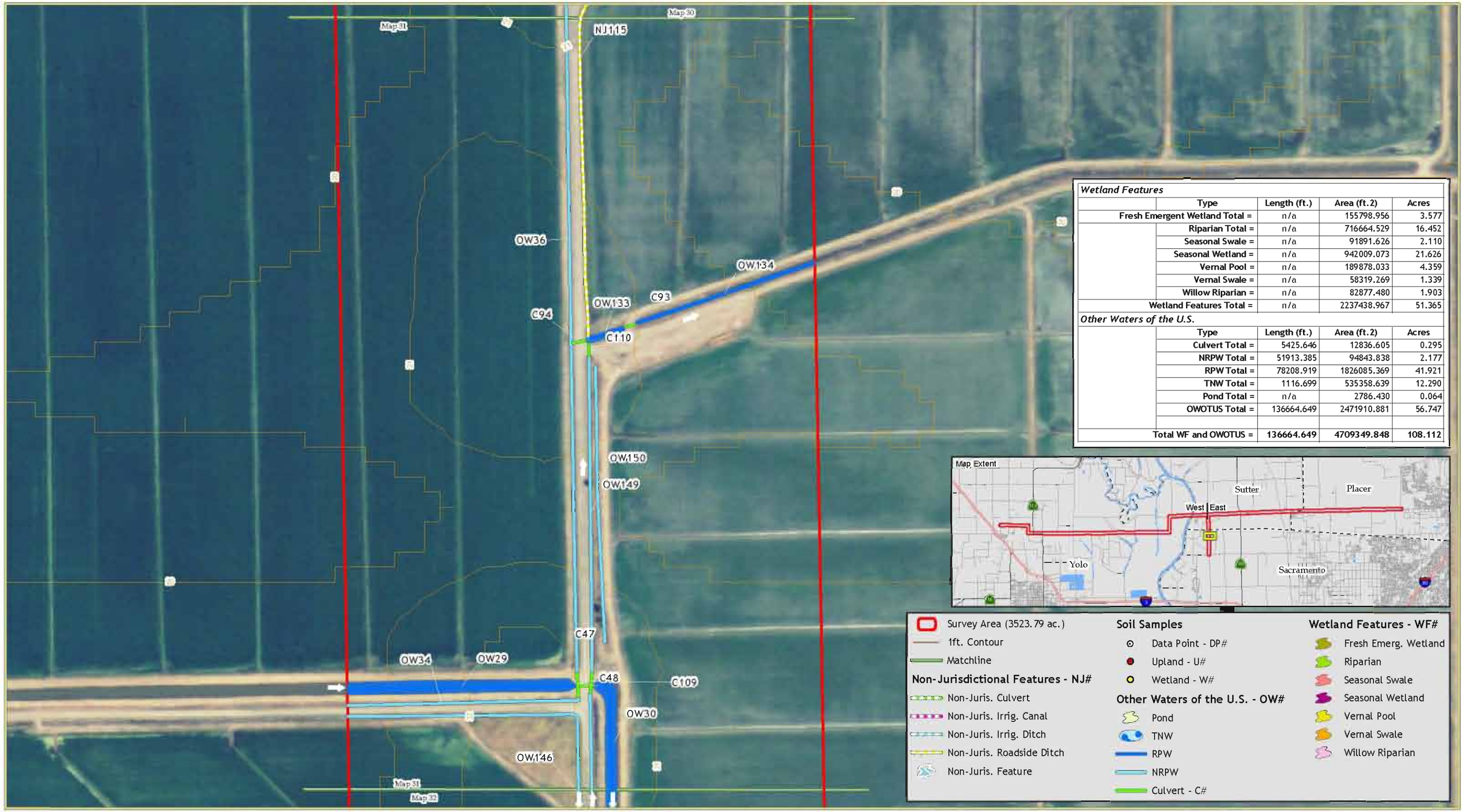

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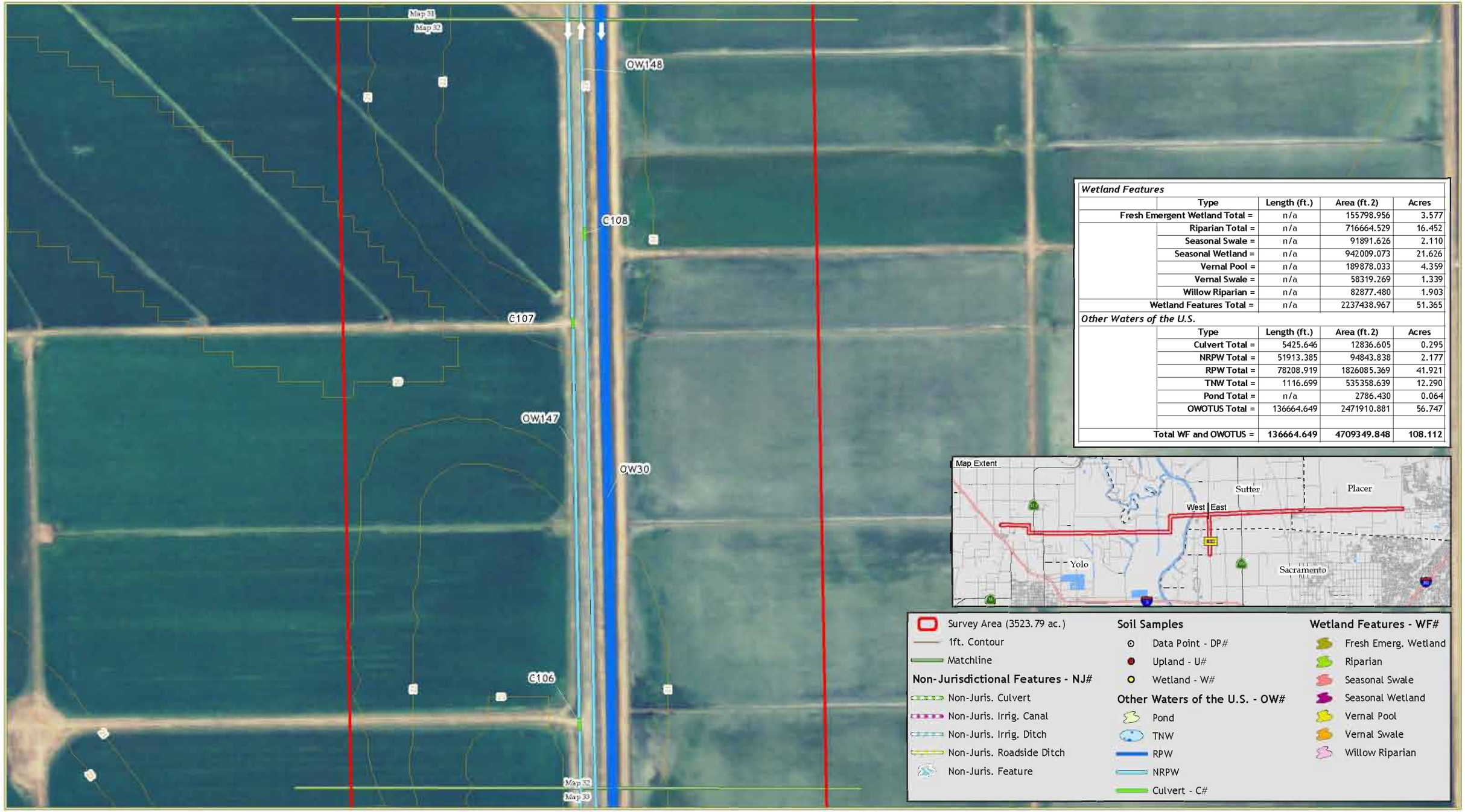

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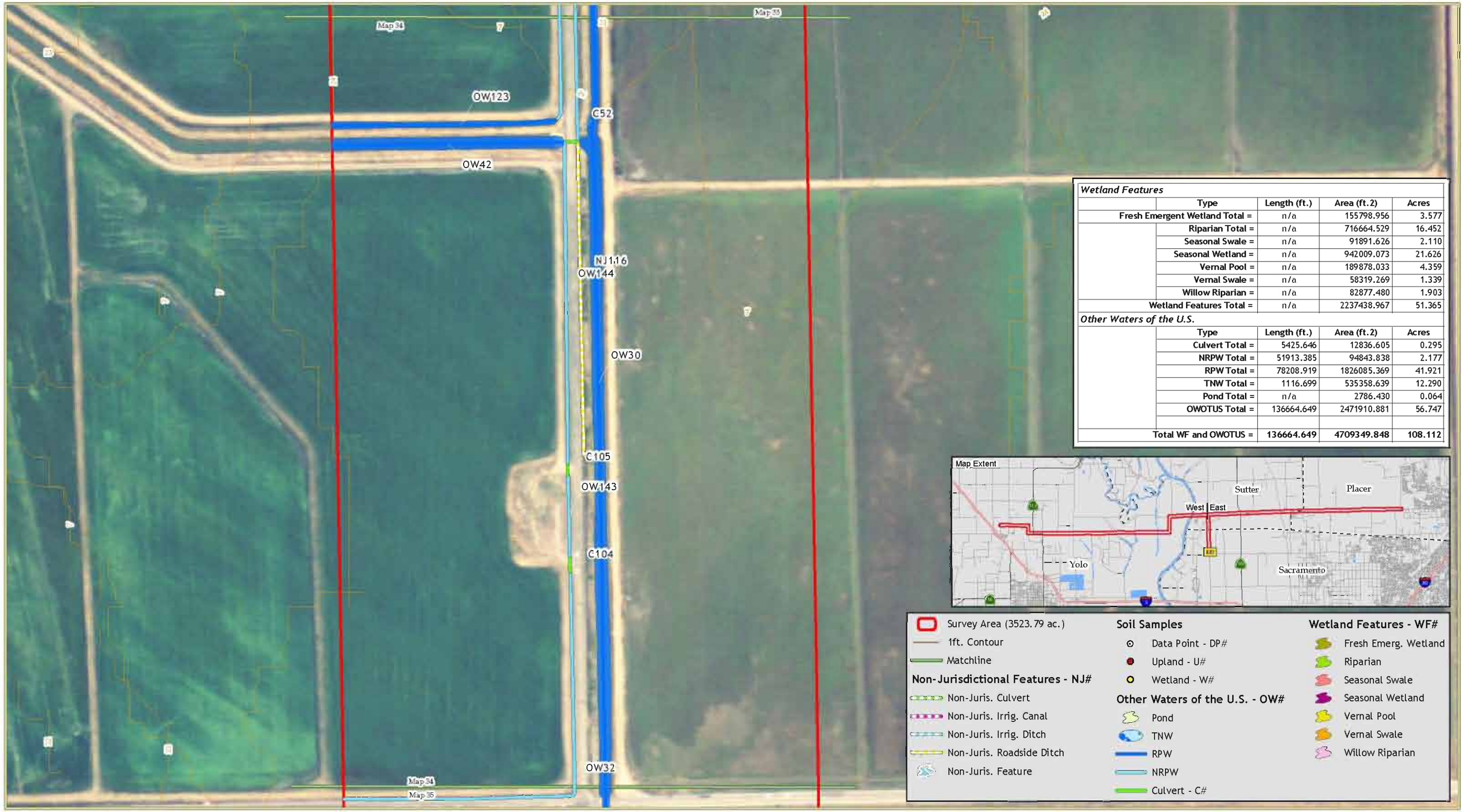

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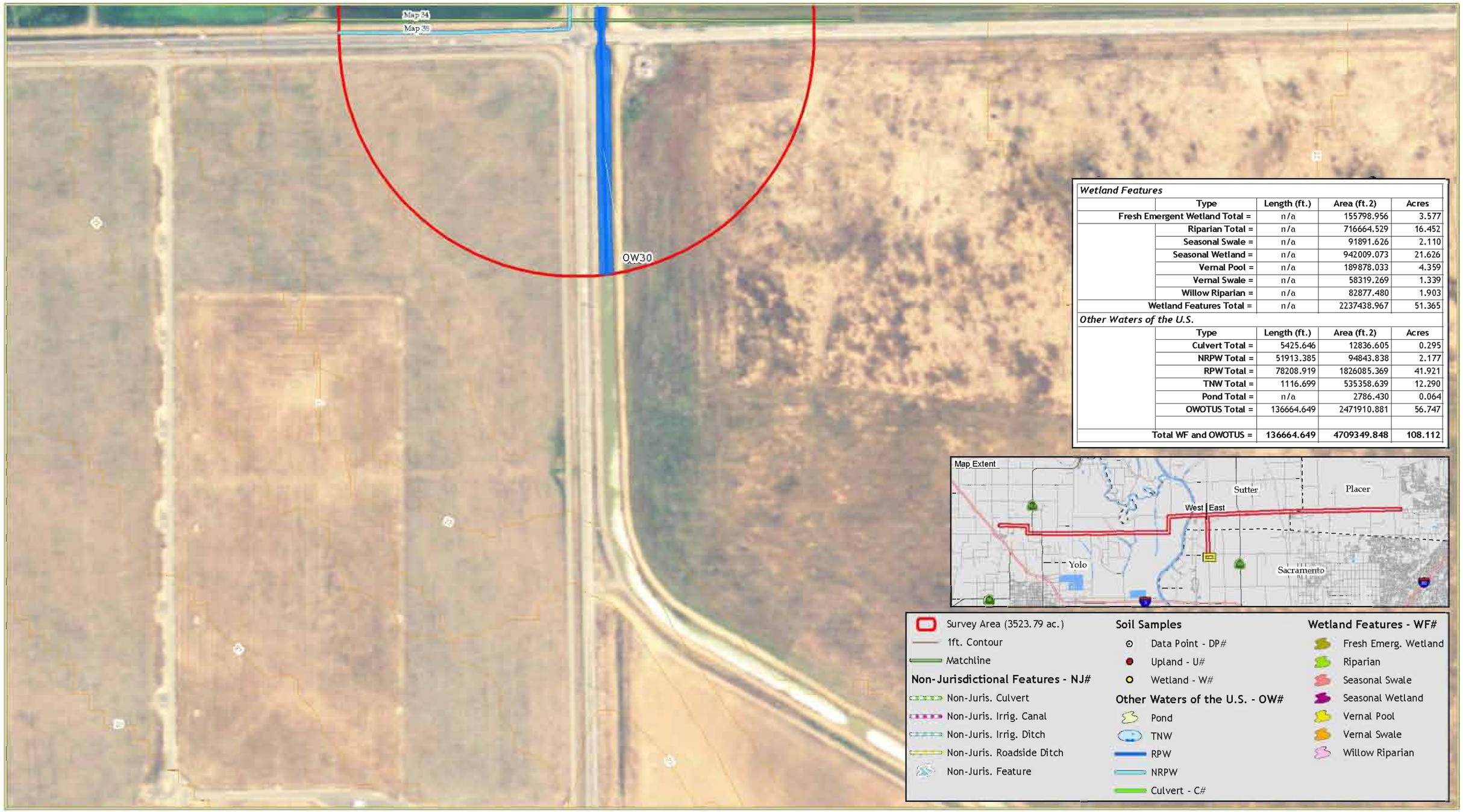

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	OWOTUS Total =	136664.649	2471910.881	56.747
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Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007 Revised: August 21, 2007

Feet
0 100 200

GALLAWAY CONSULTING, INC.

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	Type	Length (ft.)	Area (ft.2)	Acres
Fresh Emergent Wetland Total =		n/a	155798.956	3.577
	Riparian Total =	n/a	716664.529	16.452
	Seasonal Swale =	n/a	91891.626	2.110
	Seasonal Wetland =	n/a	942009.073	21.626
	Vernal Pool =	n/a	189878.033	4.359
	Vernal Swale =	n/a	58319.269	1.339
	Willow Riparian =	n/a	82877.480	1.903
Wetland Features Total =		n/a	2237438.967	51.365
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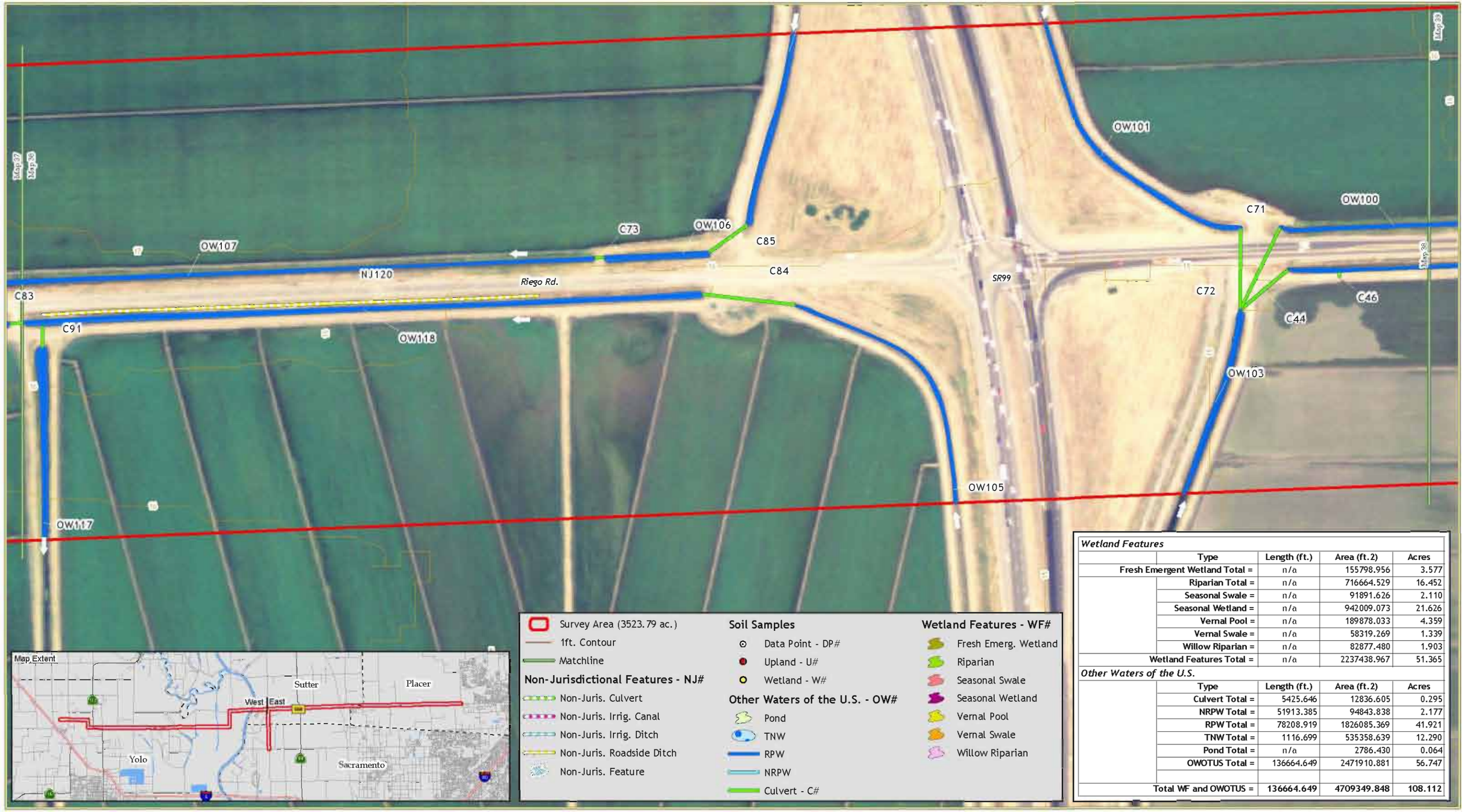

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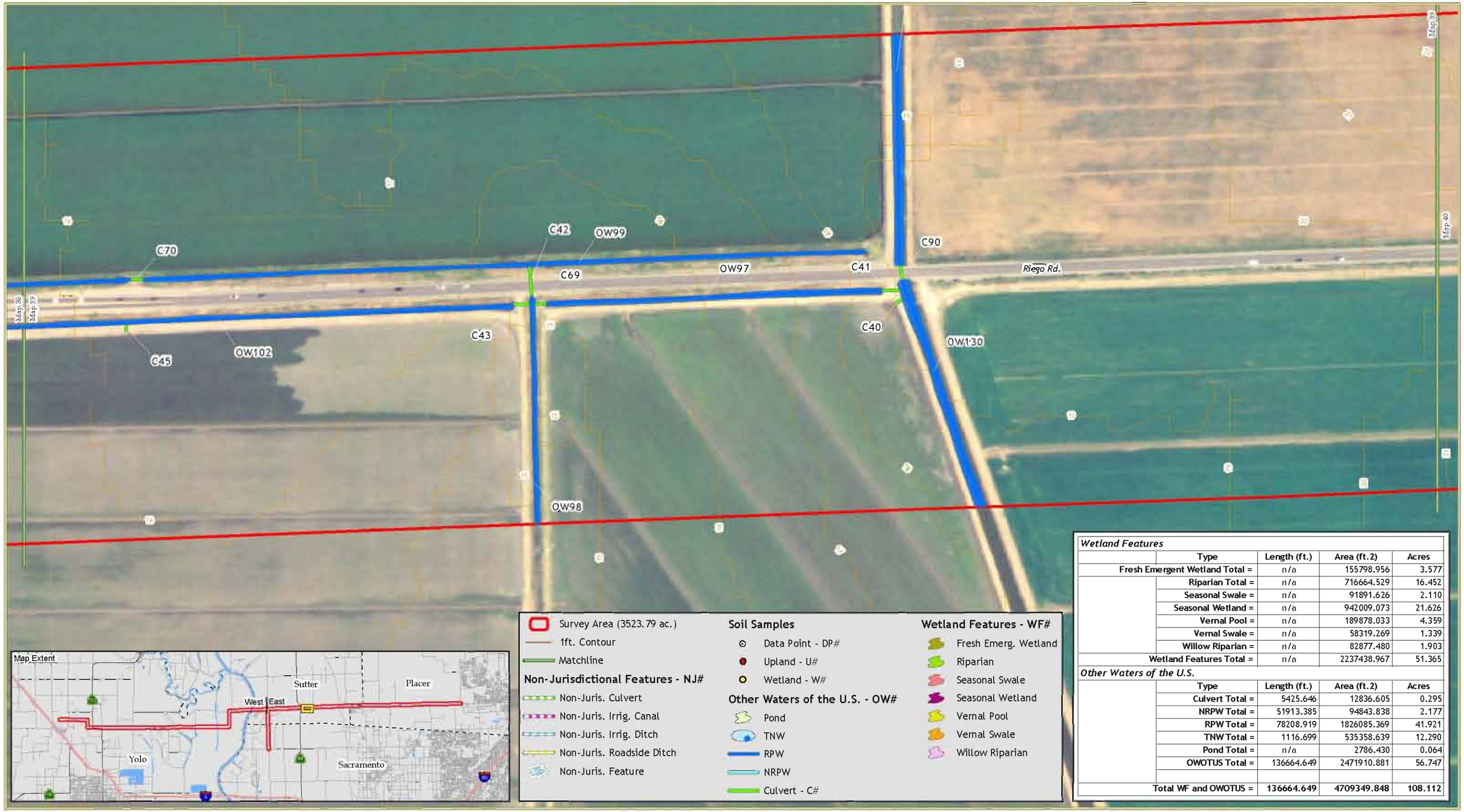

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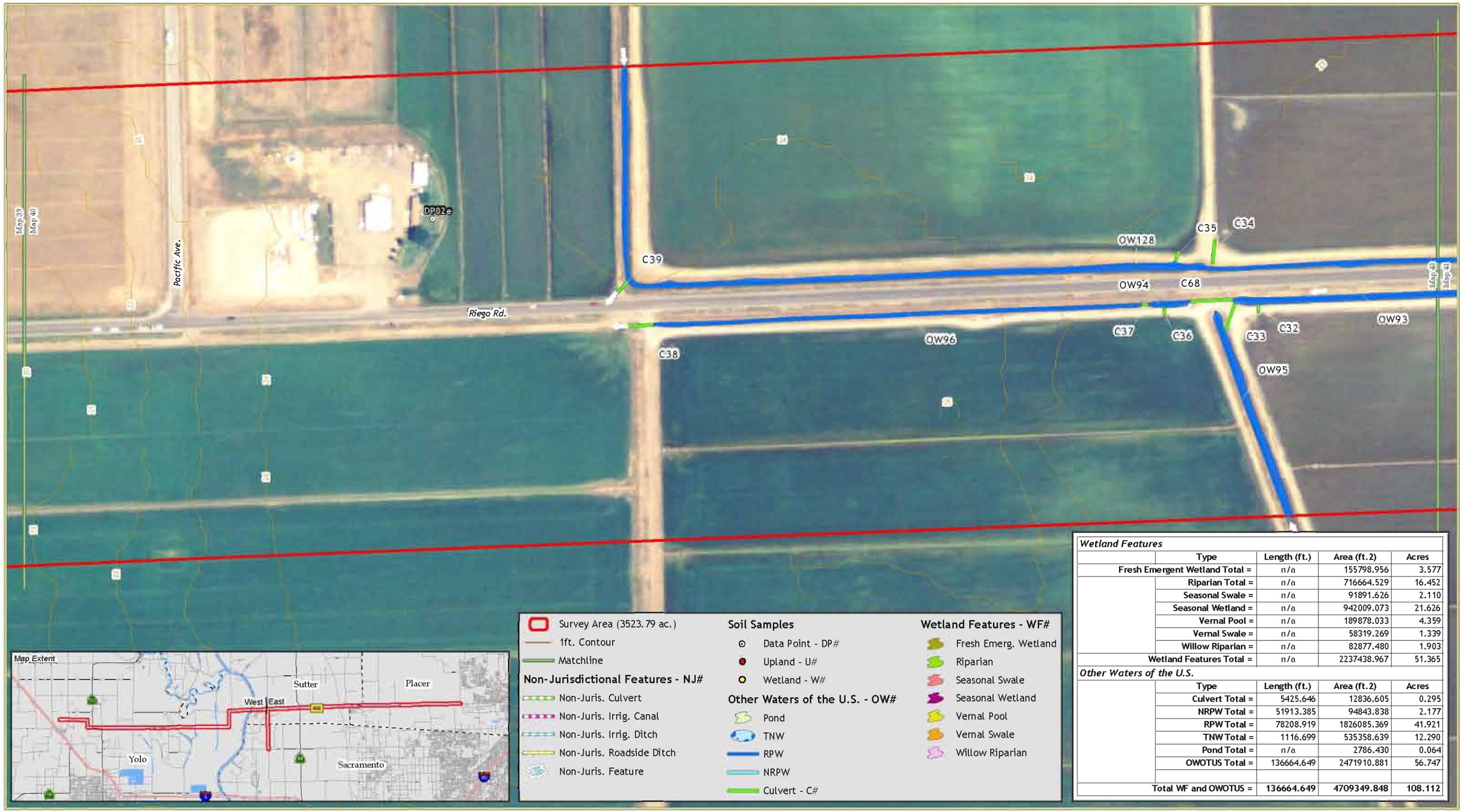

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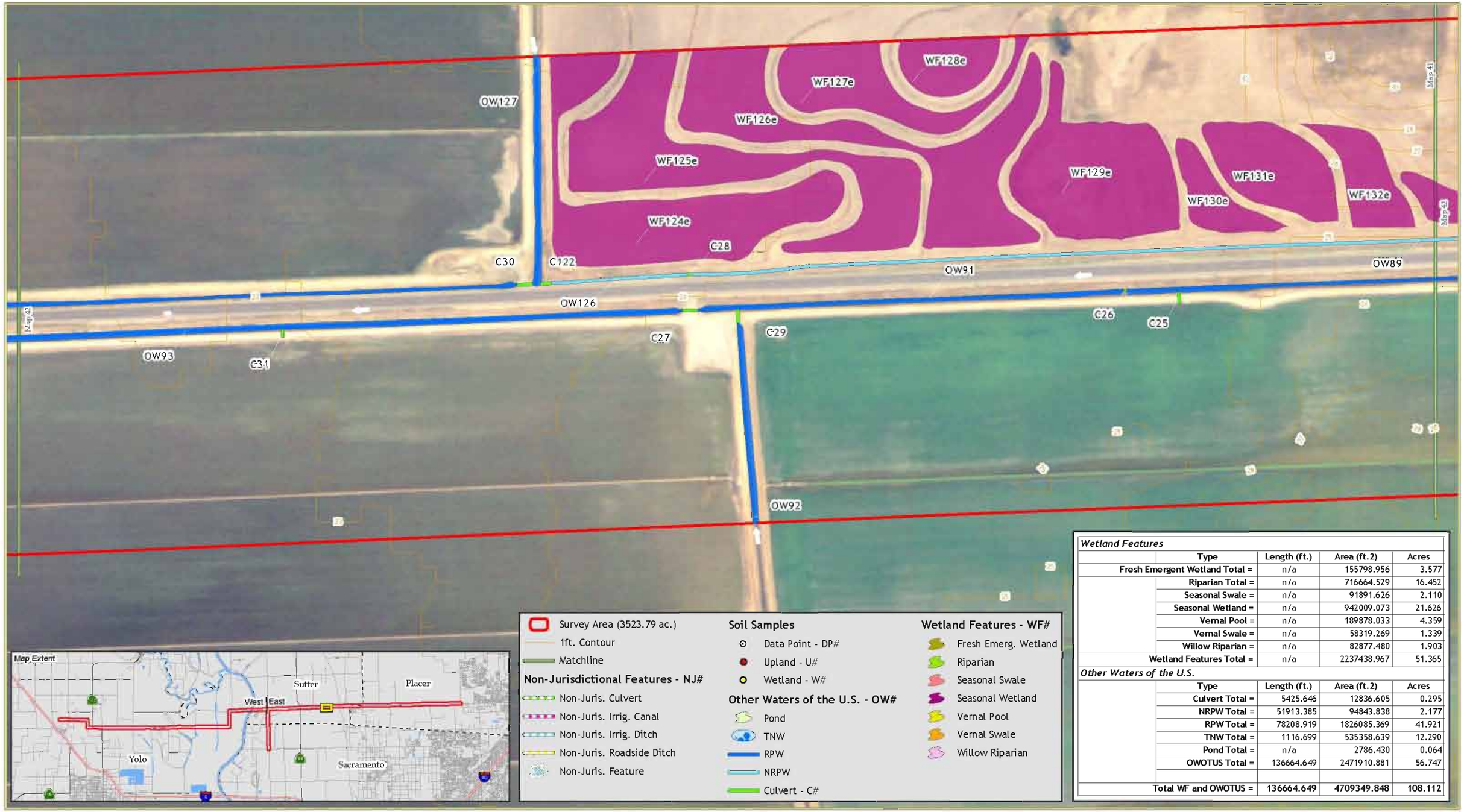

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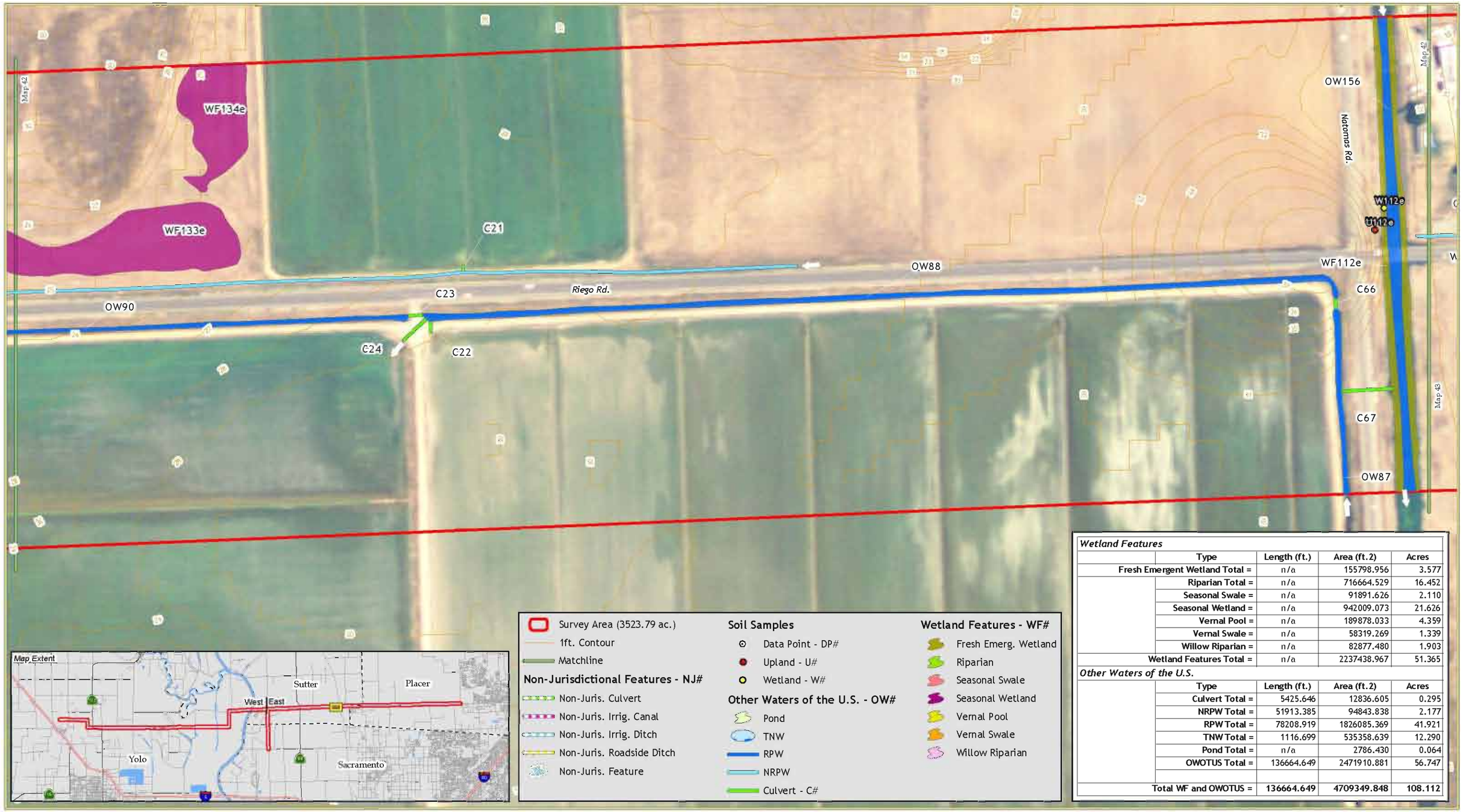

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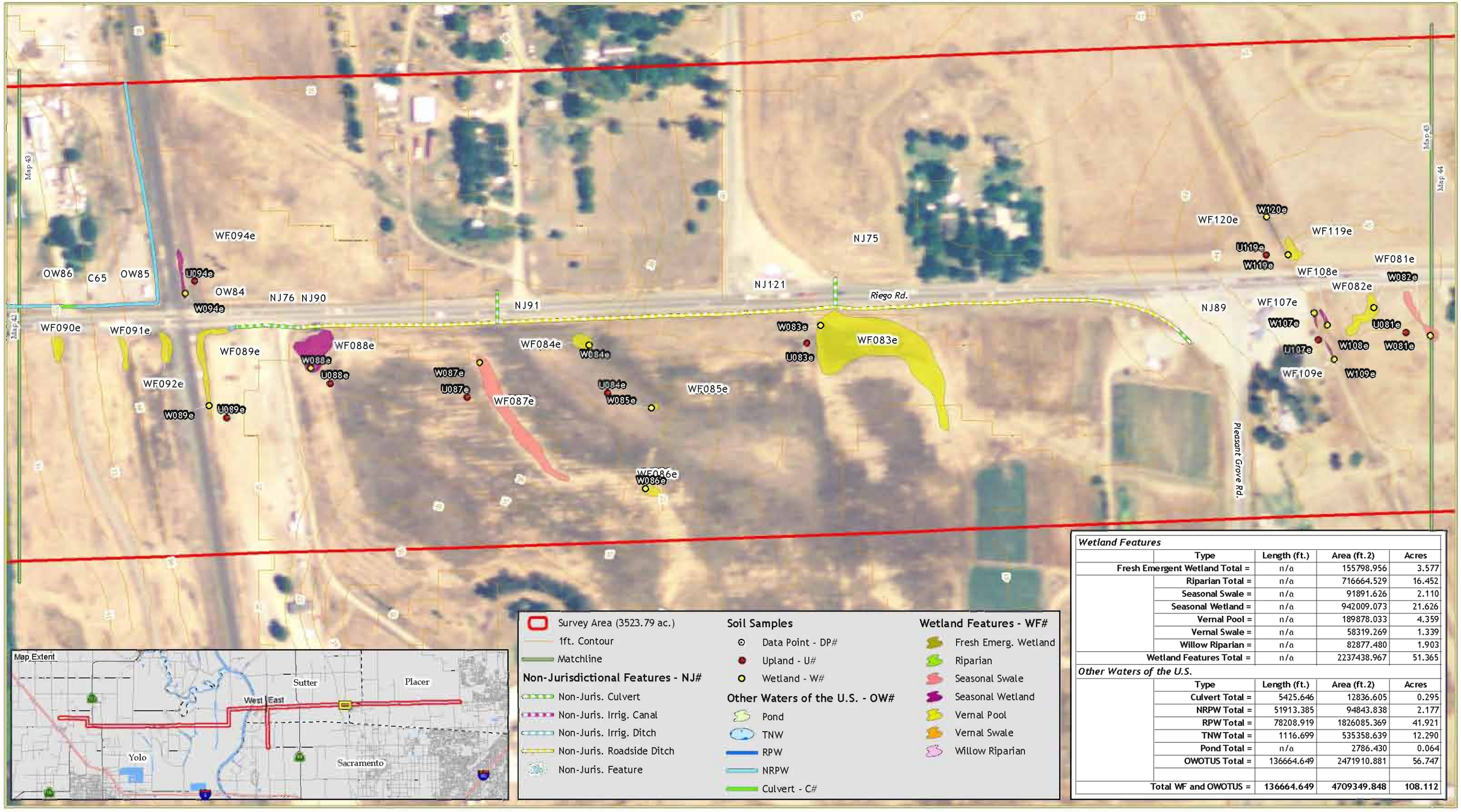

Survey Area (3523.79 ac.)
1ft. Contour
Matchline

Non-Jurisdictional Features - NJ#
Non-Juris. Culvert
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature

Soil Samples
Data Point - DP#
Upland - U#
Wetland - W#

Other Waters of the U.S. - OW#
Pond
TNW
RPW
NRPW
Culvert - C#

Wetland Features - WF#
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Willow Riparian

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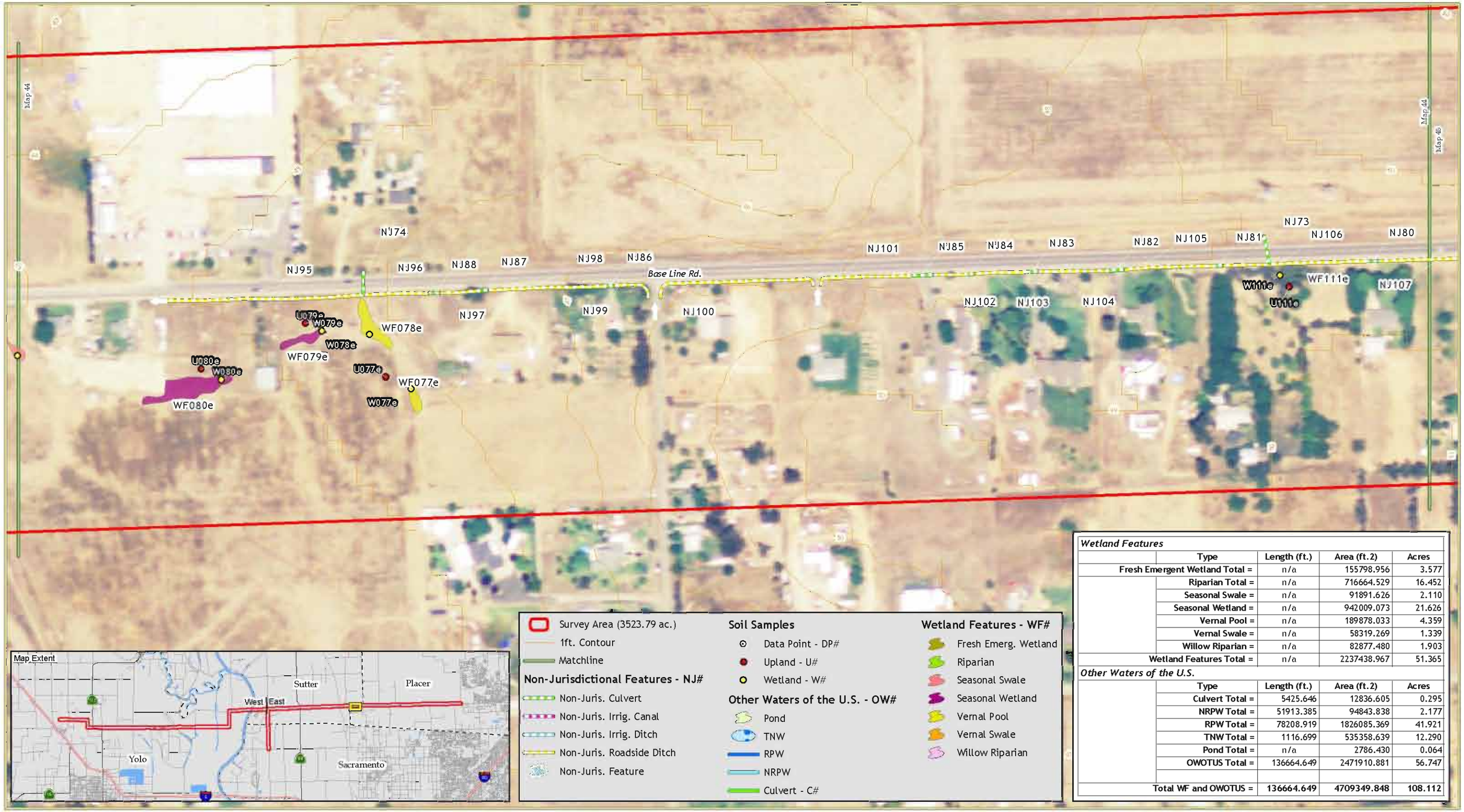

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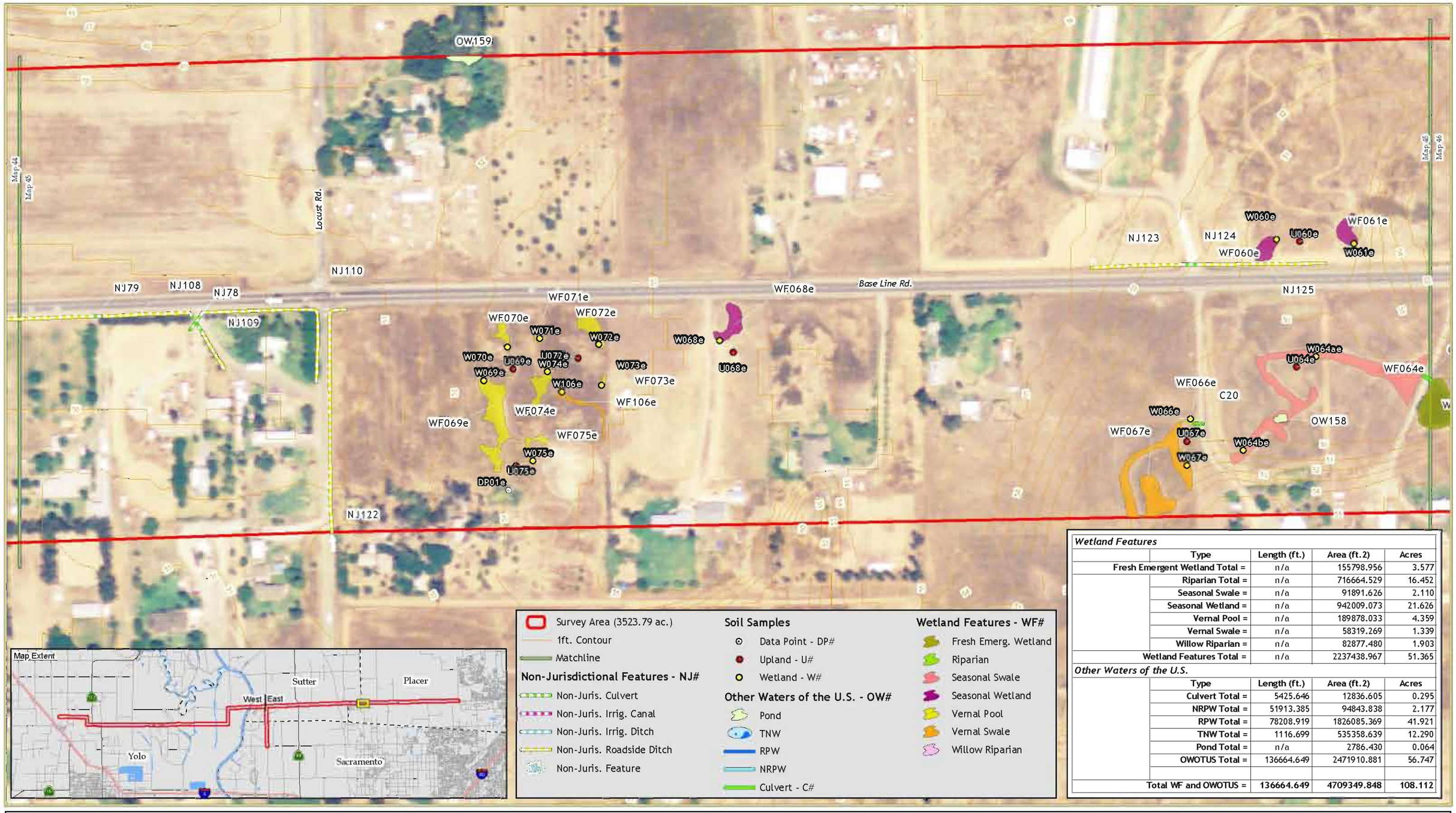

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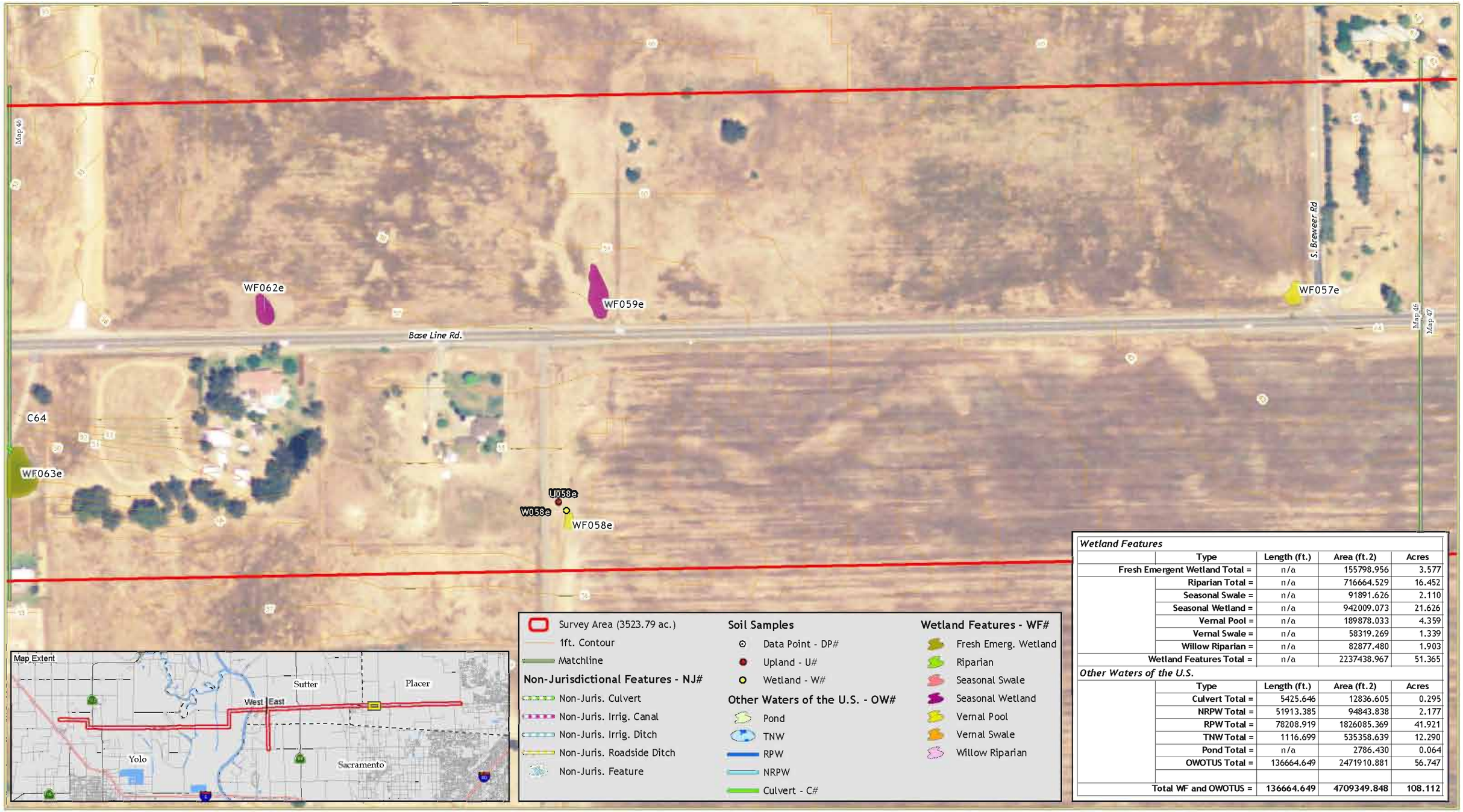

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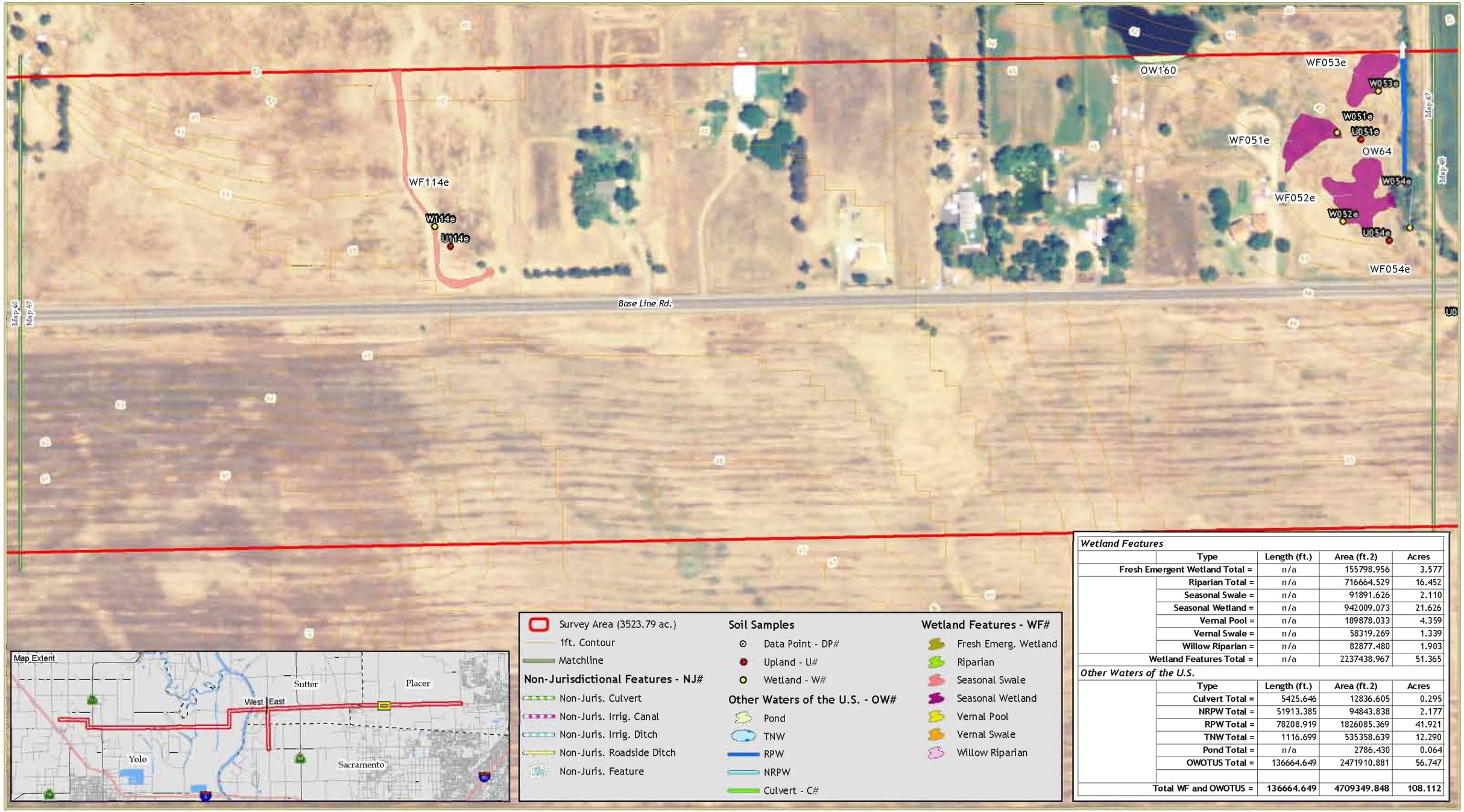

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Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007 Revised: August 21, 2007

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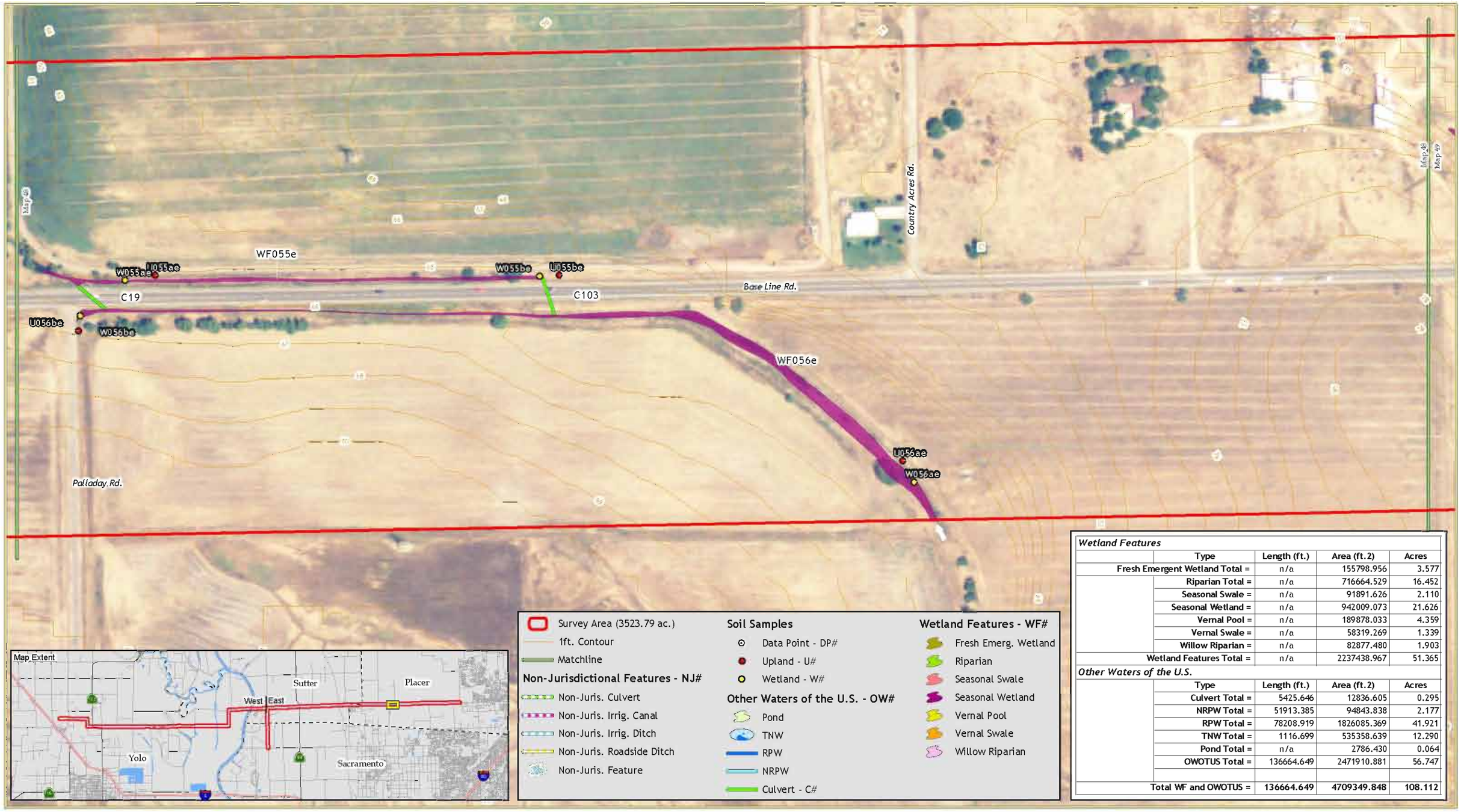
GALLAWAY CONSULTING, INC.



Wetland Features				
	Type	Length (ft.)	Area (ft.2)	Acres
	Fresh Emergent Wetland Total =	n/a	155798.956	3.577
	Riparian Total =	n/a	716664.529	16.452
	Seasonal Swale =	n/a	91891.626	2.110
	Seasonal Wetland =	n/a	942009.073	21.626
	Vernal Pool =	n/a	189878.033	4.359
	Vernal Swale =	n/a	58319.269	1.339
	Willow Riparian =	n/a	82877.480	1.903
	Wetland Features Total =	n/a	2237438.967	51.365
Other Waters of the U.S.				
	Type	Length (ft.)	Area (ft.2)	Acres
	Culvert Total =	5425.646	12836.605	0.295
	NRPW Total =	51913.385	94843.838	2.177
	RPW Total =	78208.919	1826085.369	41.921
	TNW Total =	1116.699	535358.639	12.290
	Pond Total =	n/a	2786.430	0.064
	OWOTUS Total =	136664.649	2471910.881	56.747
	Total WF and OWOTUS =	136664.649	4709349.848	108.112

All features to remain preliminary until written verification from the USACE
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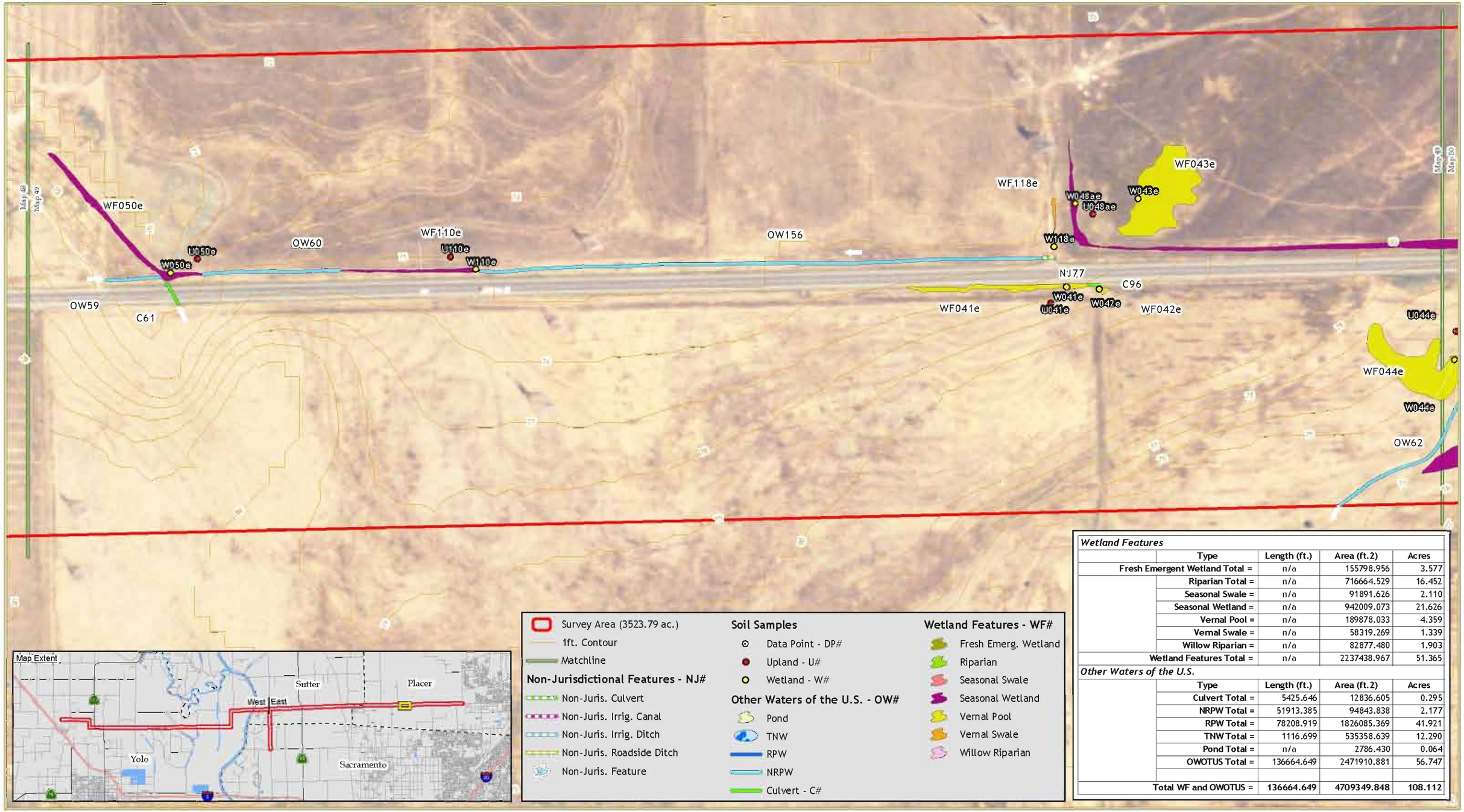

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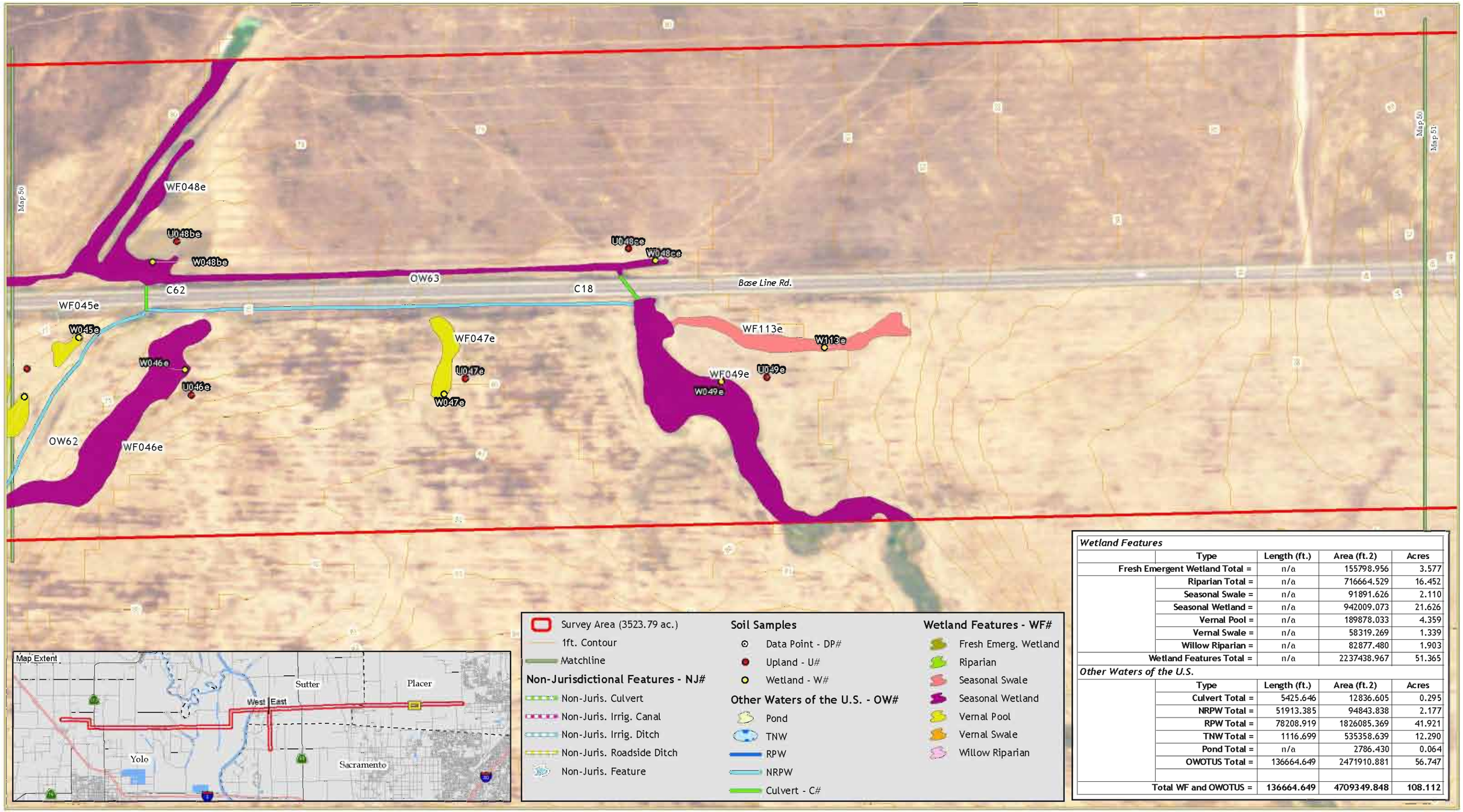

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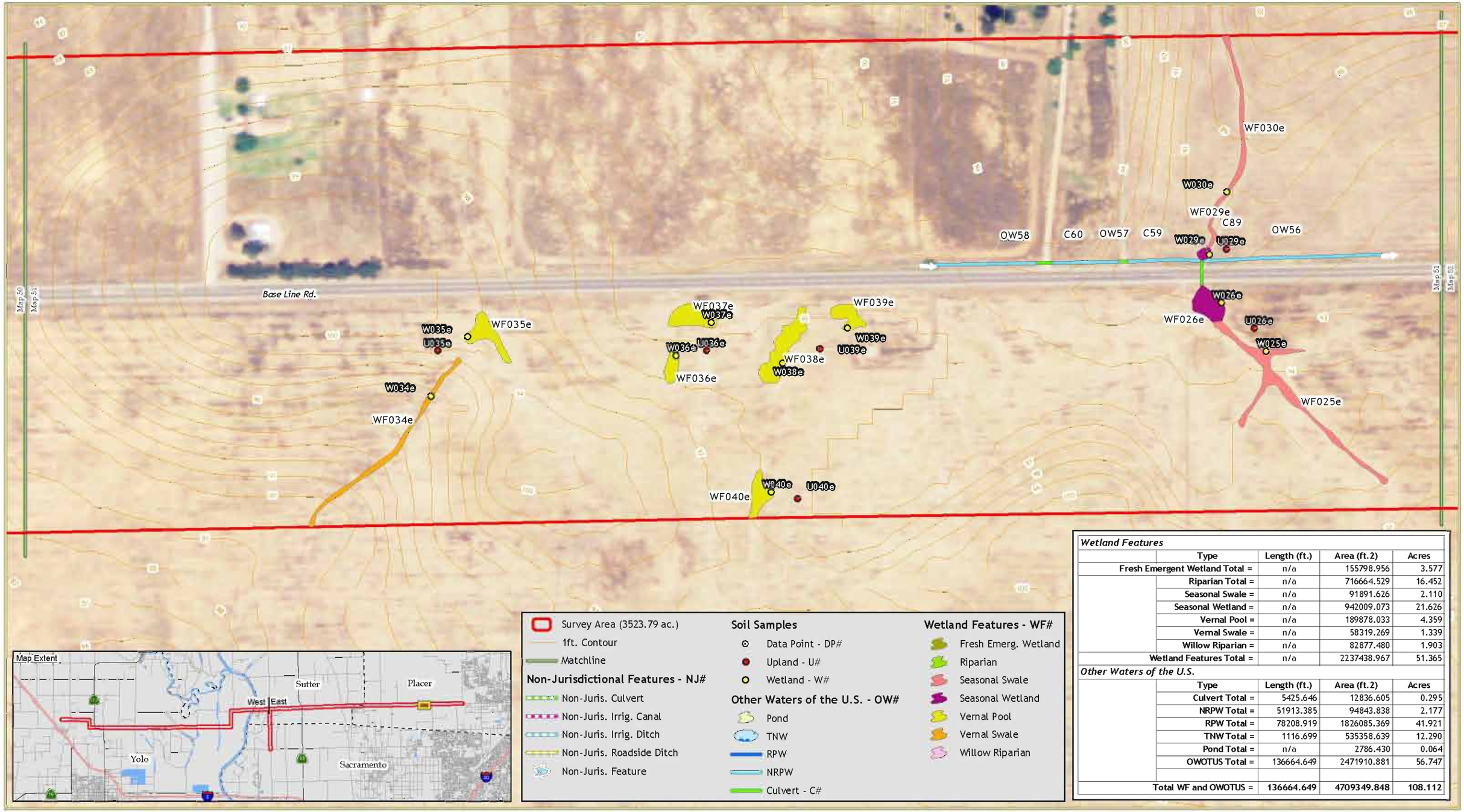

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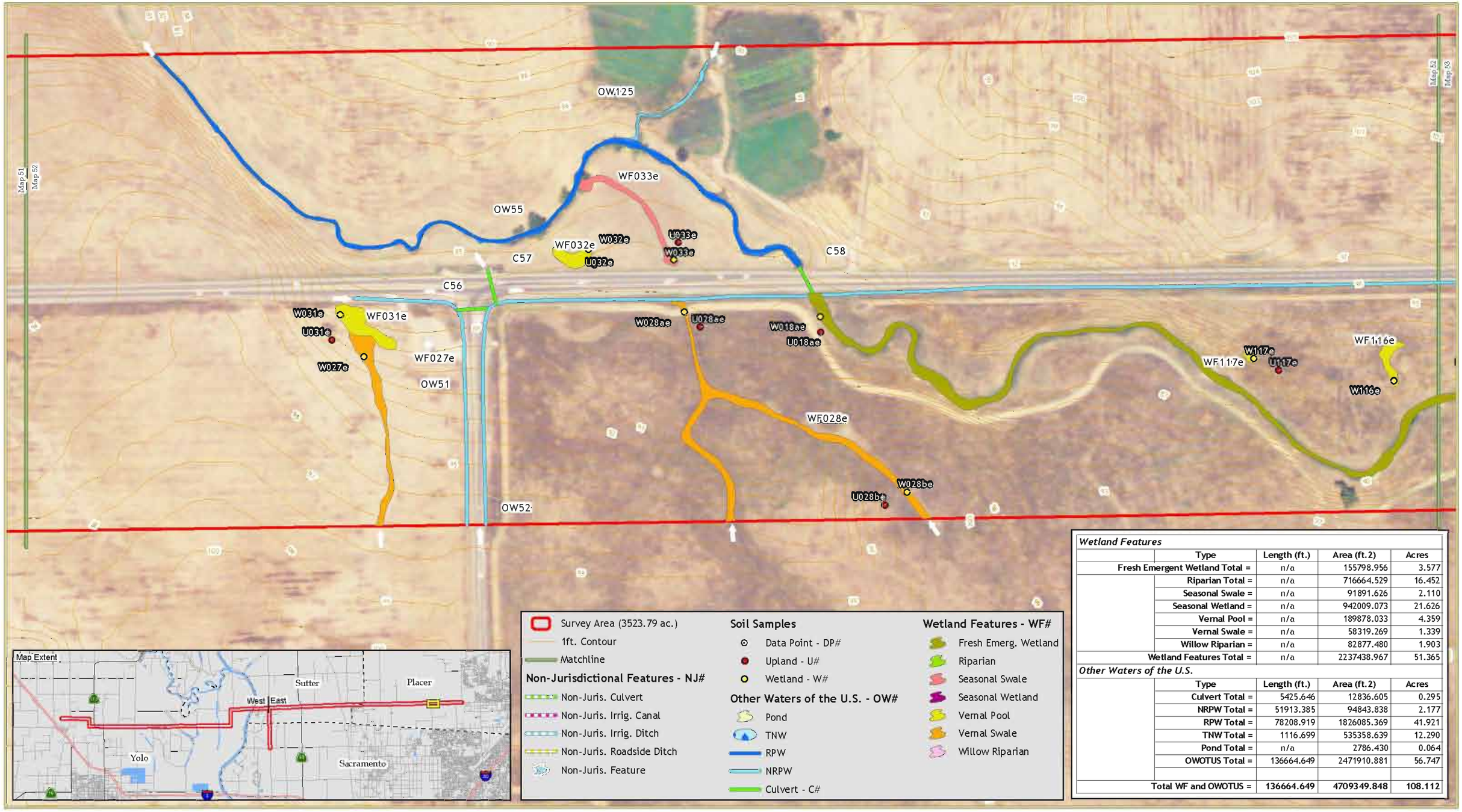

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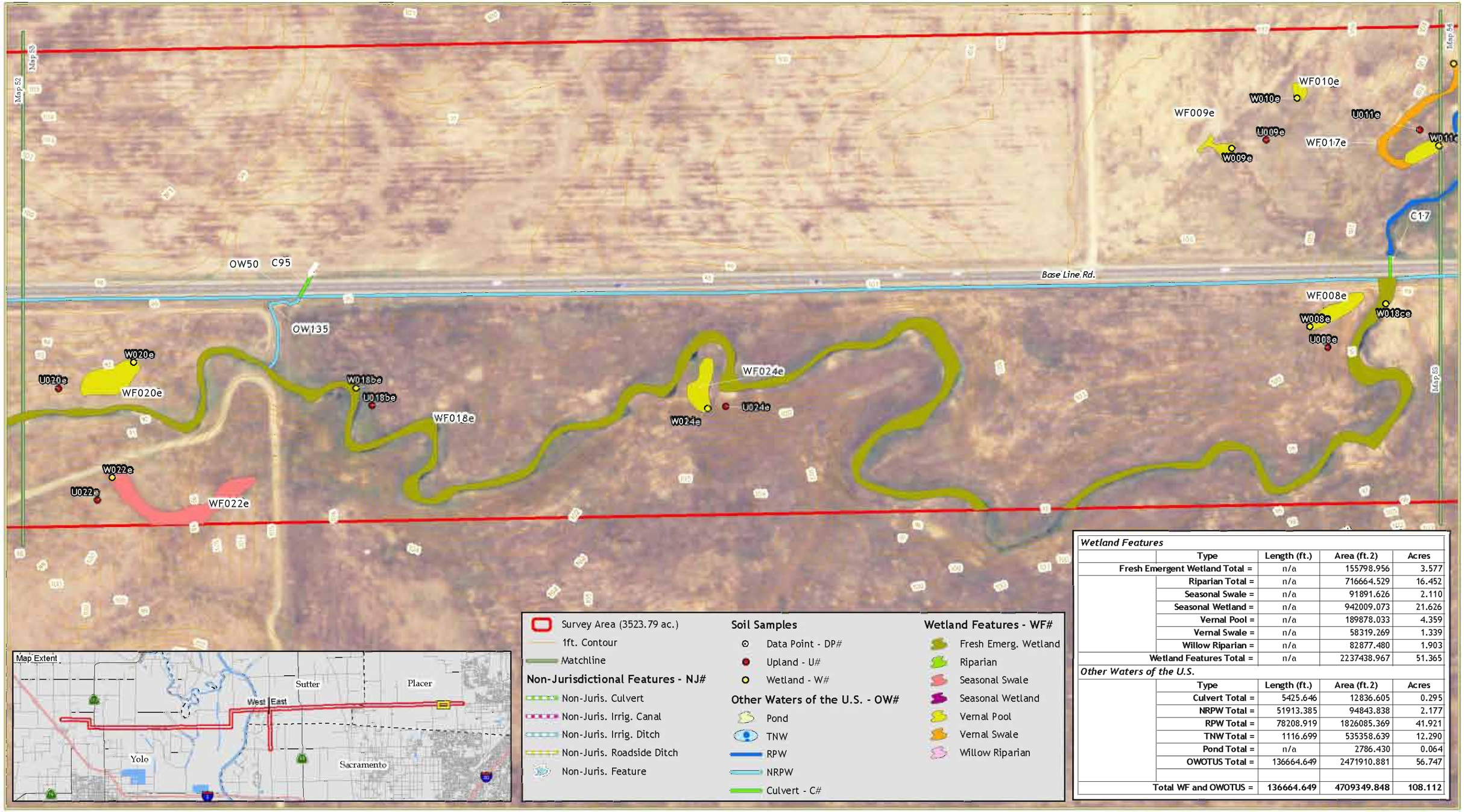

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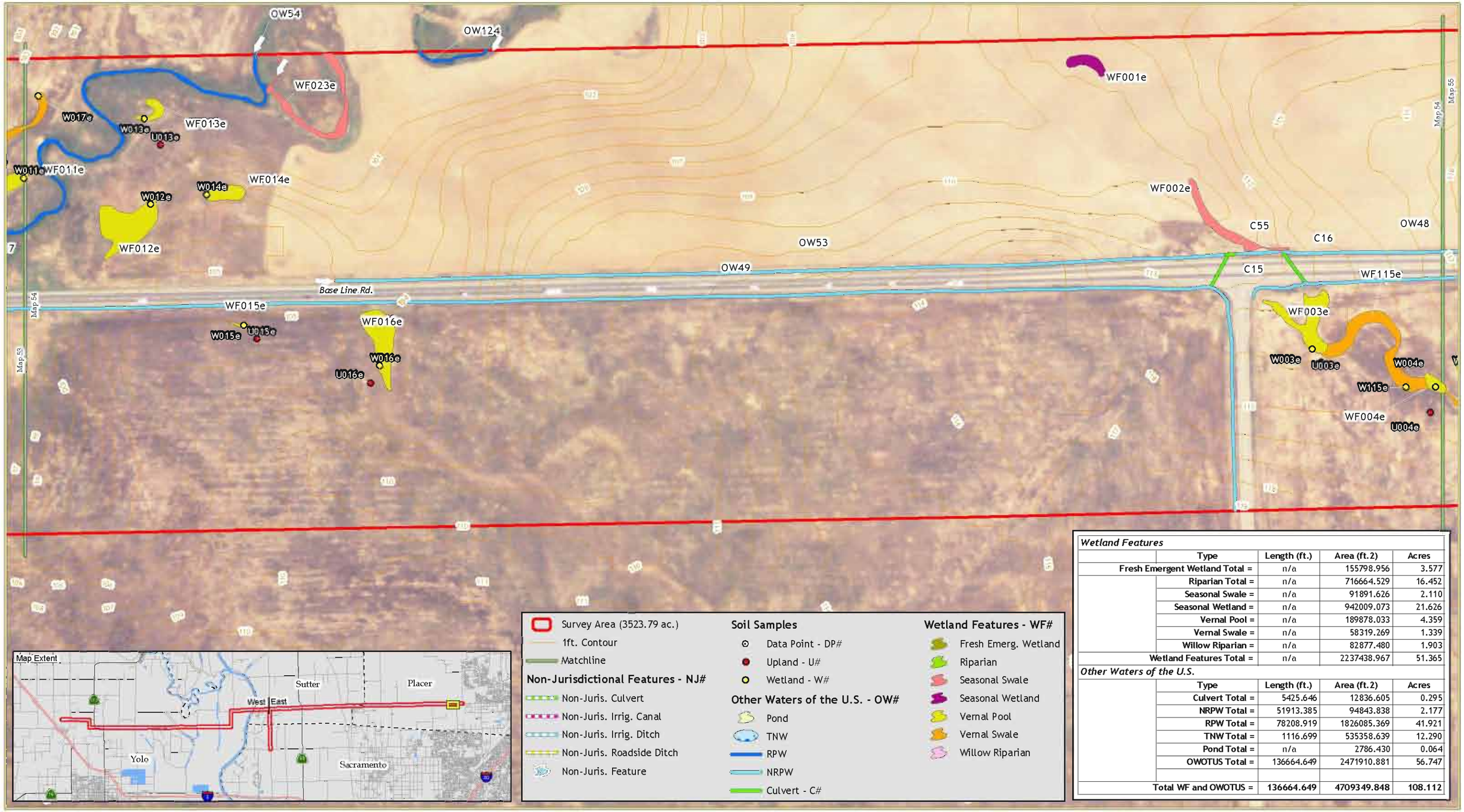

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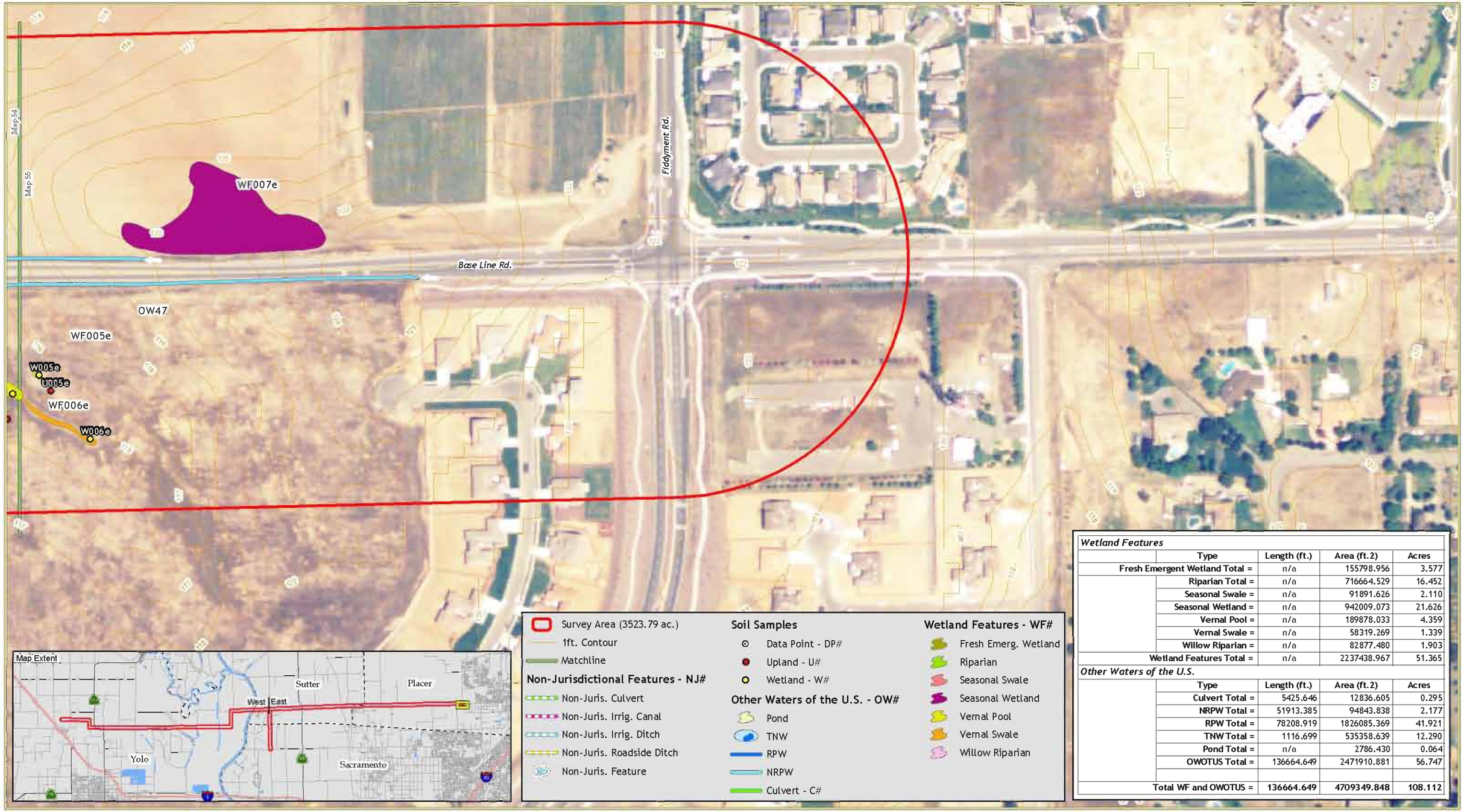

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Feet
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GALLAWAY CONSULTING, INC.

Attachment A

ADDENDUM
to the
Delineation of Waters of the United States

PG&E Line 407 Natural Gas Transmission Pipeline

Placer, Sacramento, Yolo, and Sutter Counties, CA

July 2008

Prepared for:

TRC
Attention: Benjamin Hart
80 Stone Pine Road, Suite 200
Half Moon Bay, CA. 94019

Prepared by:

GALLAWAY
CONSULTING, INC.
117 Meyers Street, Suite 110, Chico, CA 95928
Phone (530) 343-8327 Fax (530)343 8312

GALLAWAY
CONSULTING, INC.

Date: **July 23, 2008**

To: **Erin Hess**
U.S. Army Corps of Engineers,
Regulatory Branch, Sacramento District
1325 J Street, Room 1480
Sacramento, CA 95814-2922

Re: **Revised Delineation of Waters of the U.S. for the PG&E Line 407 Natural Gas Transmission Pipeline Project, Placer, Sutter, Yolo, and Sacramento Counties, CA (GCI# 2006-043).**

Dear Ms. Hess:

Enclosed please find revised Delineation of Waters of the U.S. maps (**Attachment A**), Table of Waters of the U.S. Delineated (**Attachment B**), and the additional wetland data forms for the features added (**Attachment C**) for the PG&E Line 407 Natural Gas Transmission Pipeline project. The delineation maps were revised based on your observations during the verification visits conducted January 30-31, March 3, April 17, and May 5, 2008, which increased the total acreage of Waters of the U.S. to 113.994 acres for the revised delineation. Please note that the rice fields are not included as wetlands in the revised maps, and following consultation with our clients, we have explored further the U.S. Army Corps of Engineer's jurisdiction over rice fields. We are providing additional information stating our reasoning for not including rice fields as jurisdictional features (**Attachment D**).

Gallaway Consulting, Inc. (GCI) is requesting that the U.S. Army Corps of Engineers provide written verification of the revised Delineation of Waters of the U.S. Please send the verification letter to the following: TRC, Attention: Benjamin Hart, 80 Stone Pine Road, Suite 200, Half Moon Bay, CA 94019; as well as a copy to GCI.

Feel free to contact me with any questions or comments.

Sincerely,

Breanna Owens
Biologist/Range Specialist

Encl: **Attachments A, B, C, & D**

Cc: Benjamin Hart

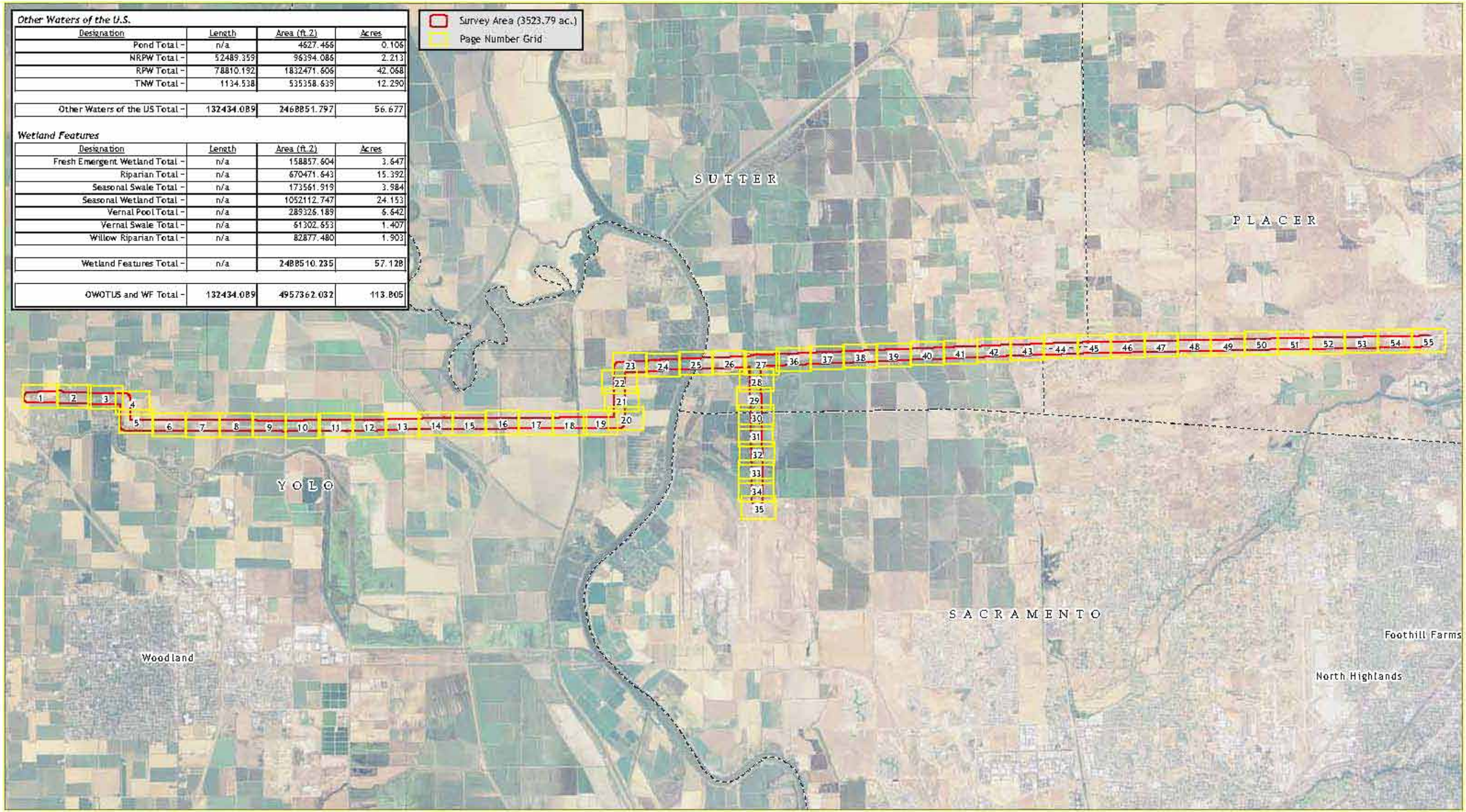
117 MEYERS STREET, SUITE 110 • CHICO • CA • 95928
OFFICE: 530-343-8327 • FAX: 530-343-8312
www.gallawayconsulting.net

Other Waters of the U.S.

Designation	Length	Area (ft.2)	Acres
Pond Total -	n/a	4627.466	0.106
NRPW Total -	52489.359	96394.086	2.213
RPW Total -	78810.192	1832471.606	42.068
TNW Total -	1134.538	535358.639	12.290
Other Waters of the US Total -	132434.089	2468851.797	56.677

Wetland Features

Designation	Length	Area (ft.2)	Acres
Fresh Emergent Wetland Total -	n/a	158857.604	3.647
Riparian Total -	n/a	670471.643	15.392
Seasonal Swale Total -	n/a	173561.919	3.984
Seasonal Wetland Total -	n/a	1052112.747	24.153
Vernal Pool Total -	n/a	289326.189	6.642
Vernal Swale Total -	n/a	61302.653	1.407
Willow Riparian Total -	n/a	82877.480	1.903
Wetland Features Total -	n/a	2488510.235	57.128
OWOTUS and WF Total -	132434.089	4957362.032	113.805



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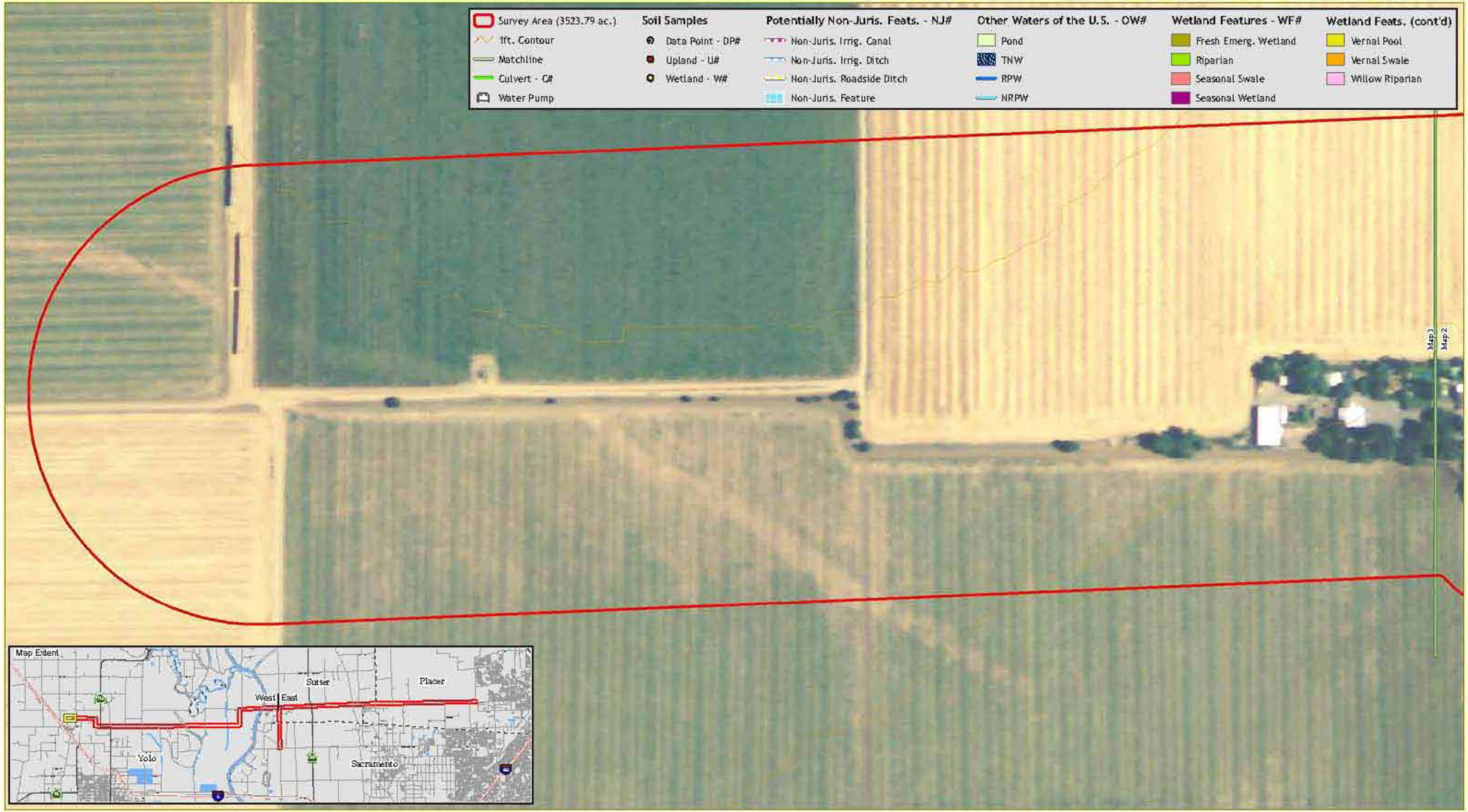

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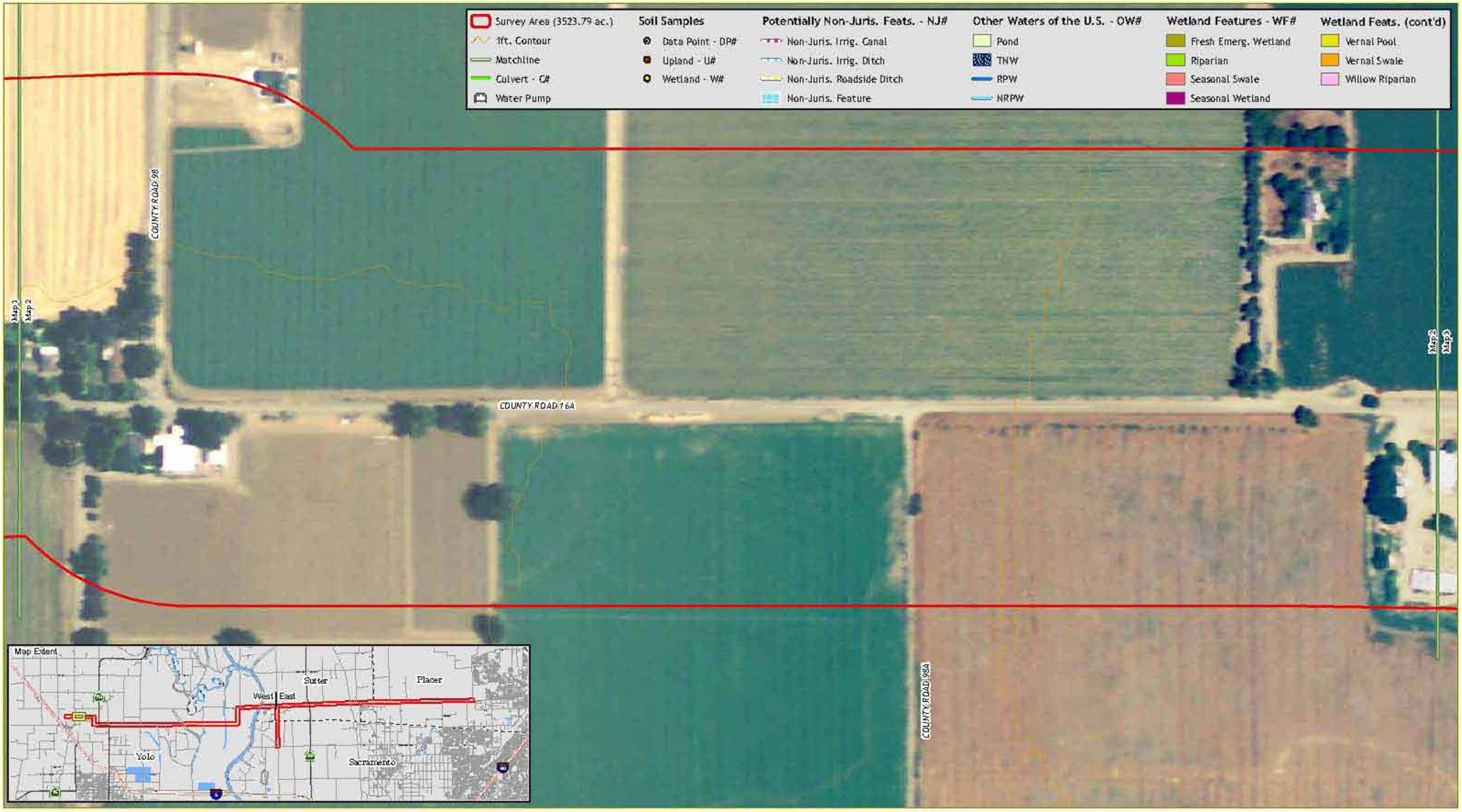

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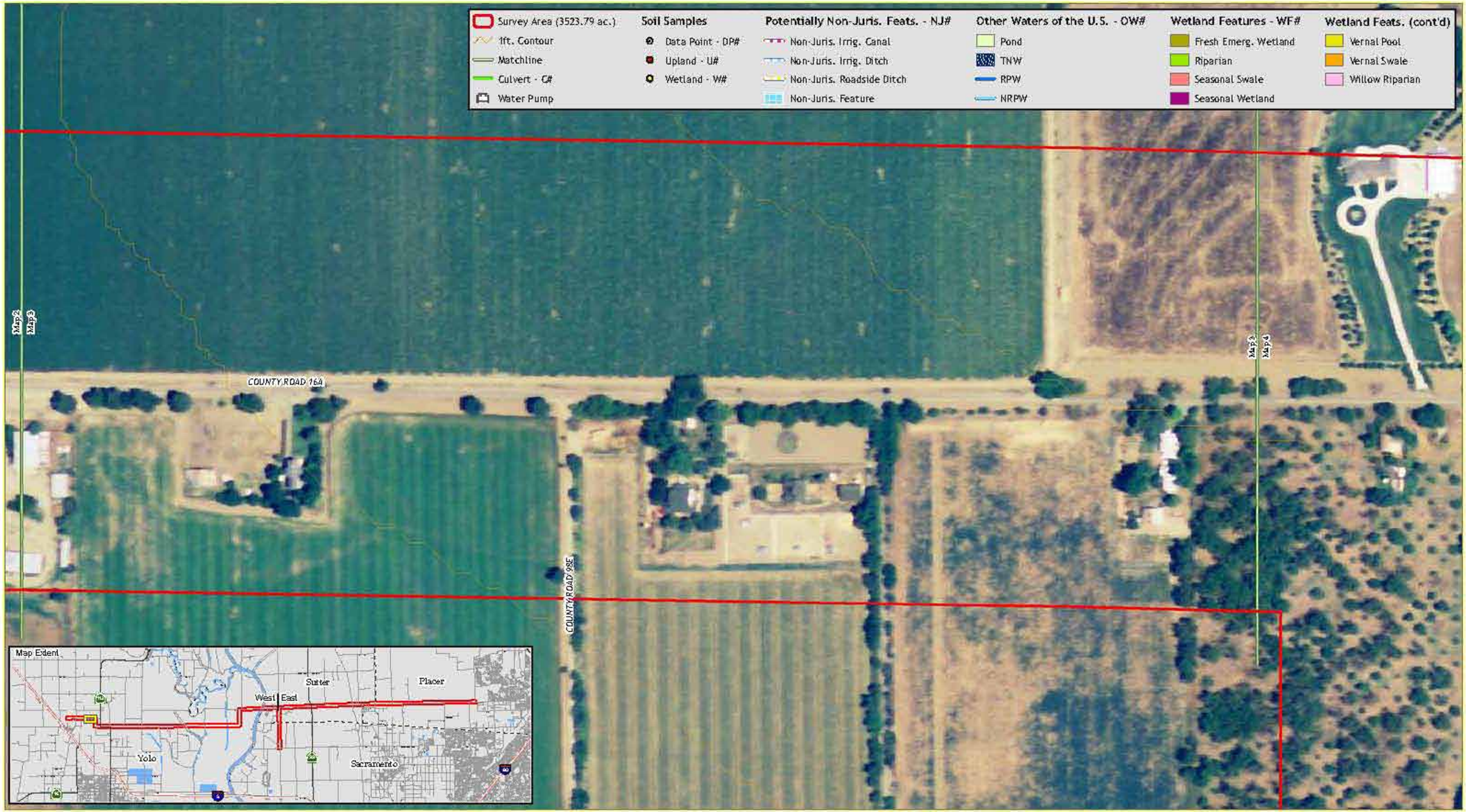

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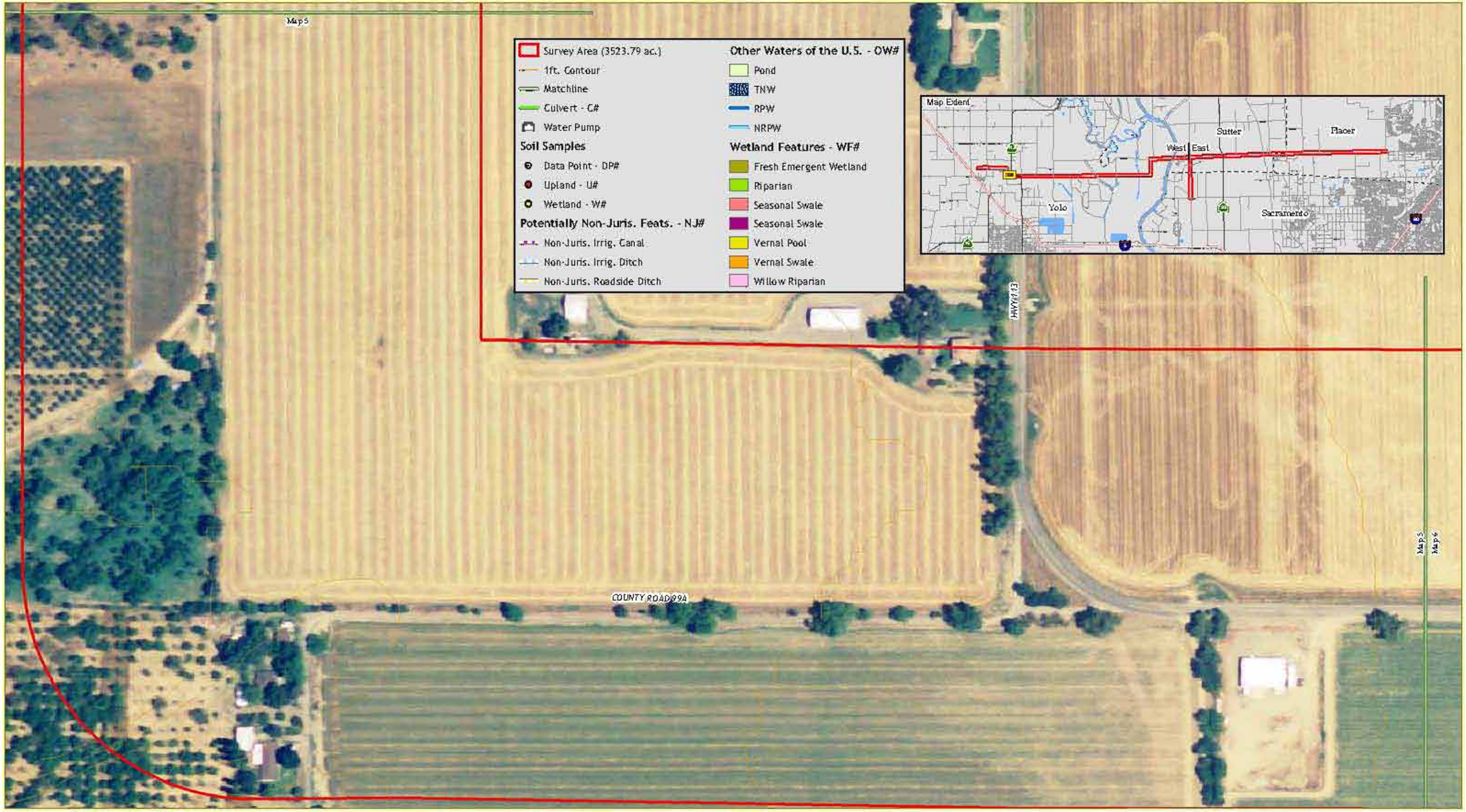

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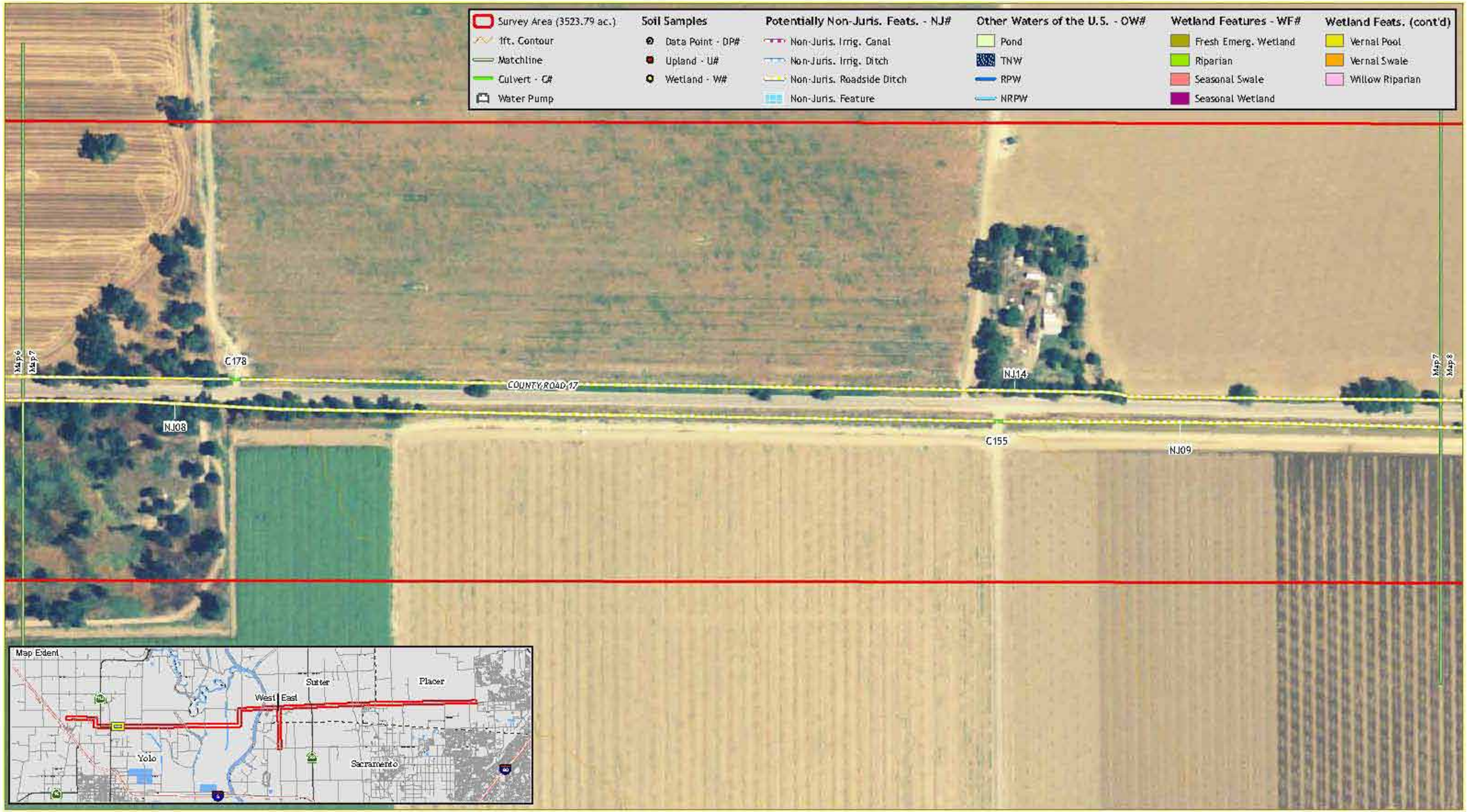

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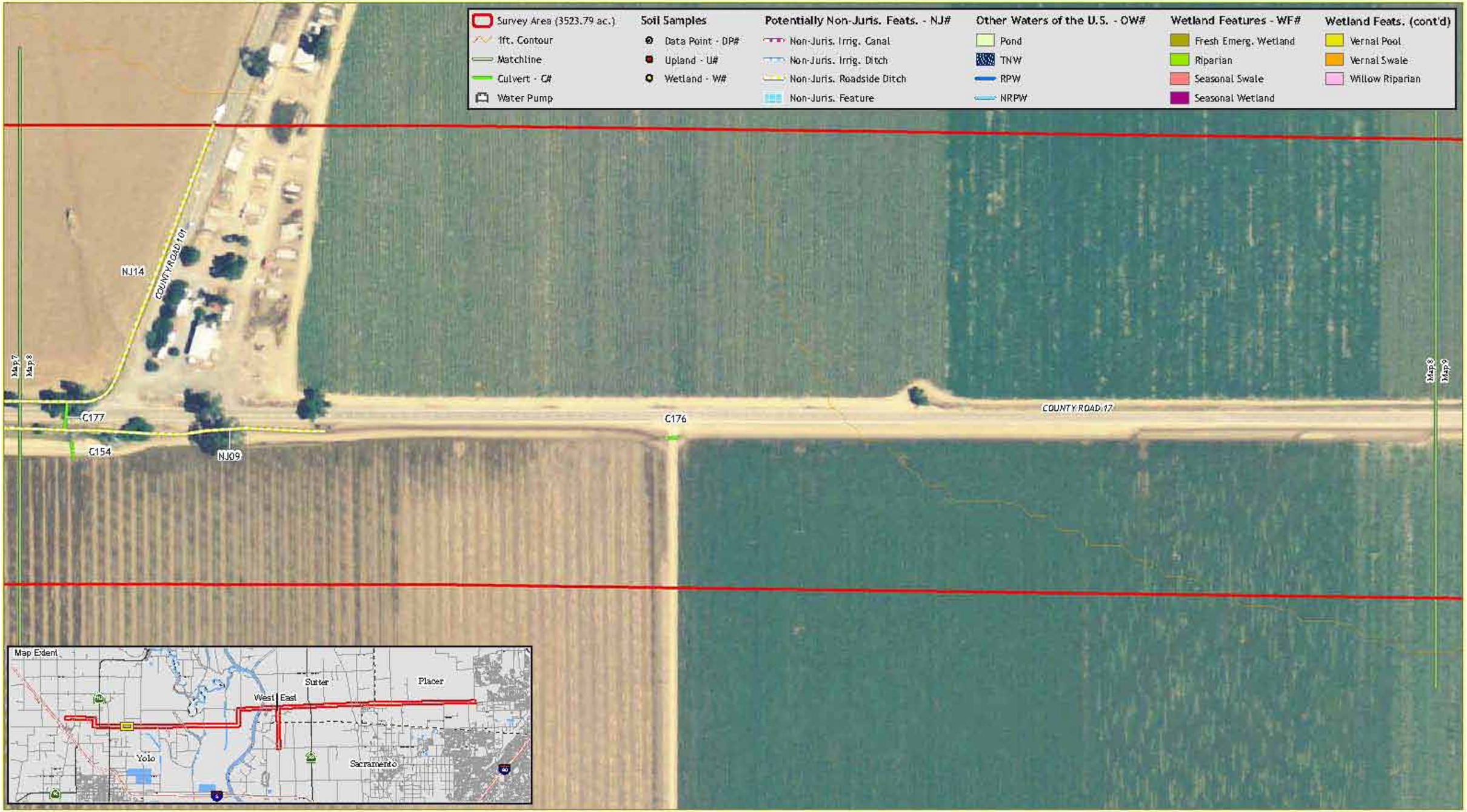

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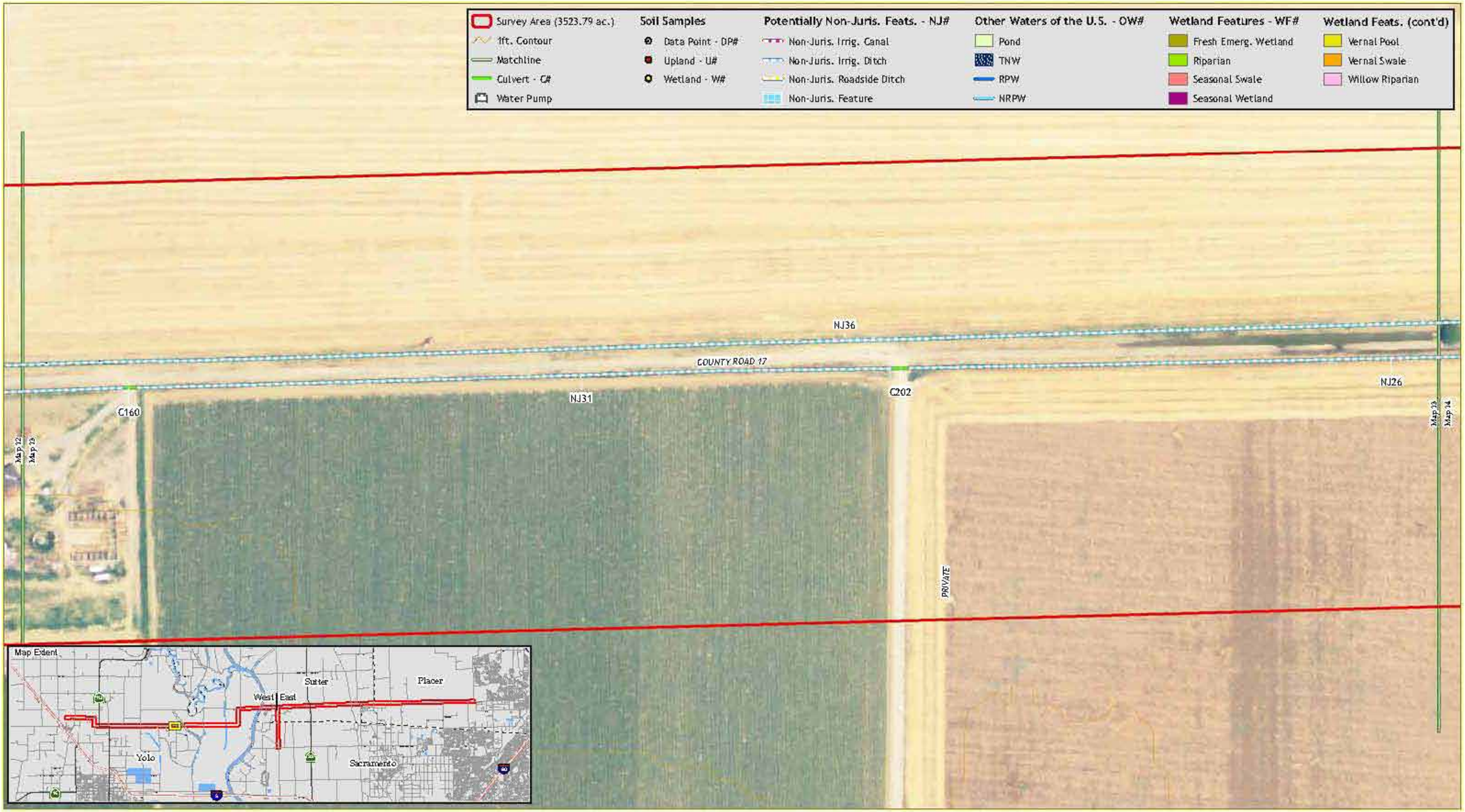

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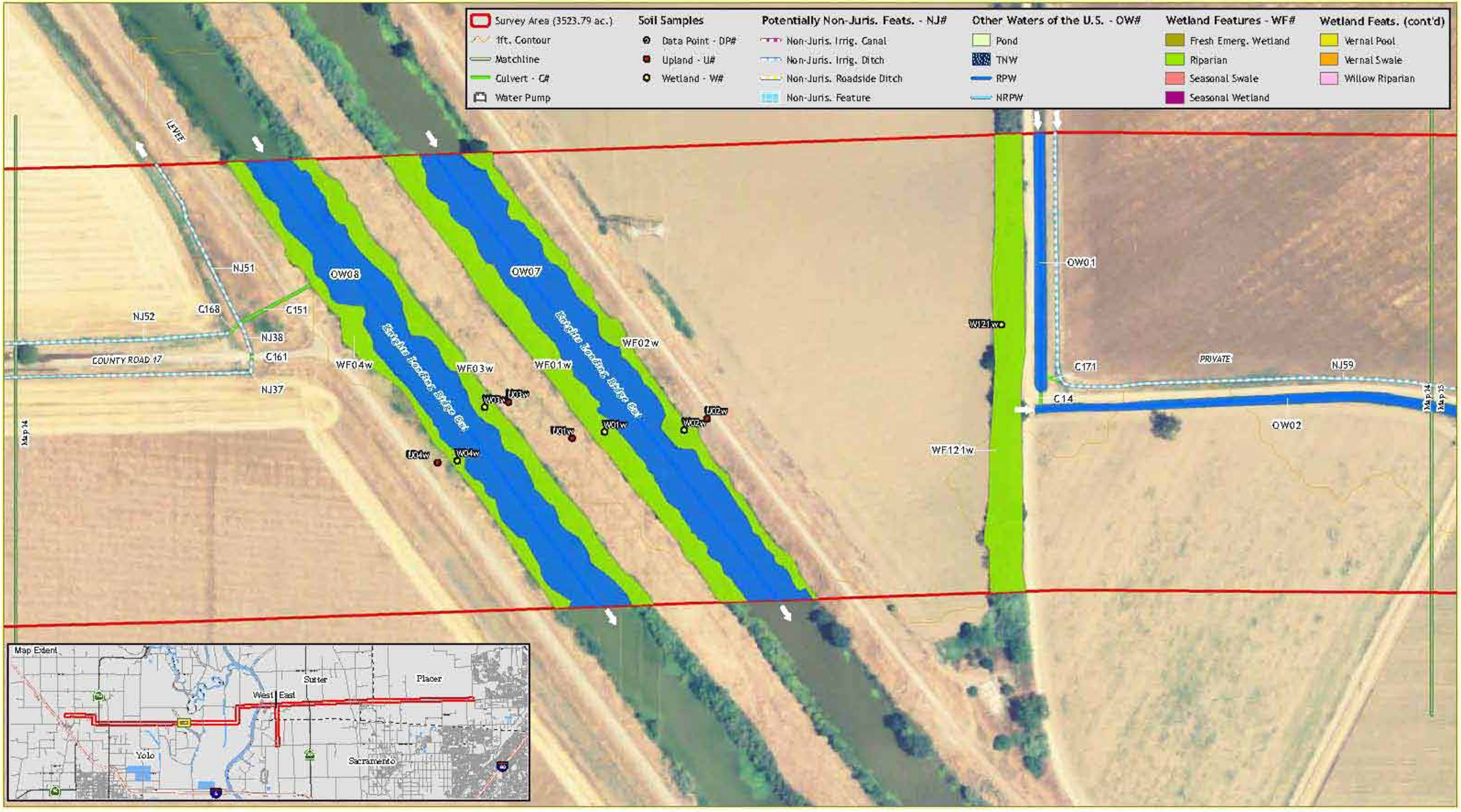

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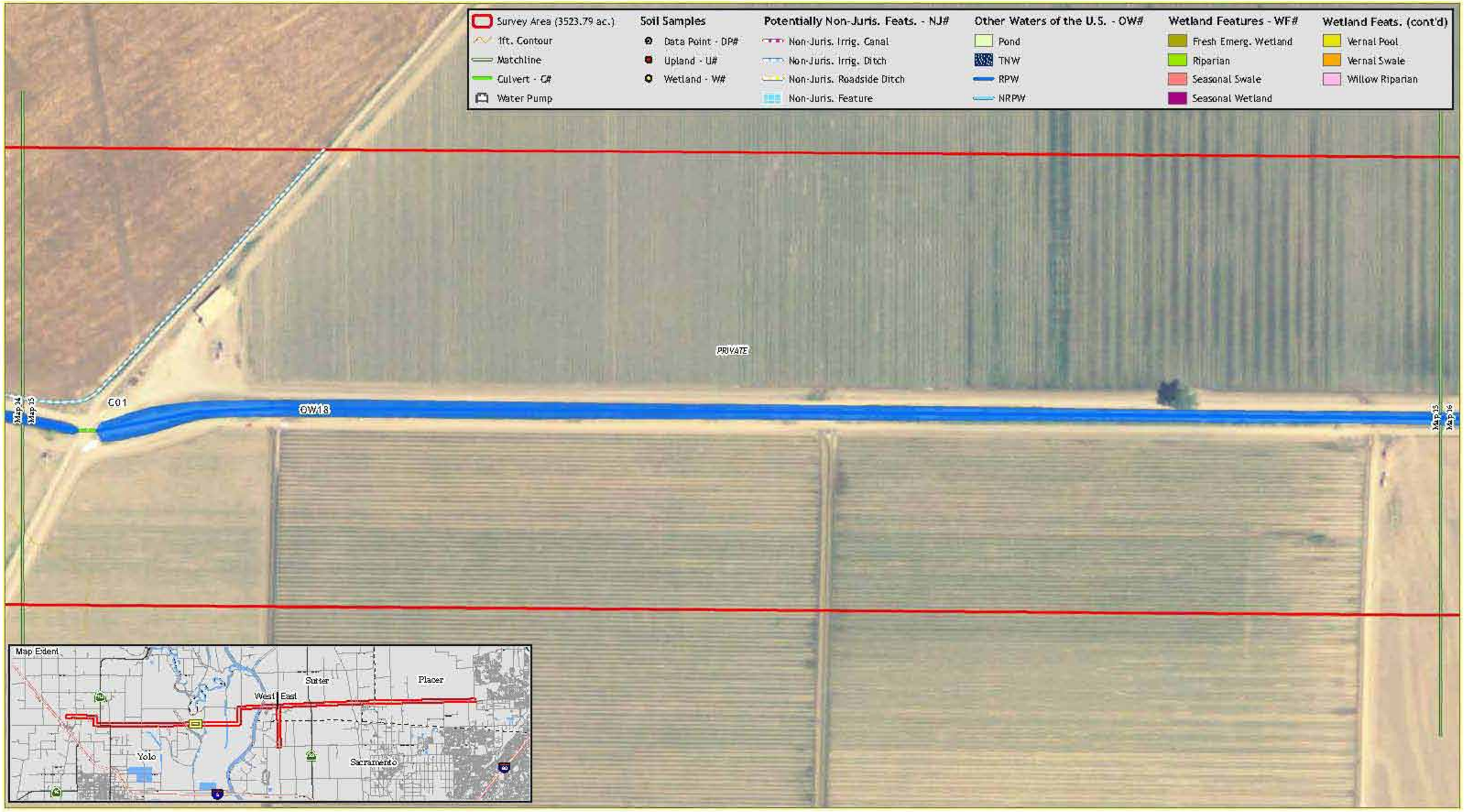

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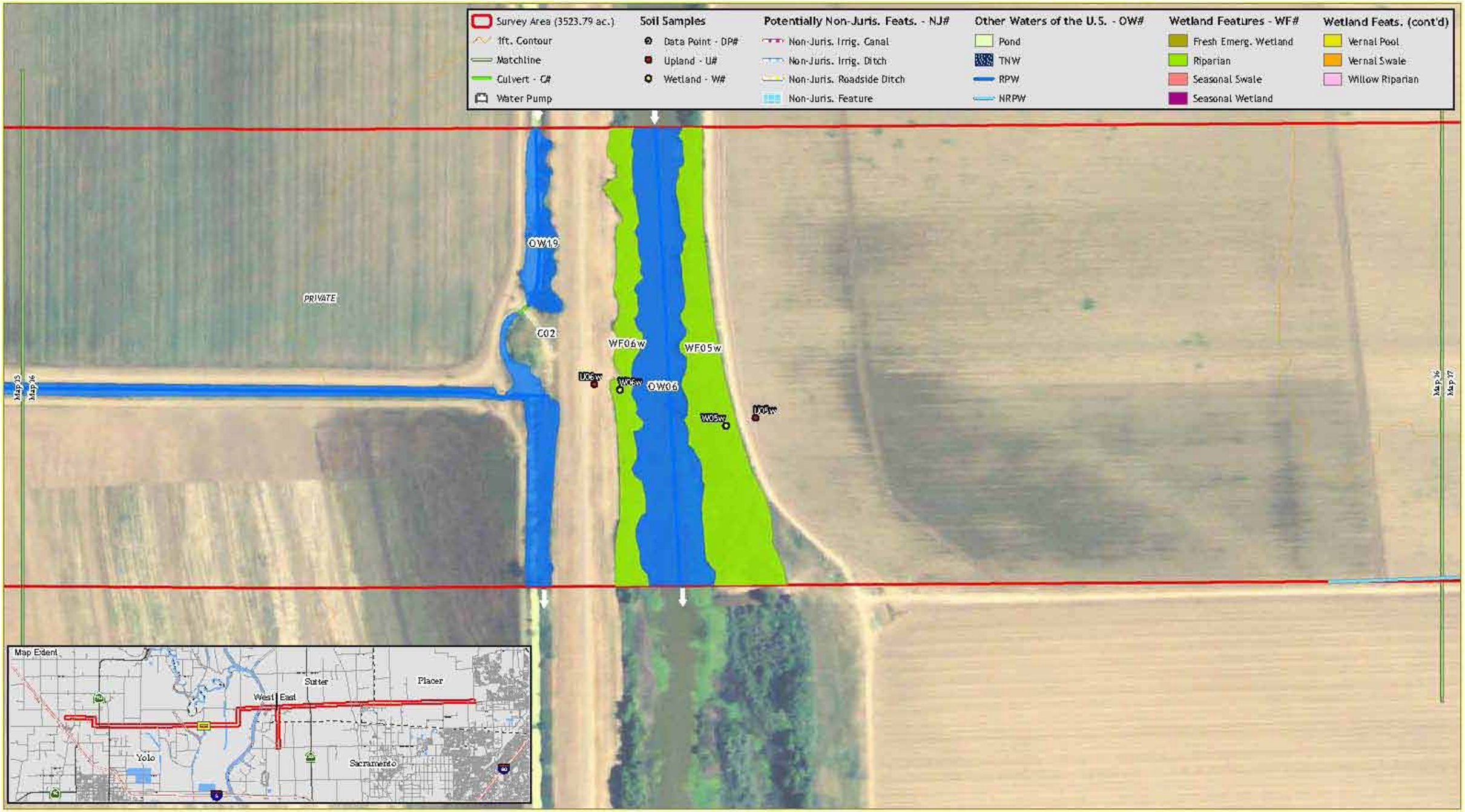

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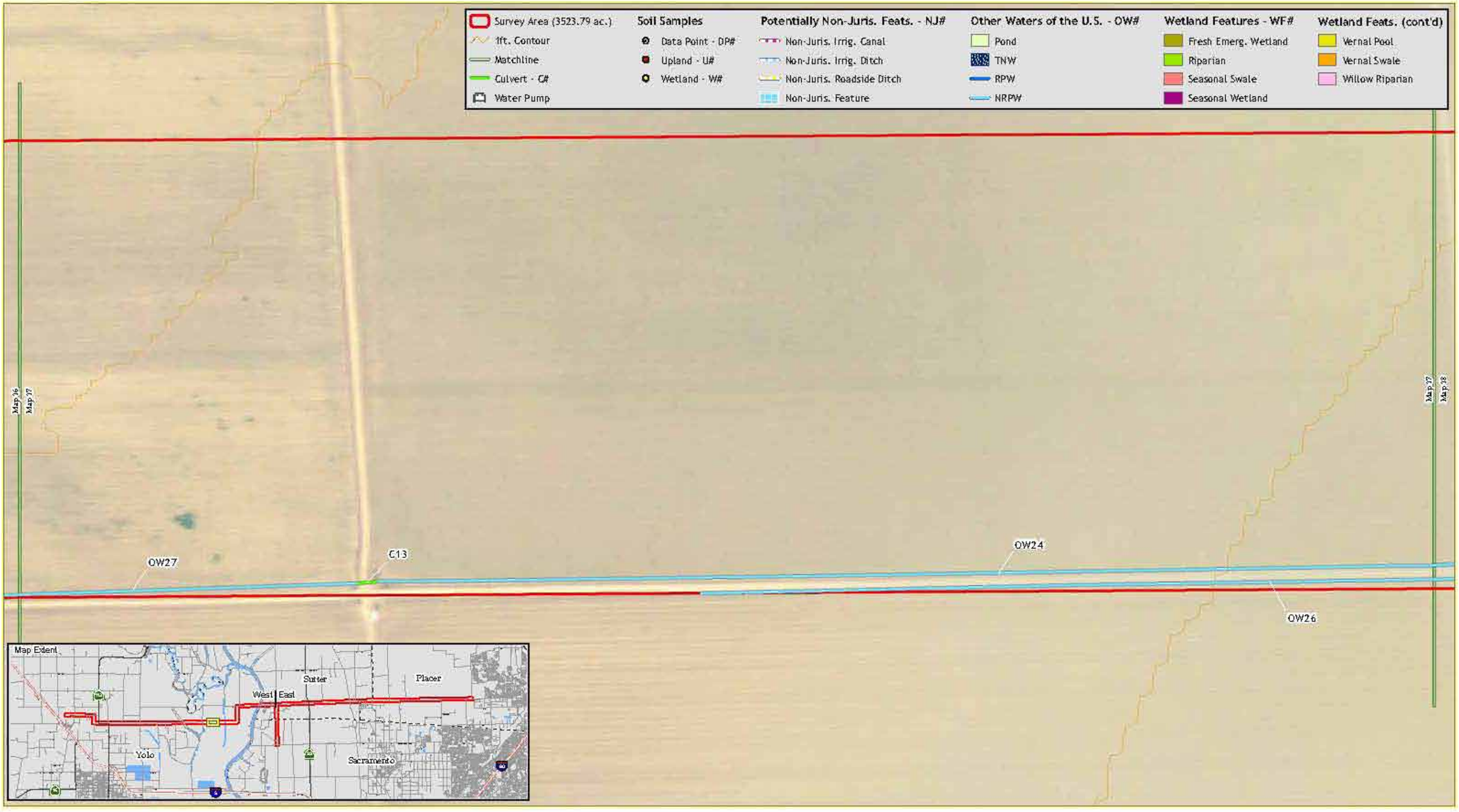

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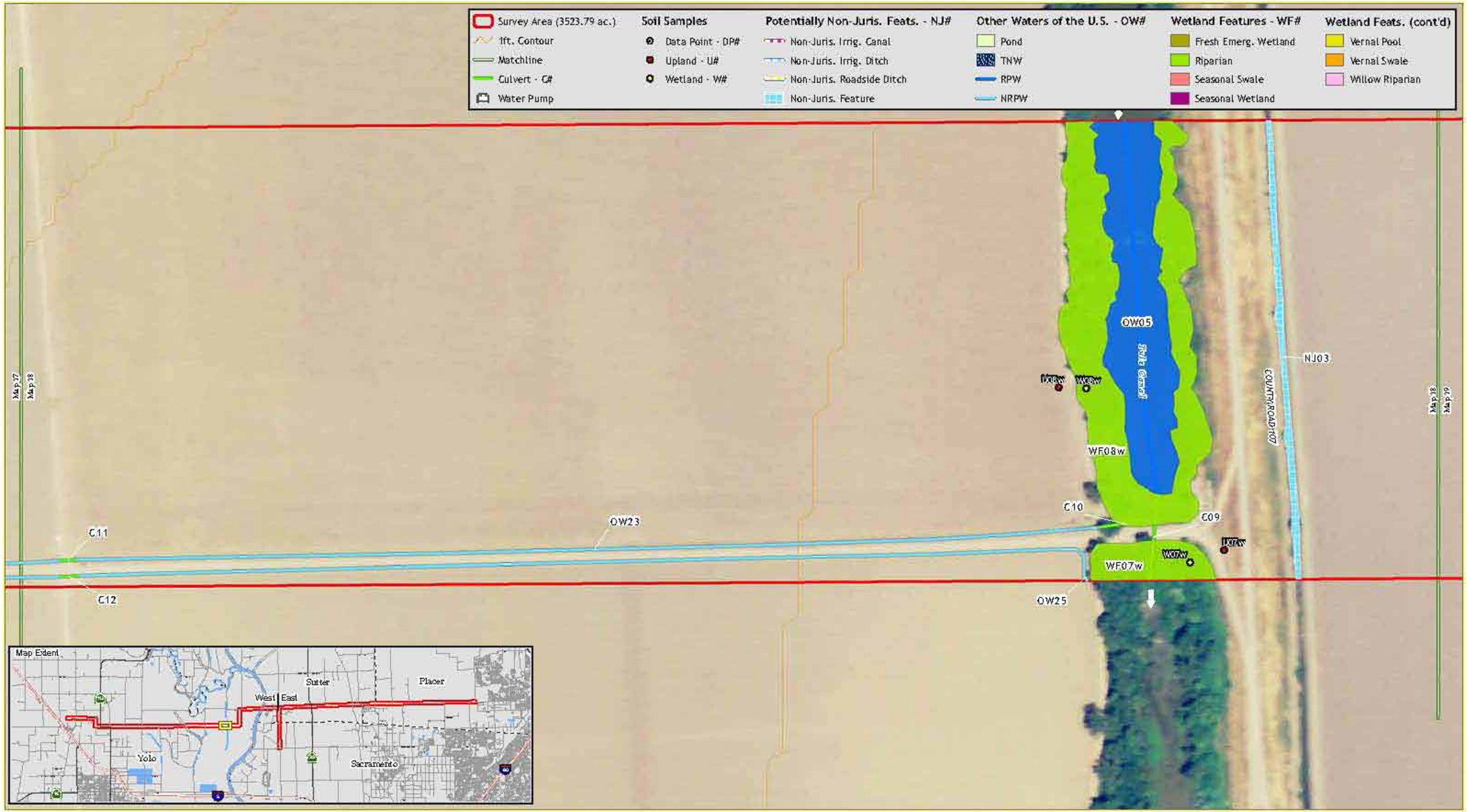

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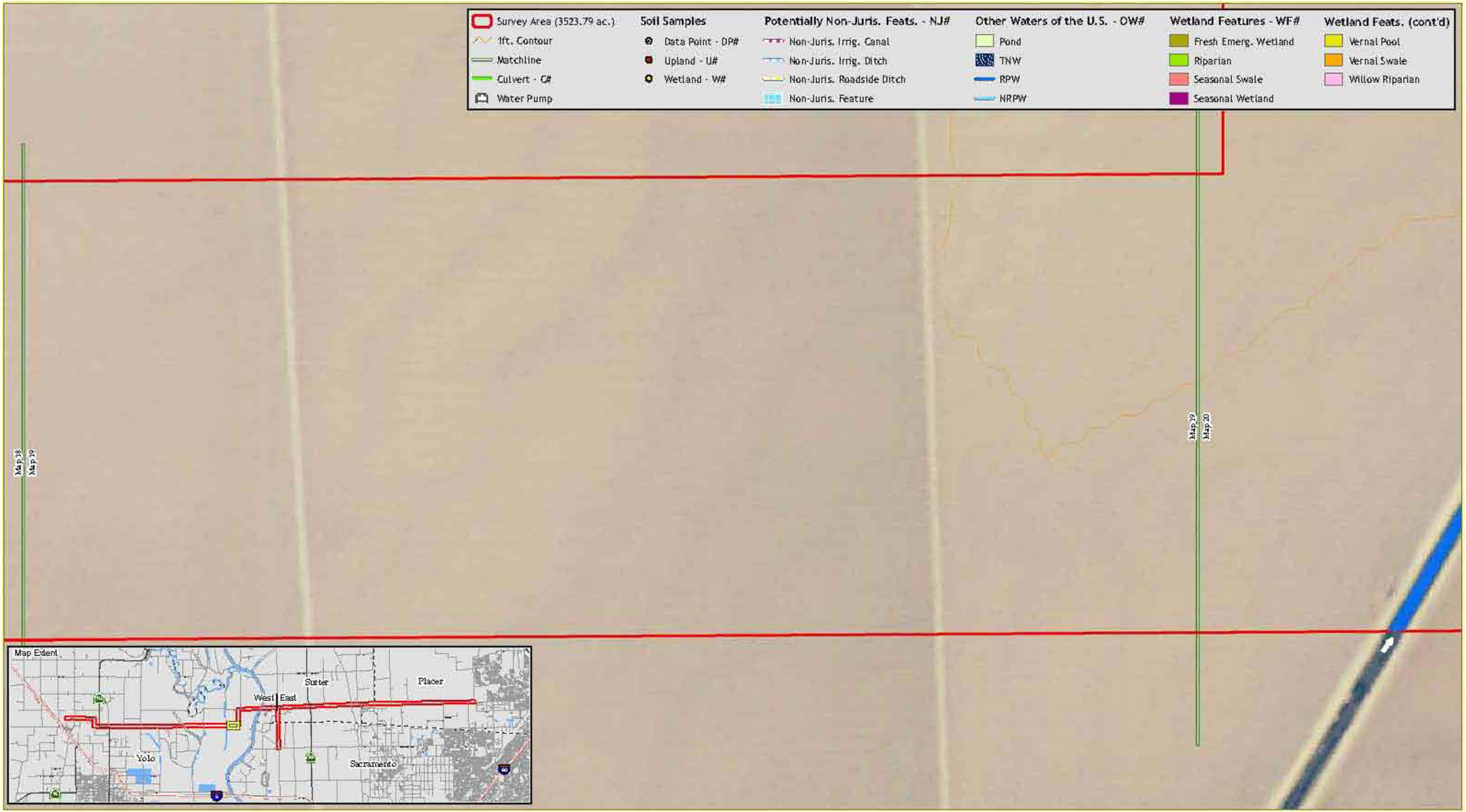

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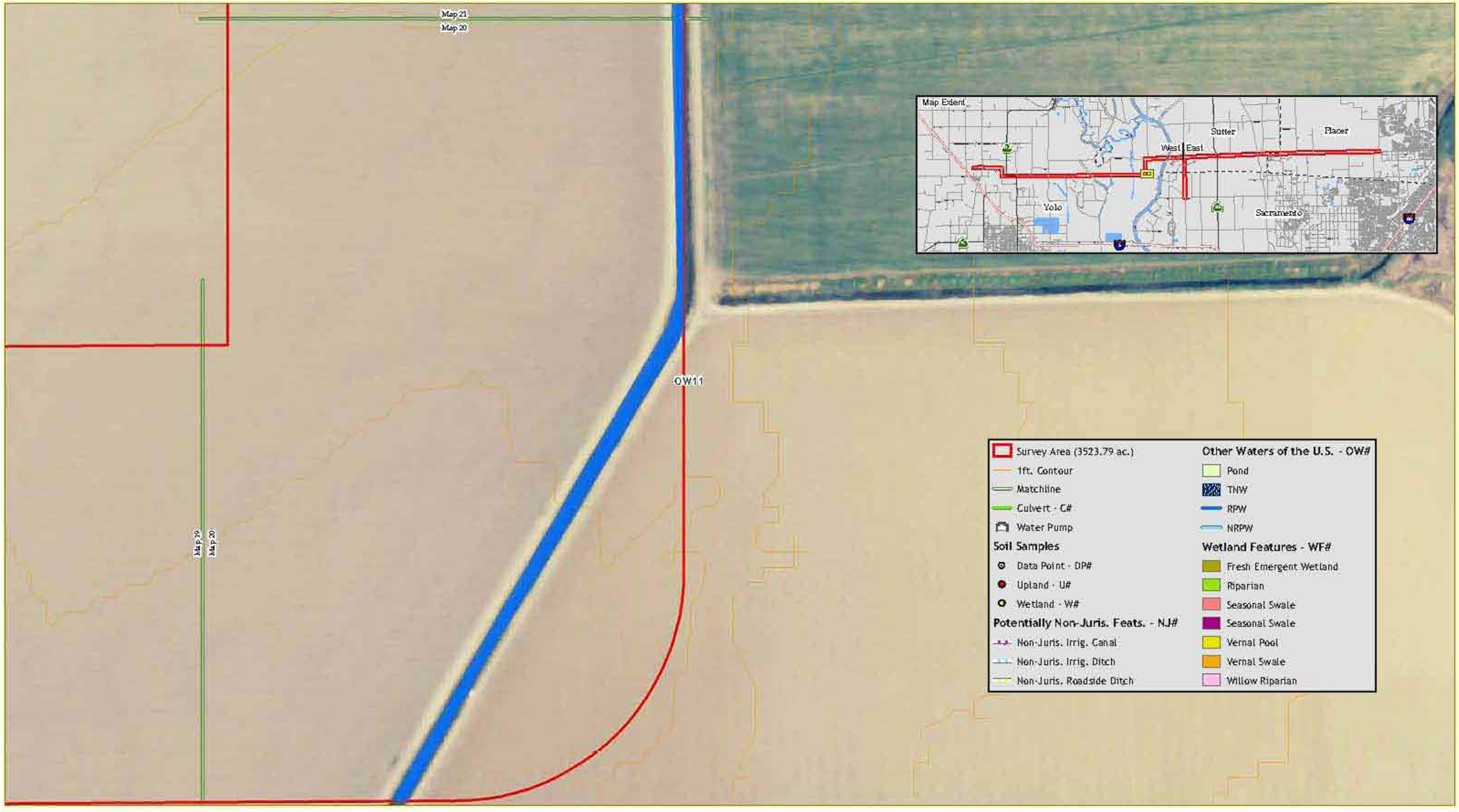

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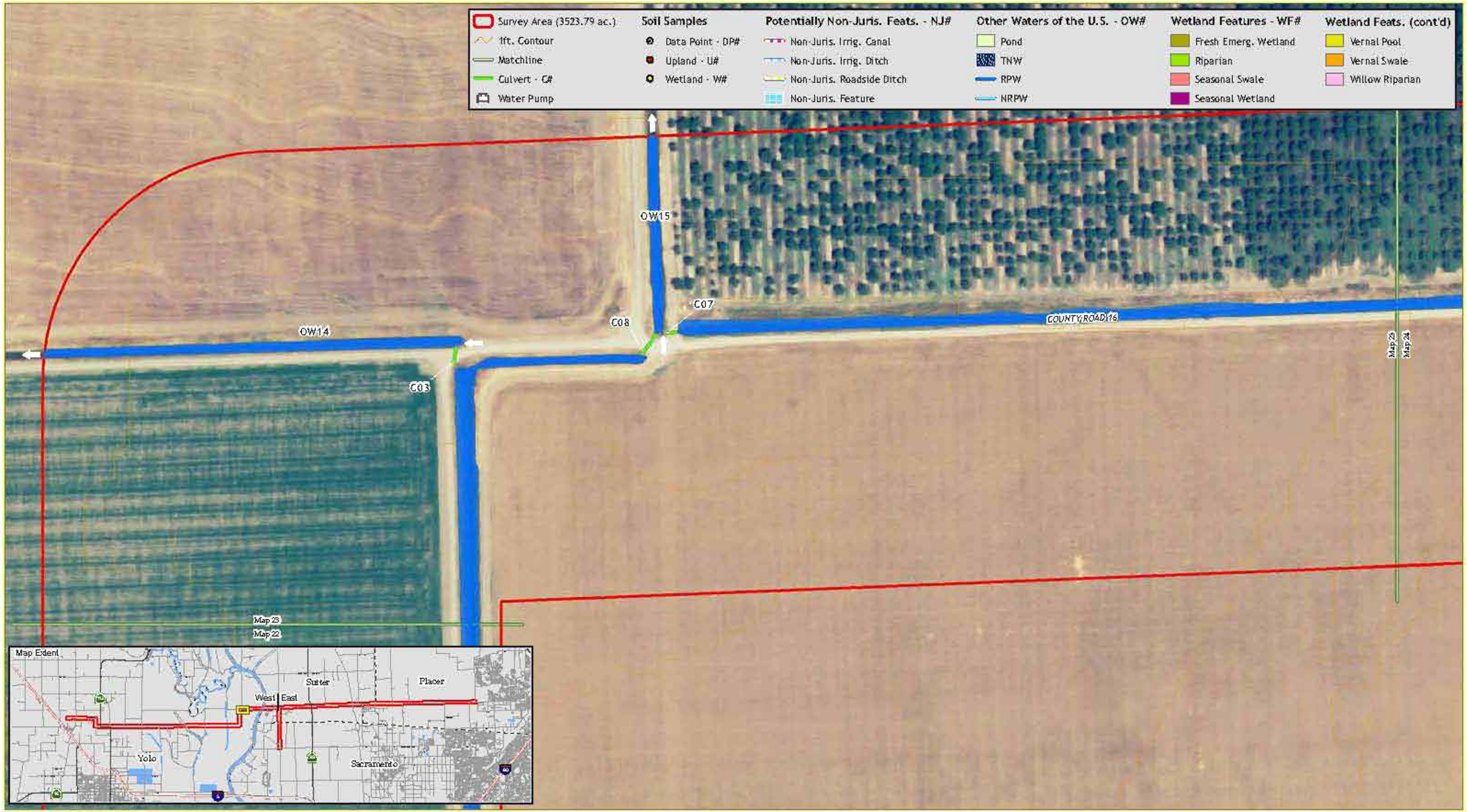

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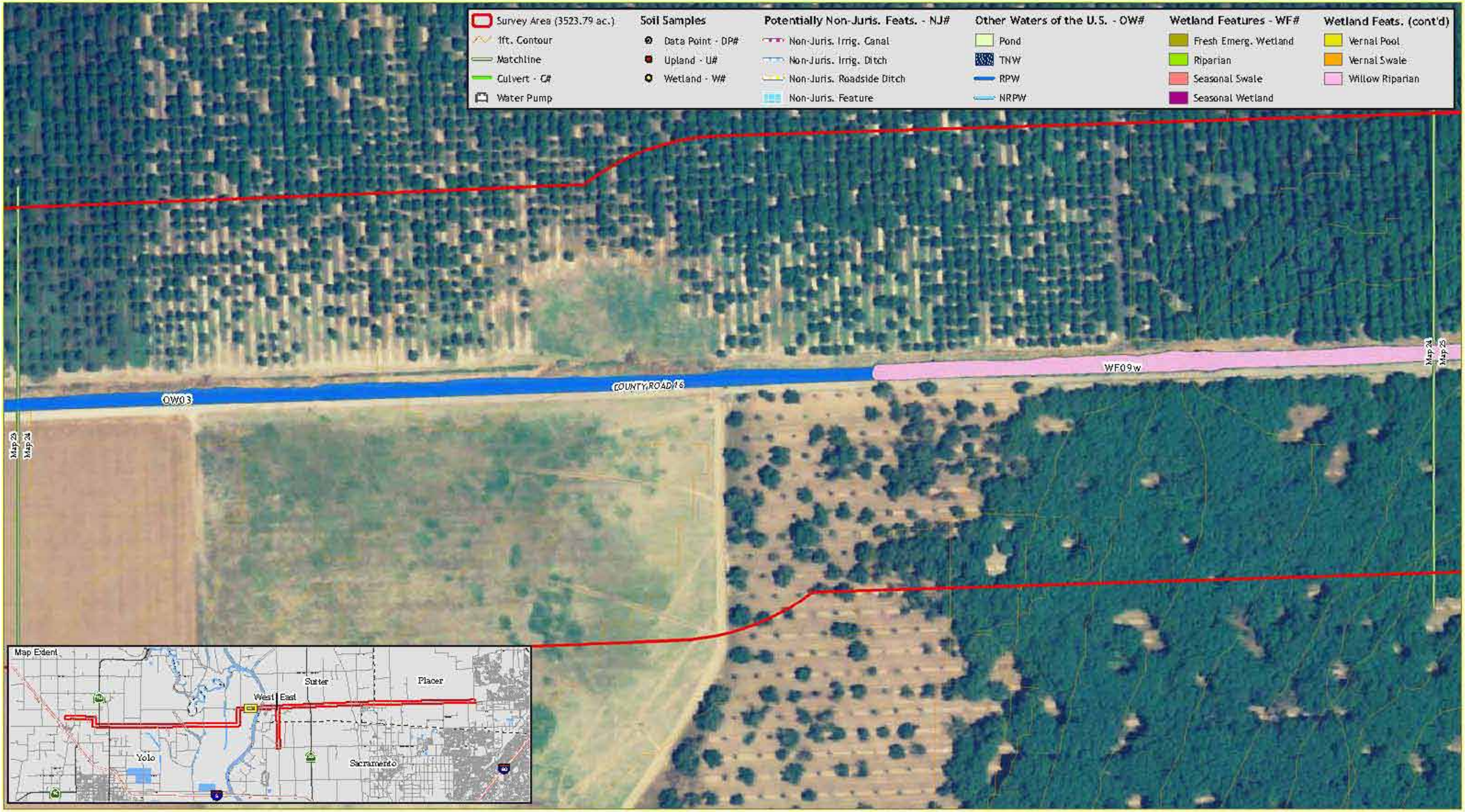

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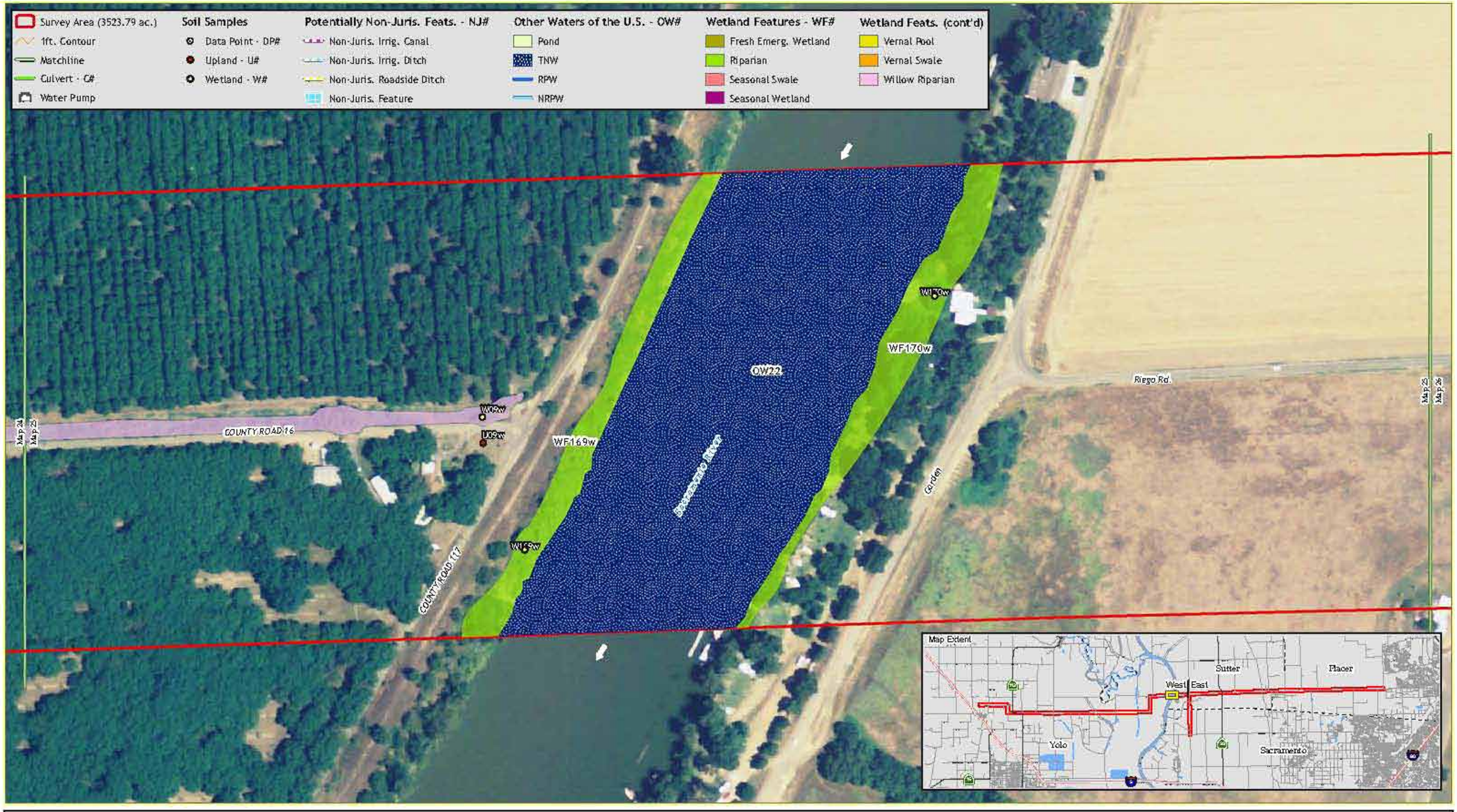

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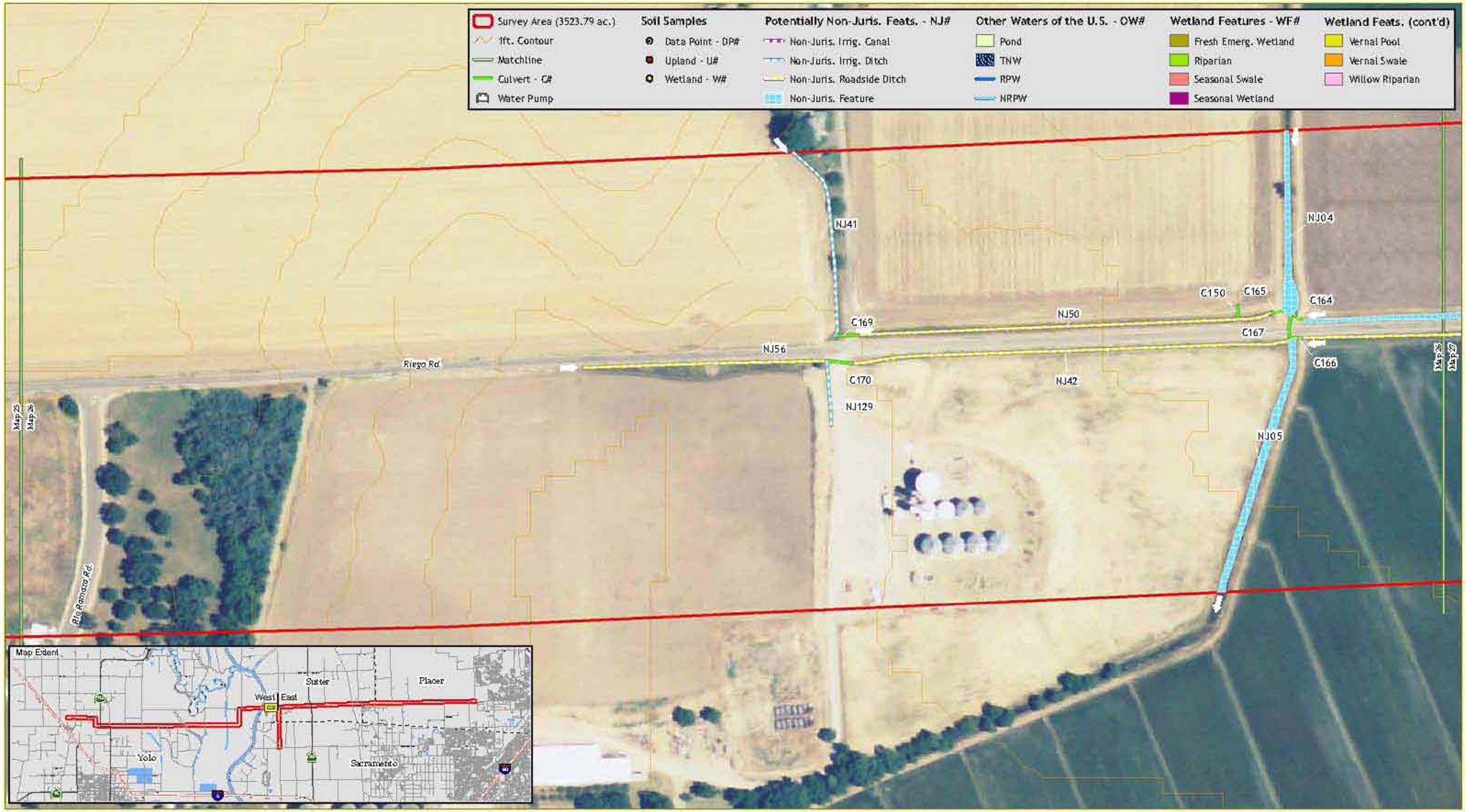
Attachment A



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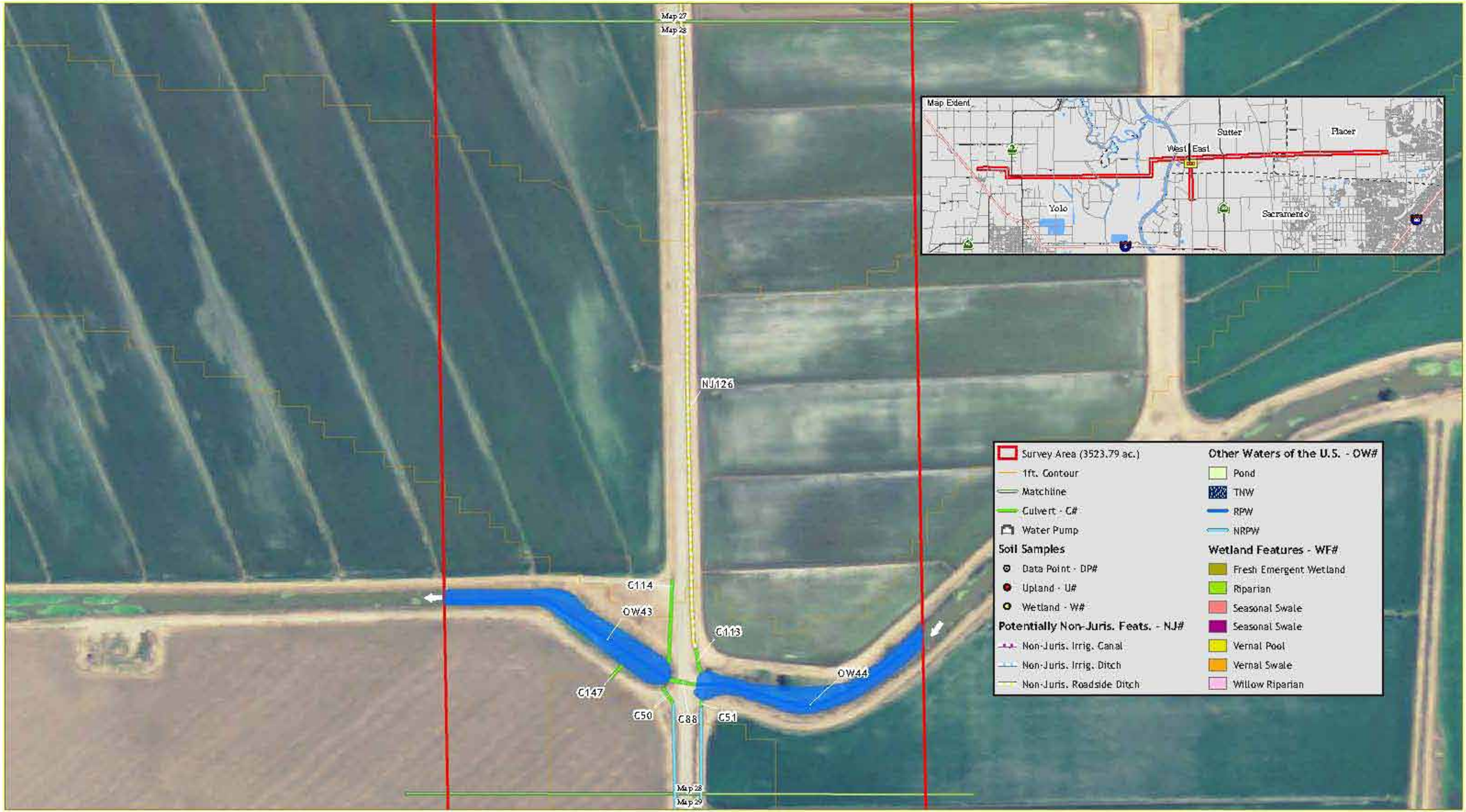

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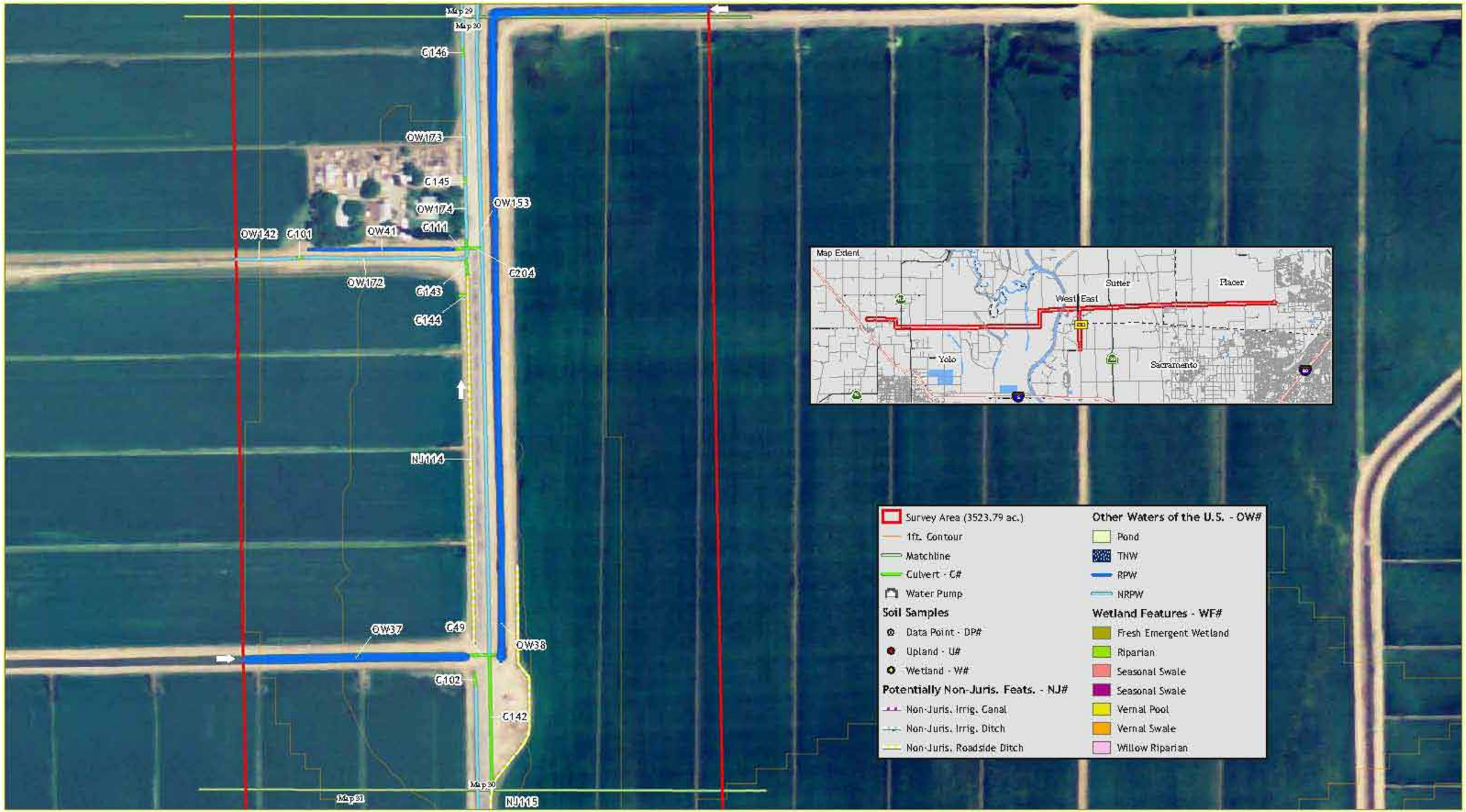

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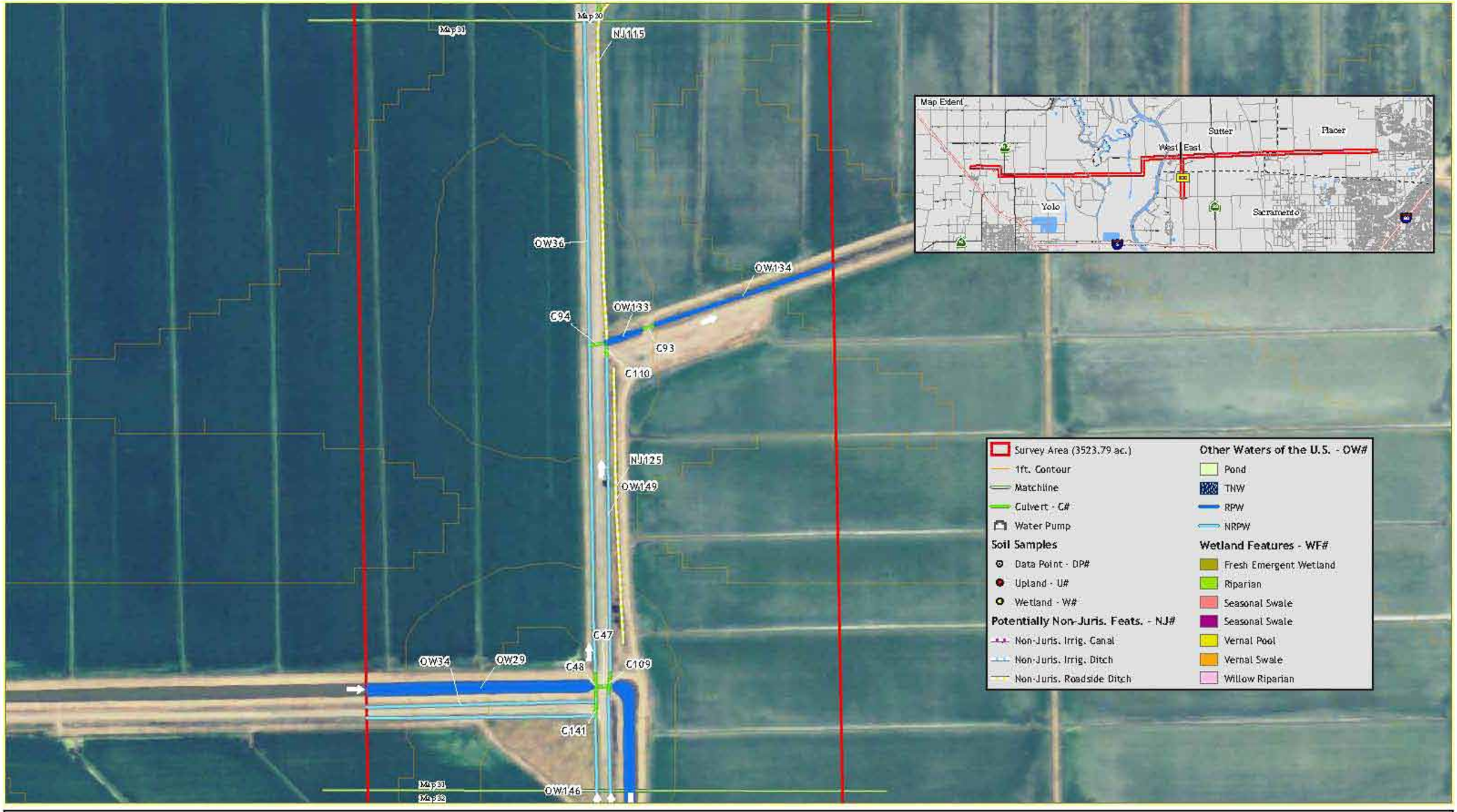

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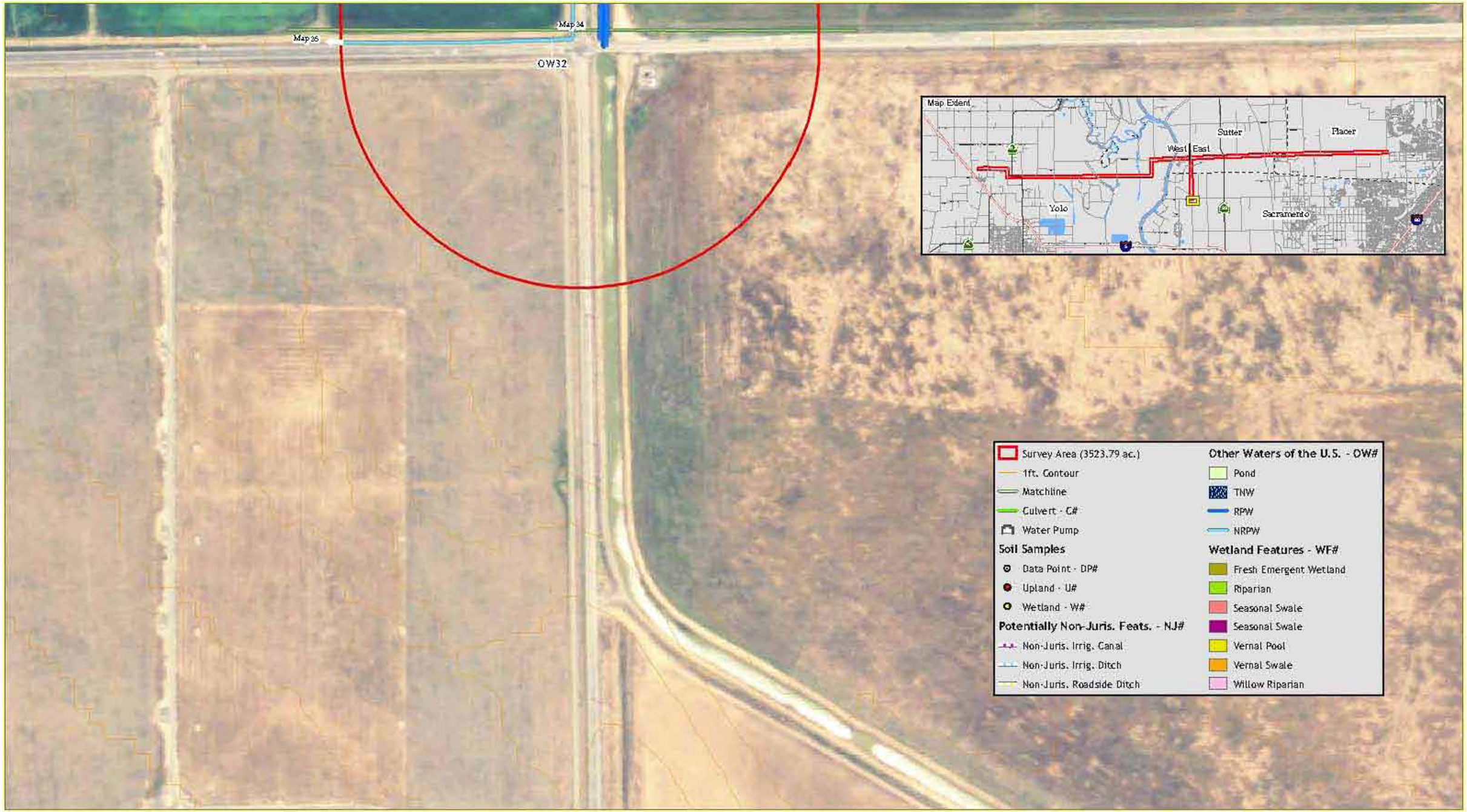

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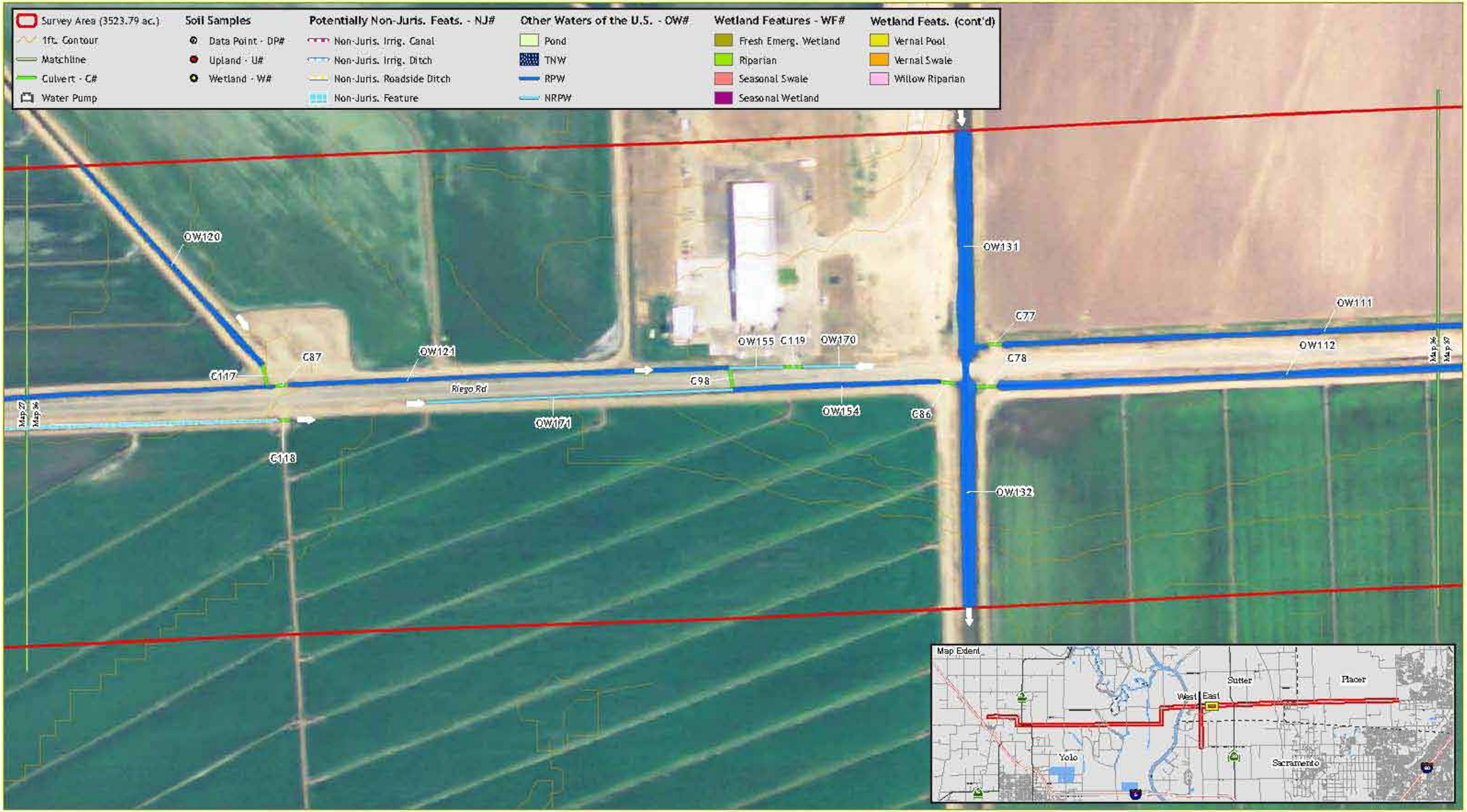

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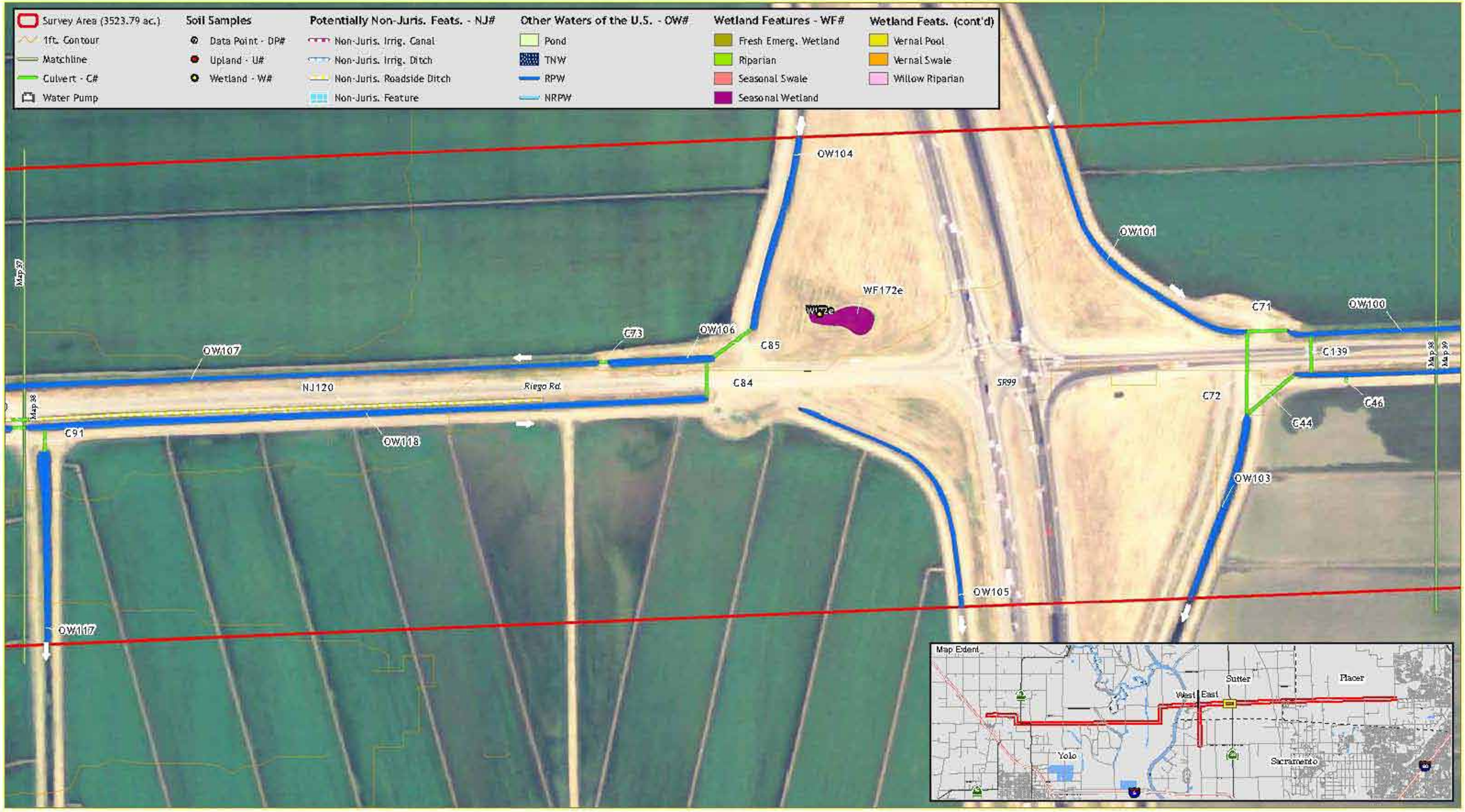

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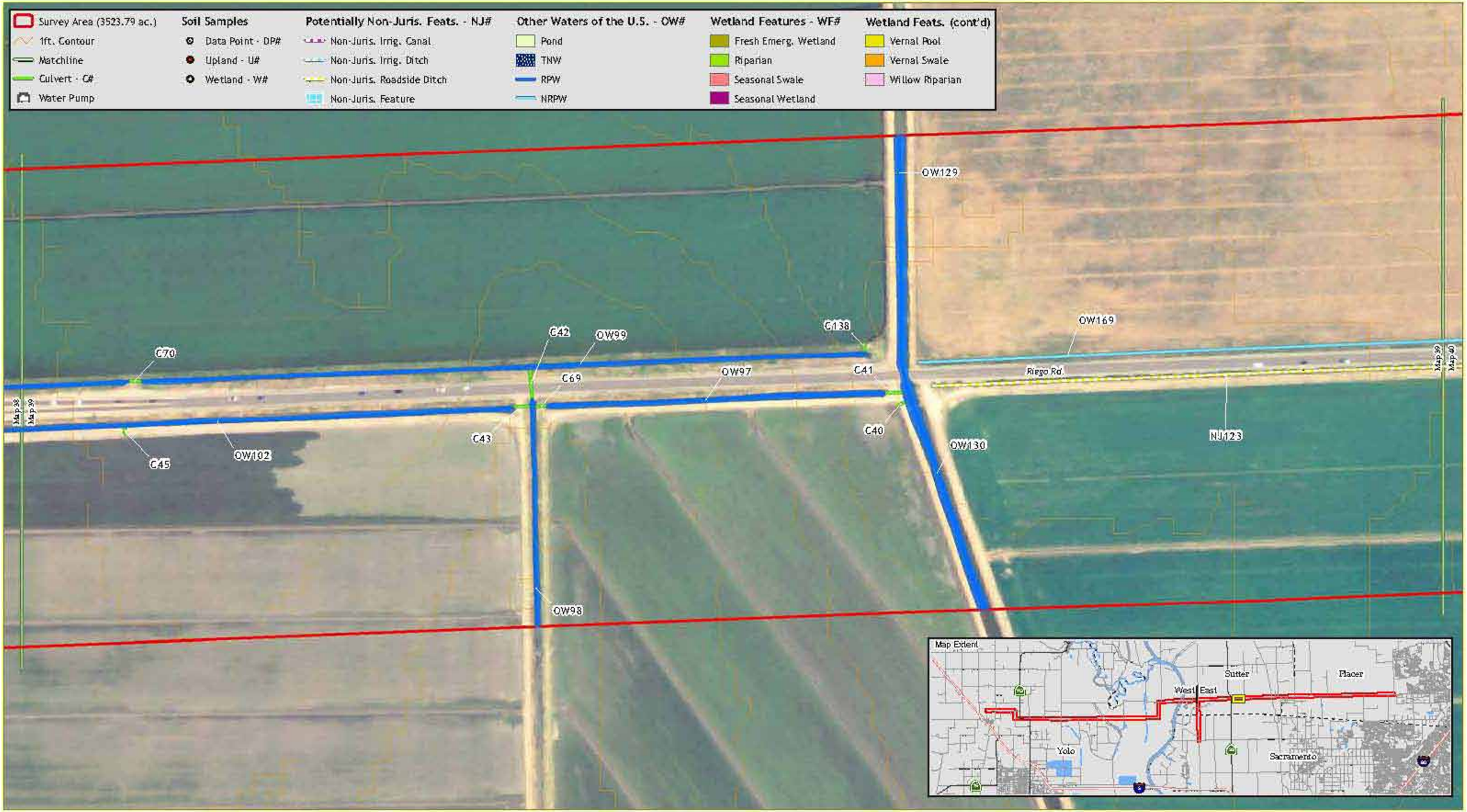

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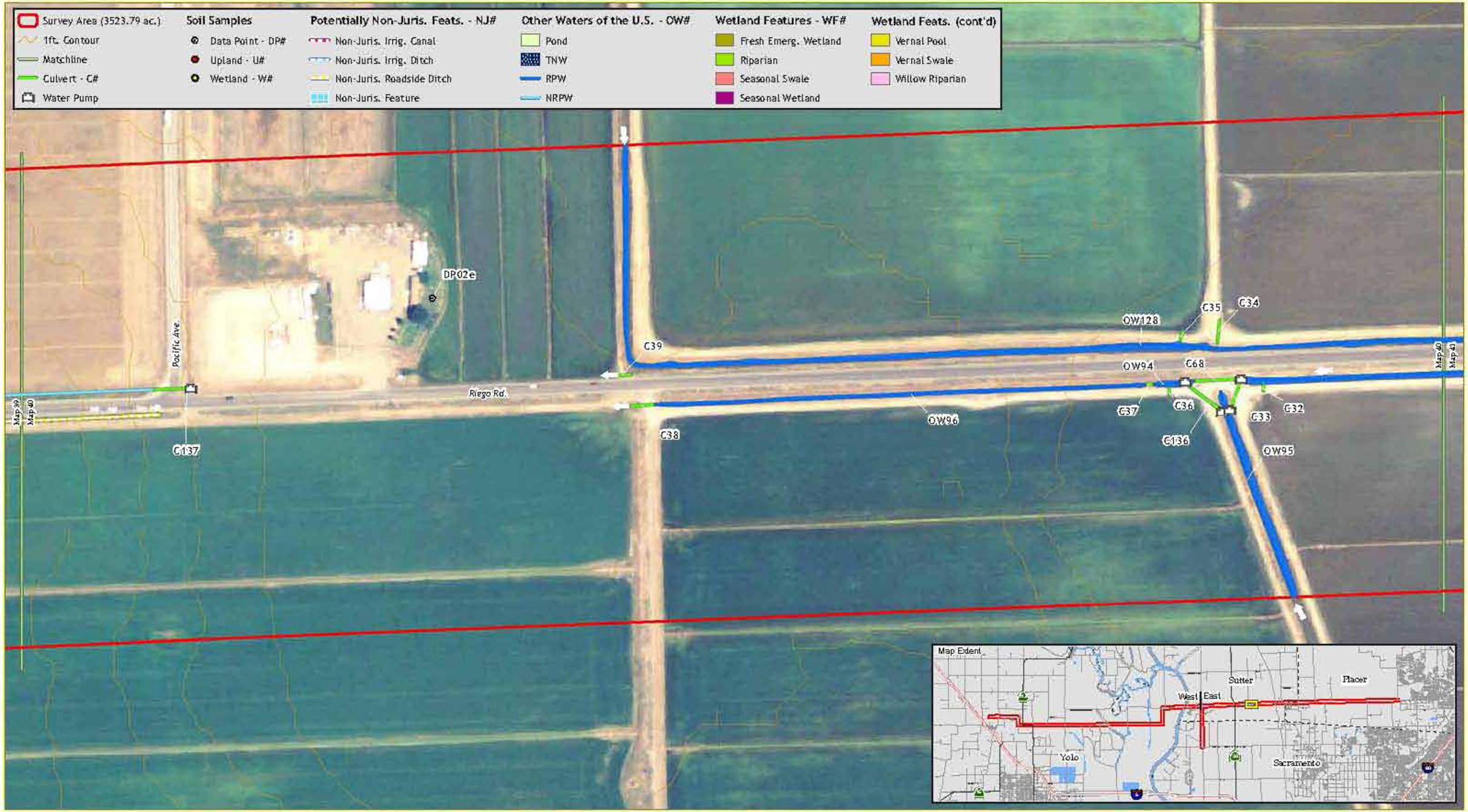

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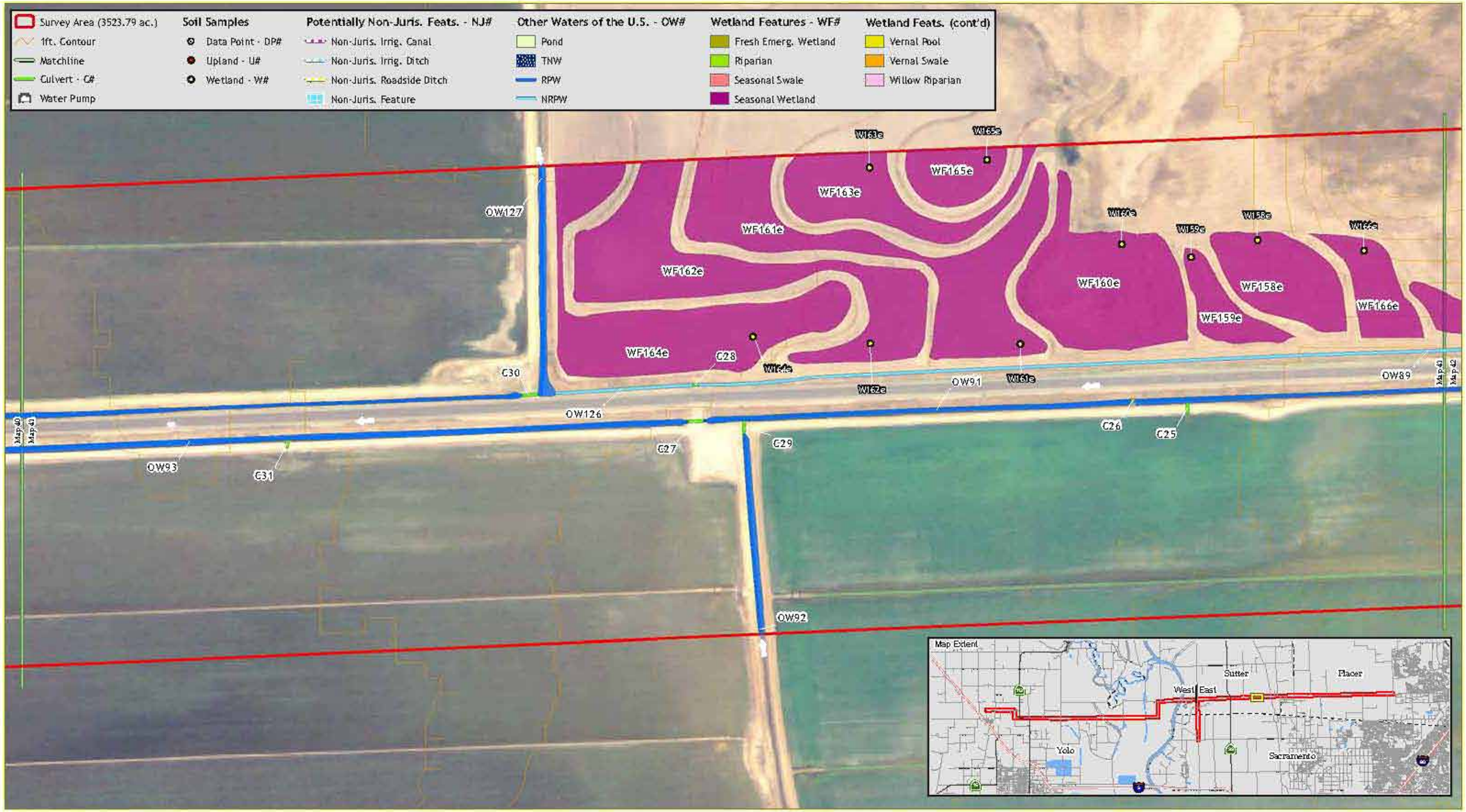

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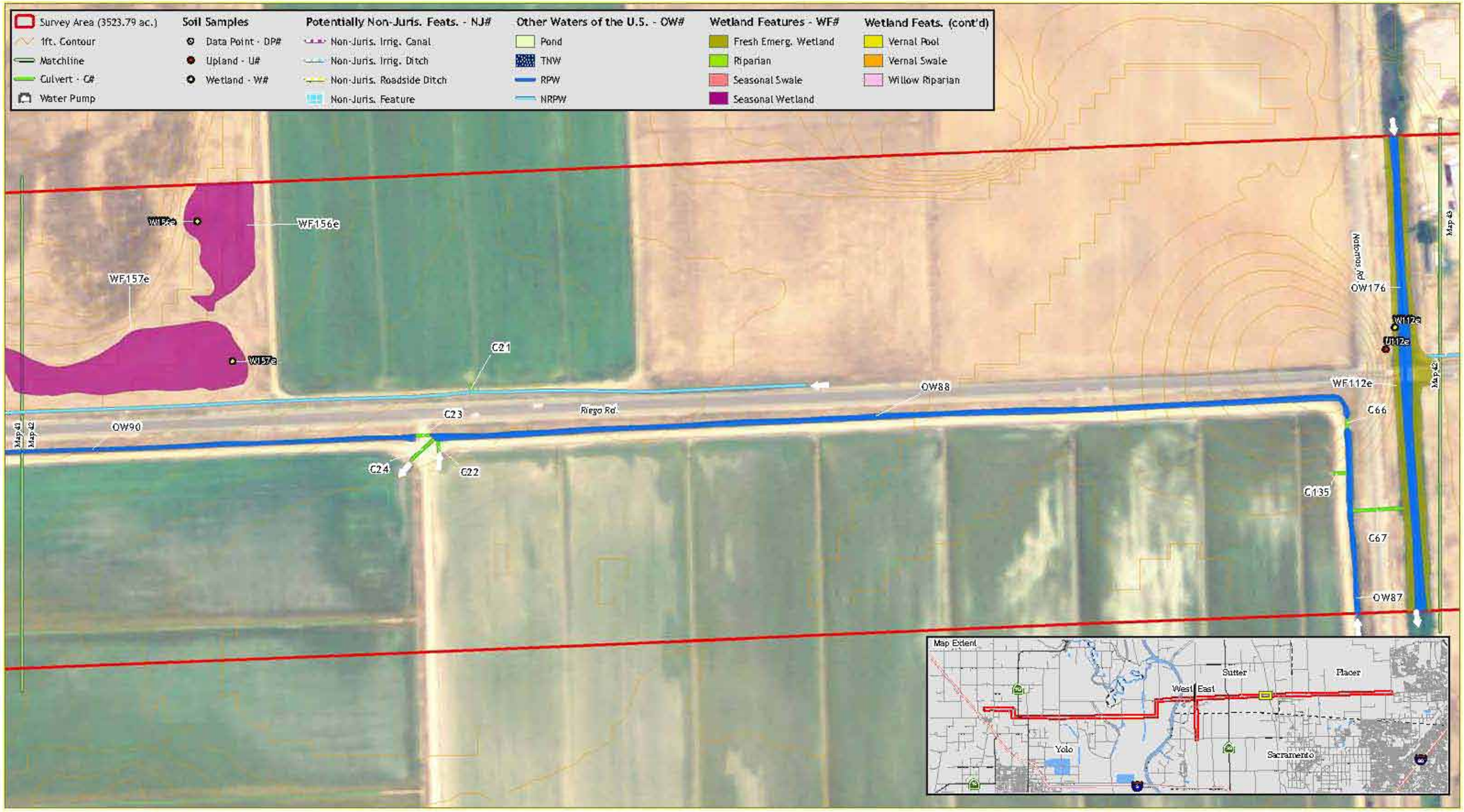
Surveyor East: JG,SLEA. Survey Dates: 7/21, 24 28, 8/10 & 25, 2006
Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007. Revised: August 21, 2007, May 29, 2008.

Feet
0 100 200

GALLAWAY CONSULTING, INC.



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Feet
0 100 200

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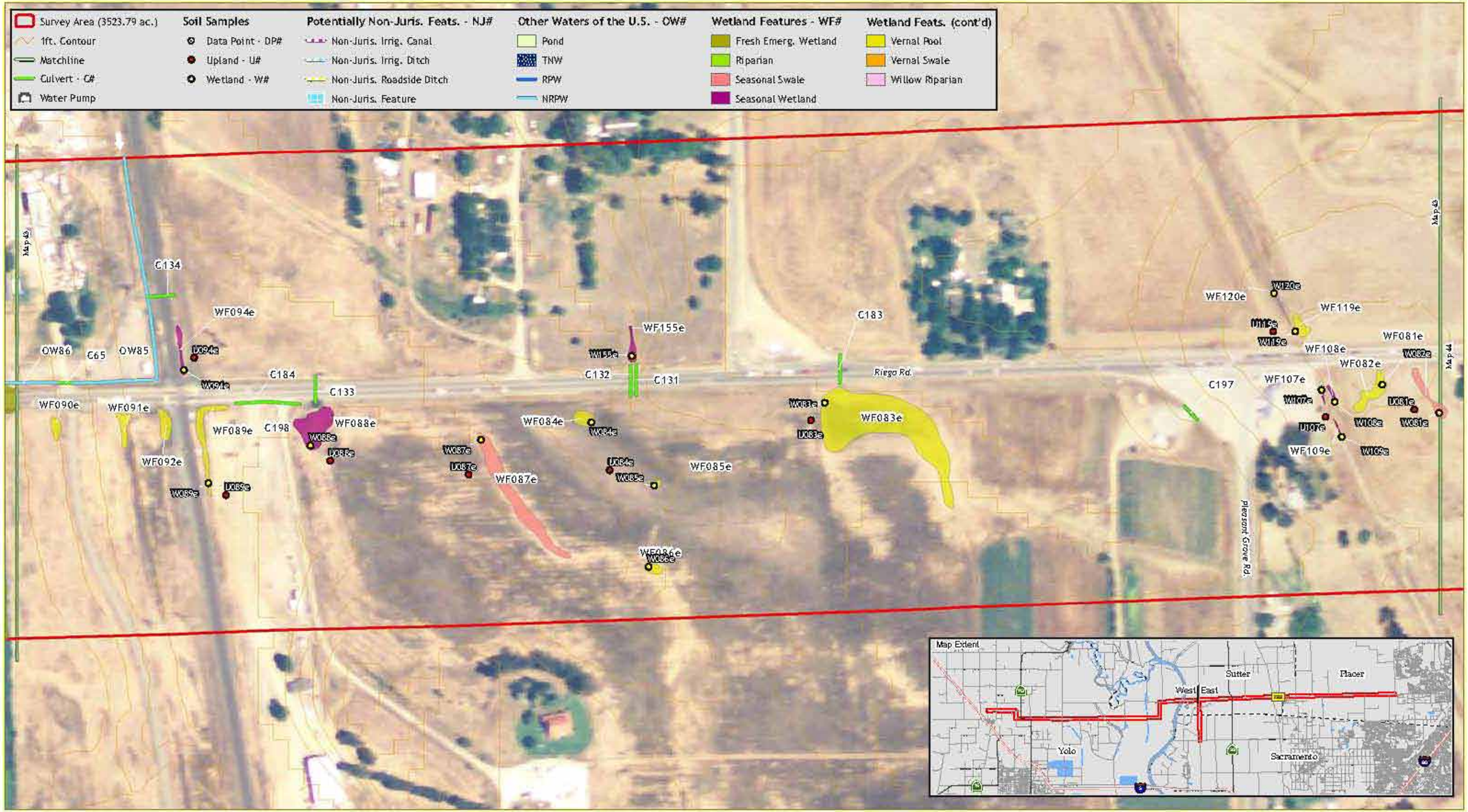

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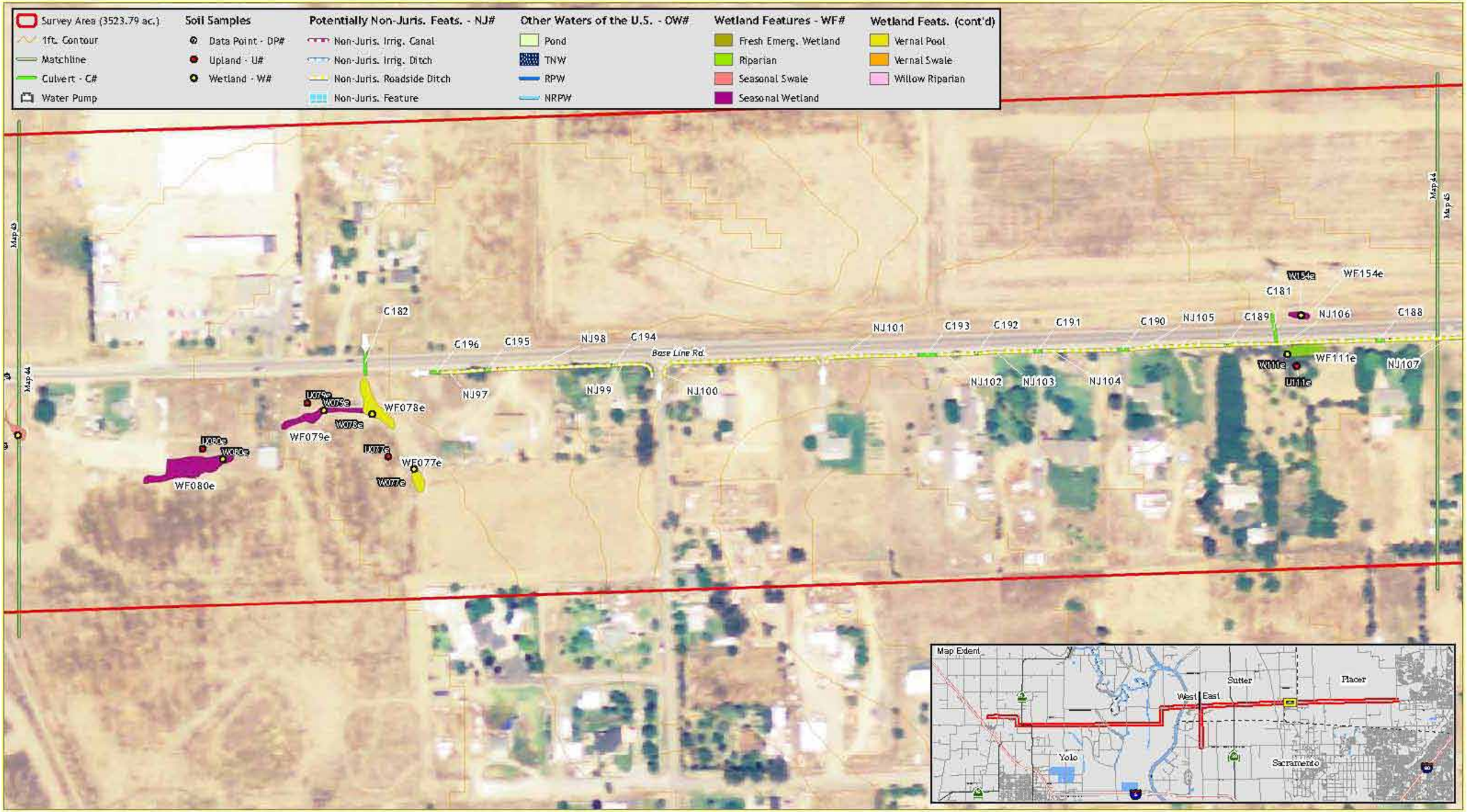

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0 100 200

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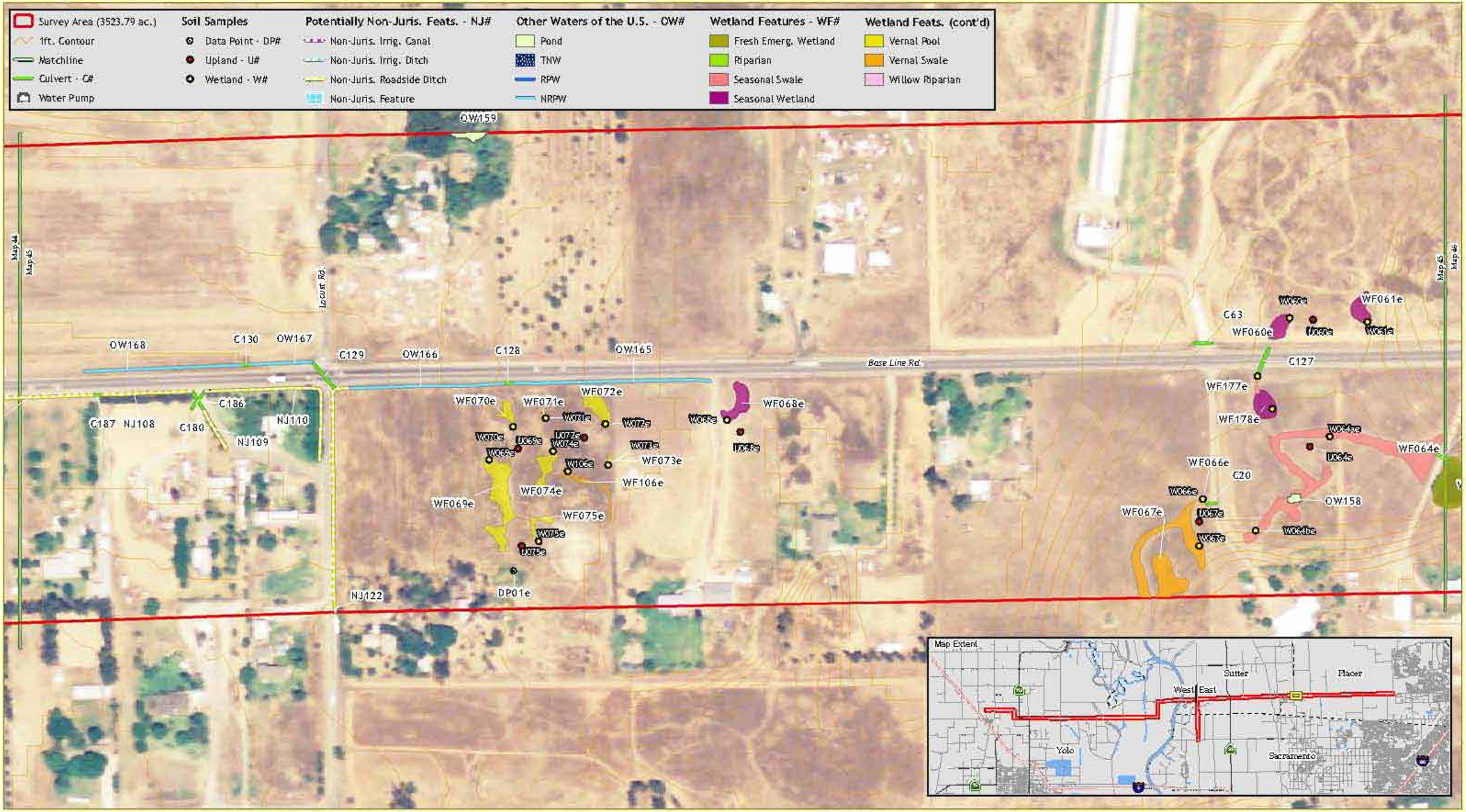

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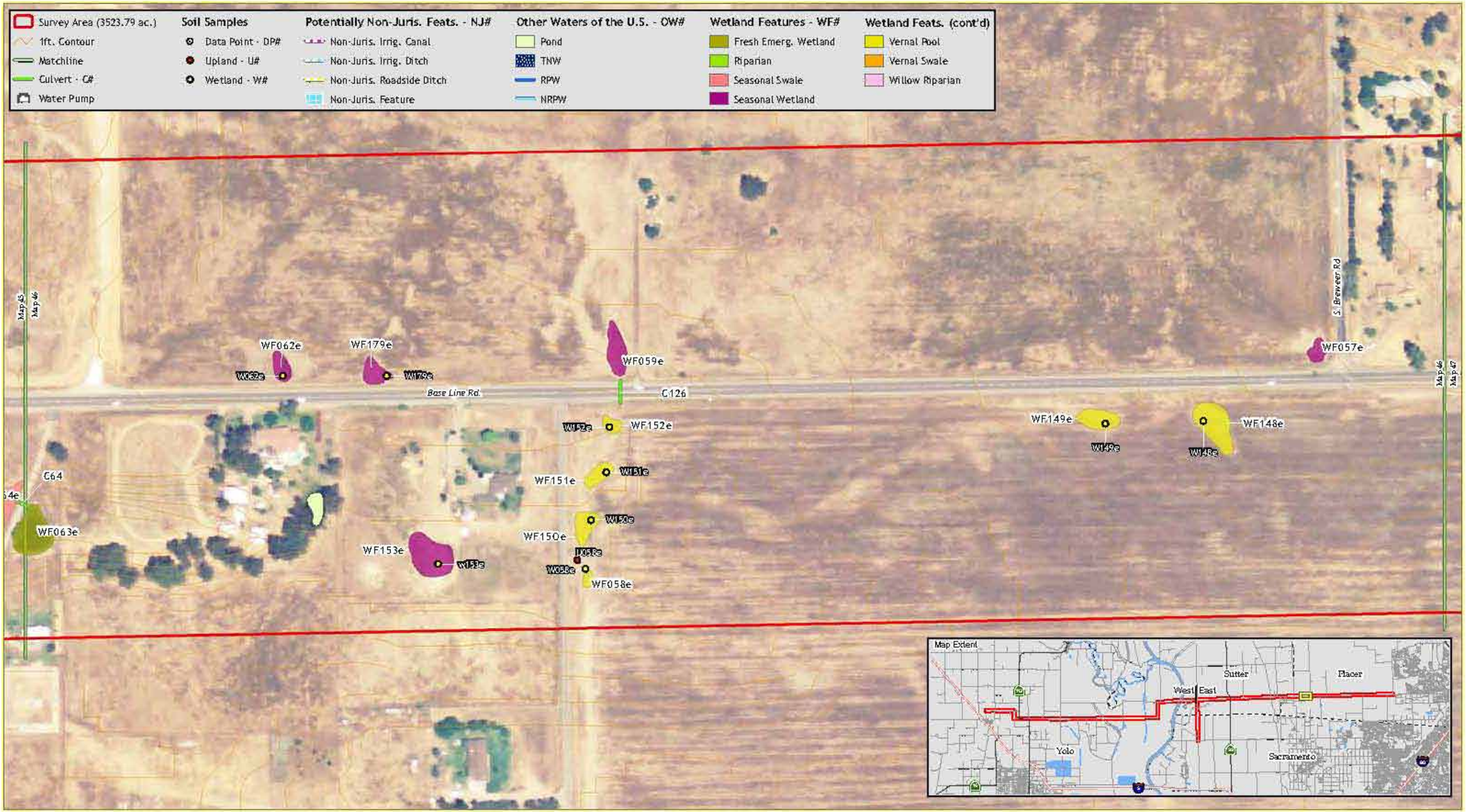

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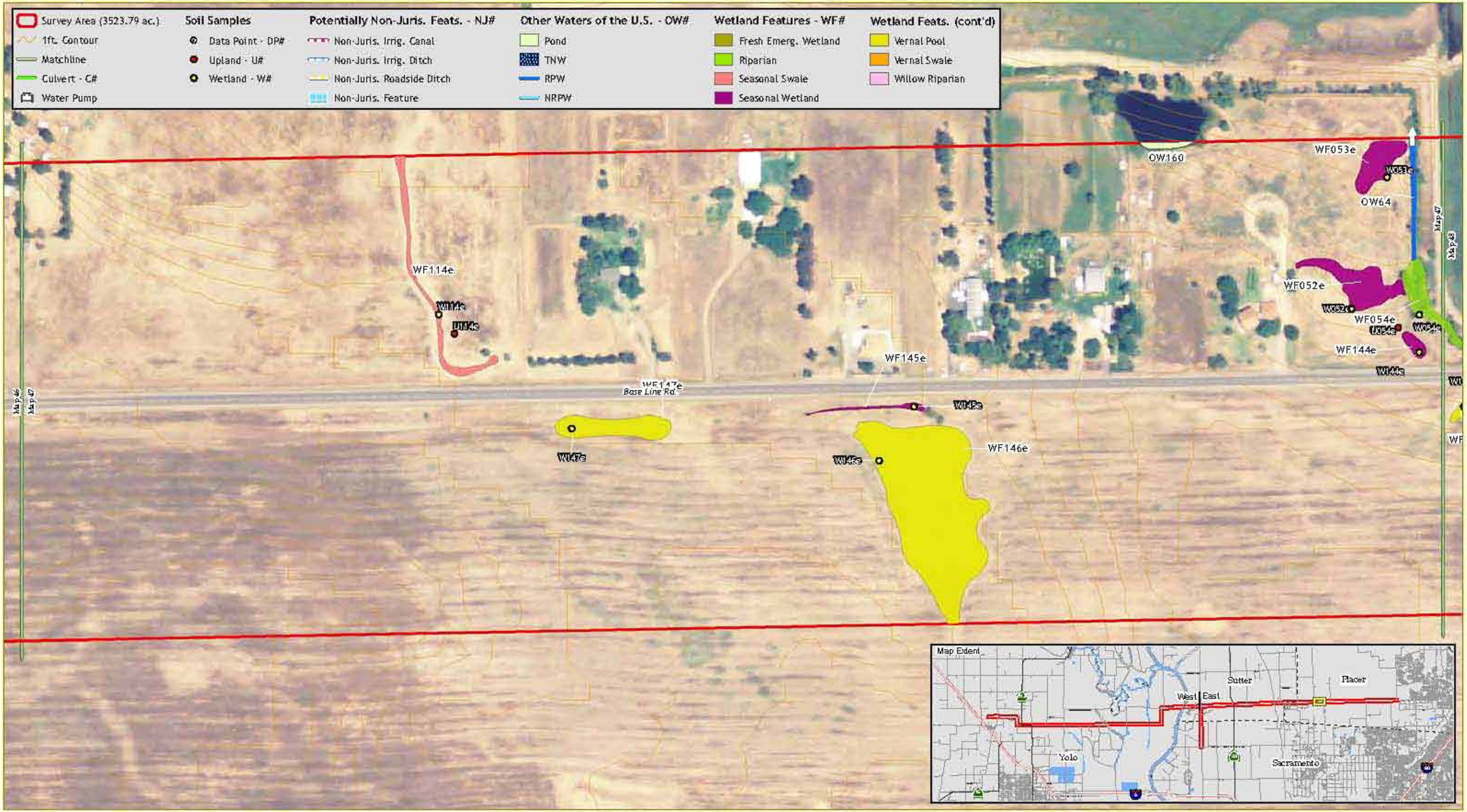

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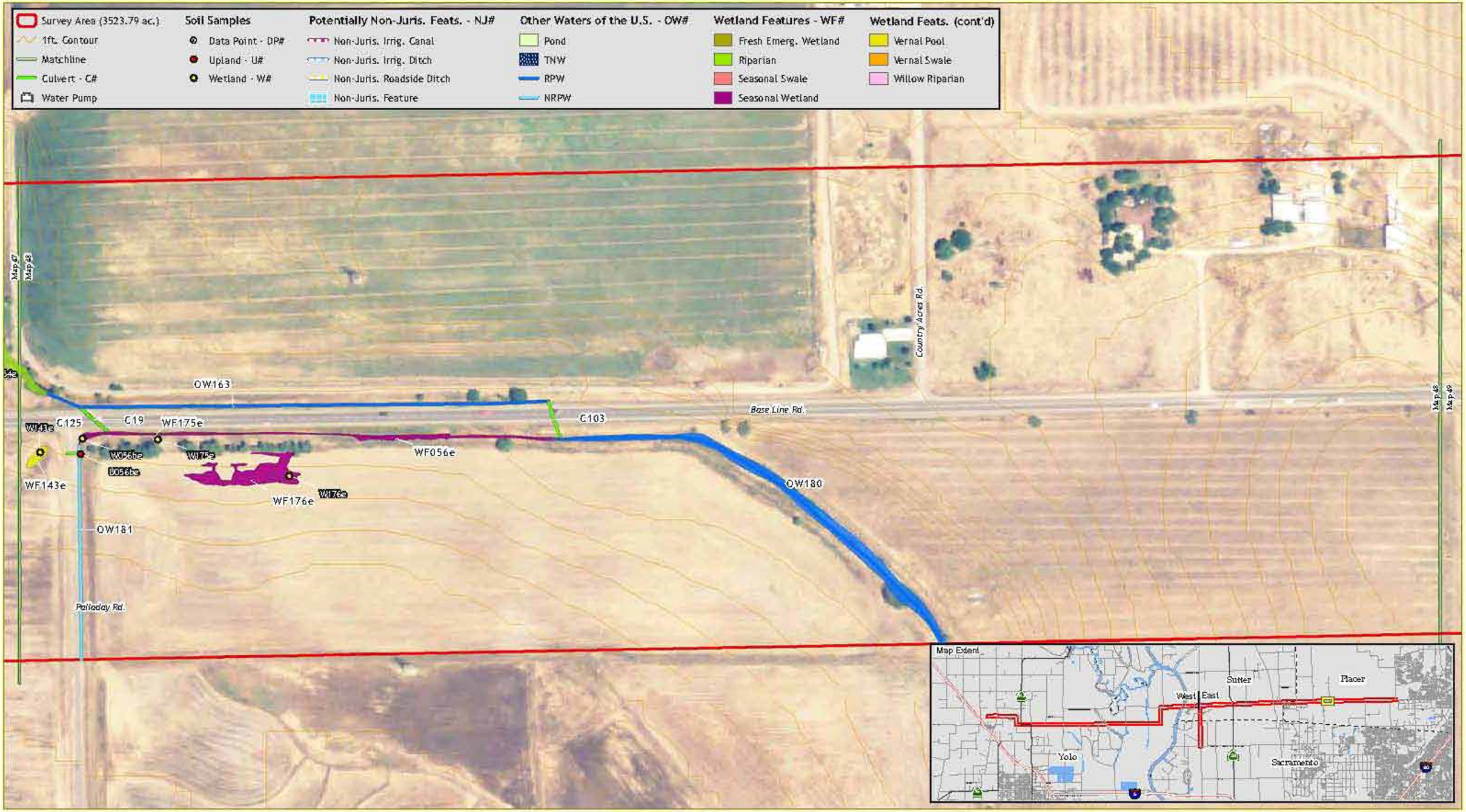

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Feet
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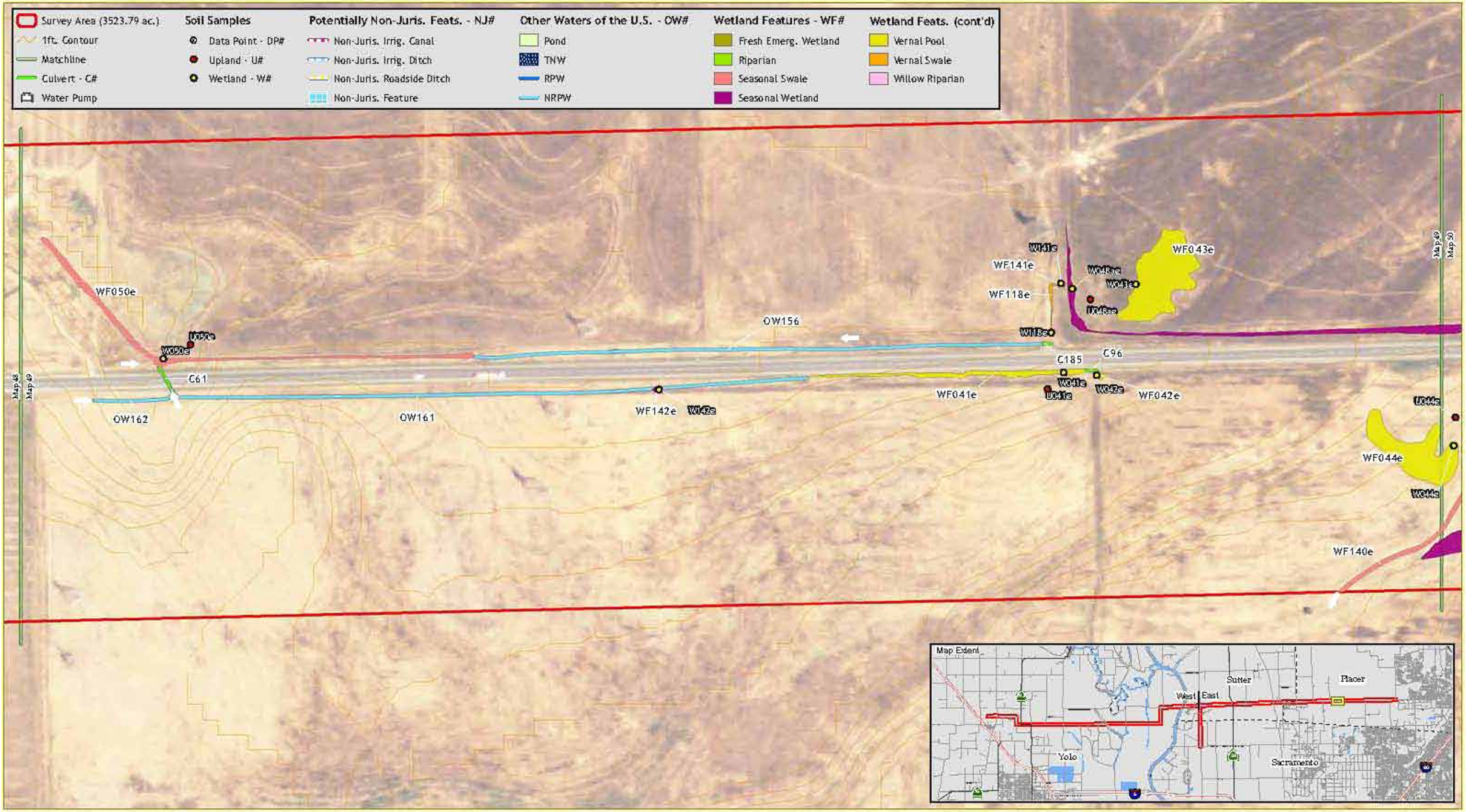

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0 100 200

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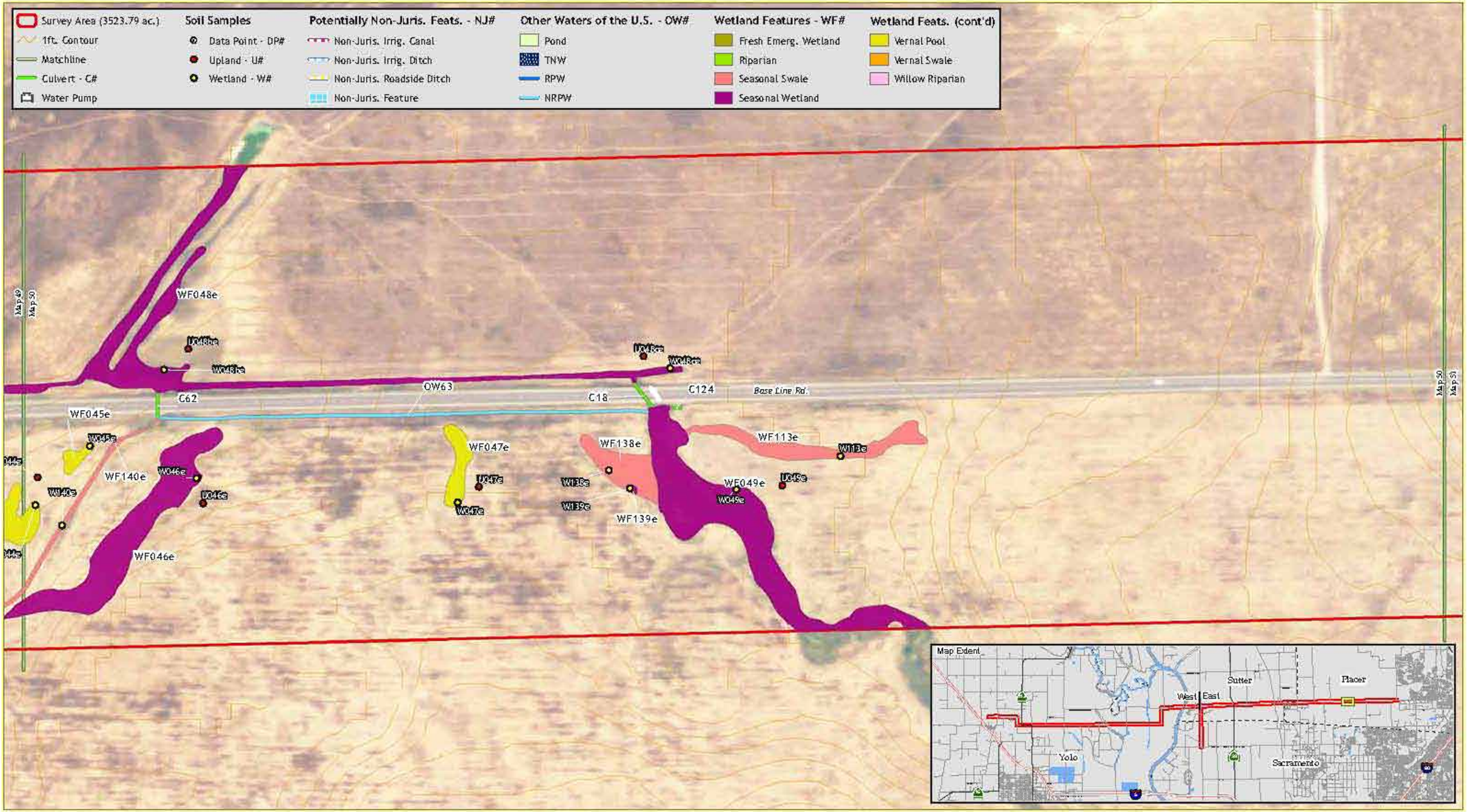

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Feet
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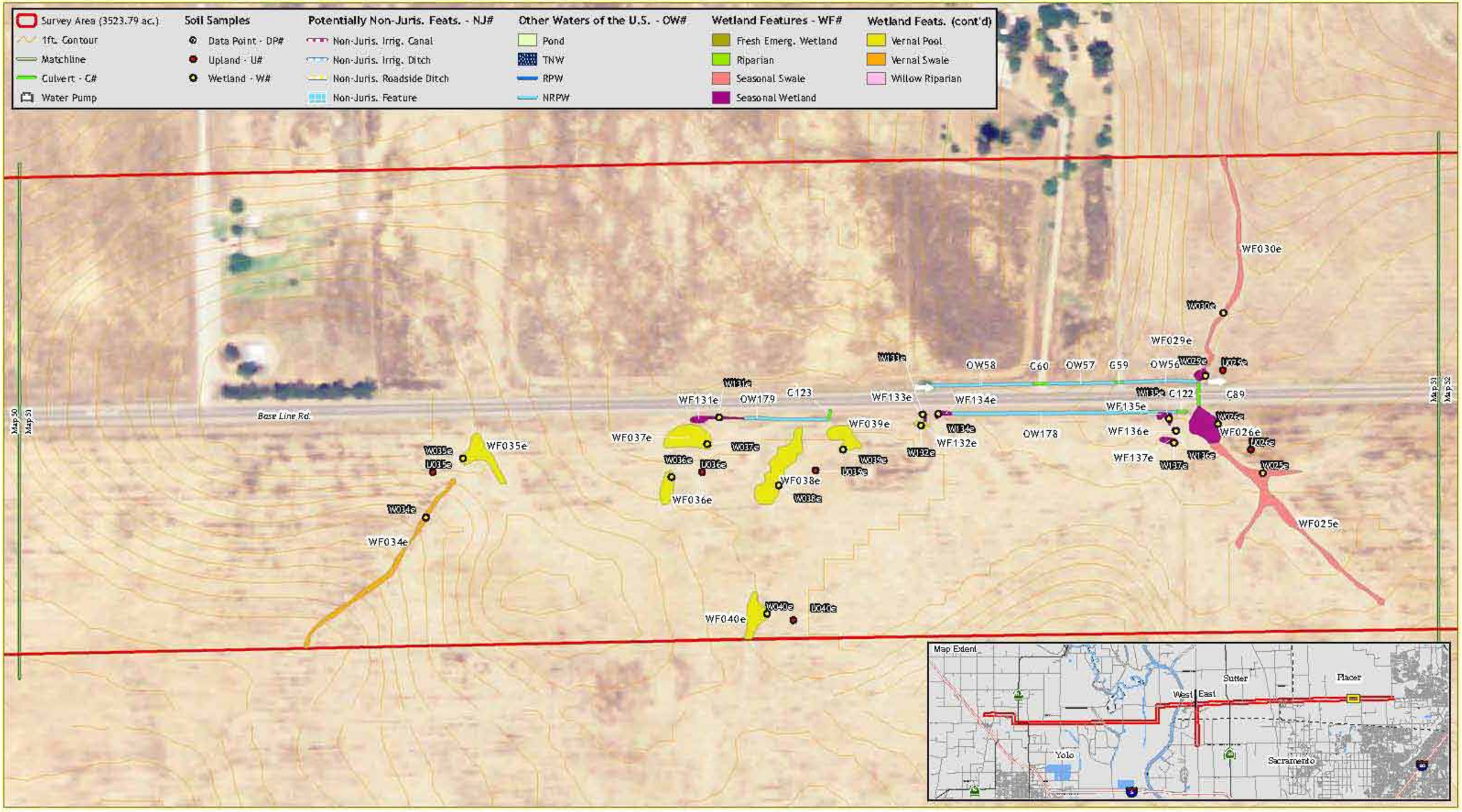

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Feet
0 100 200

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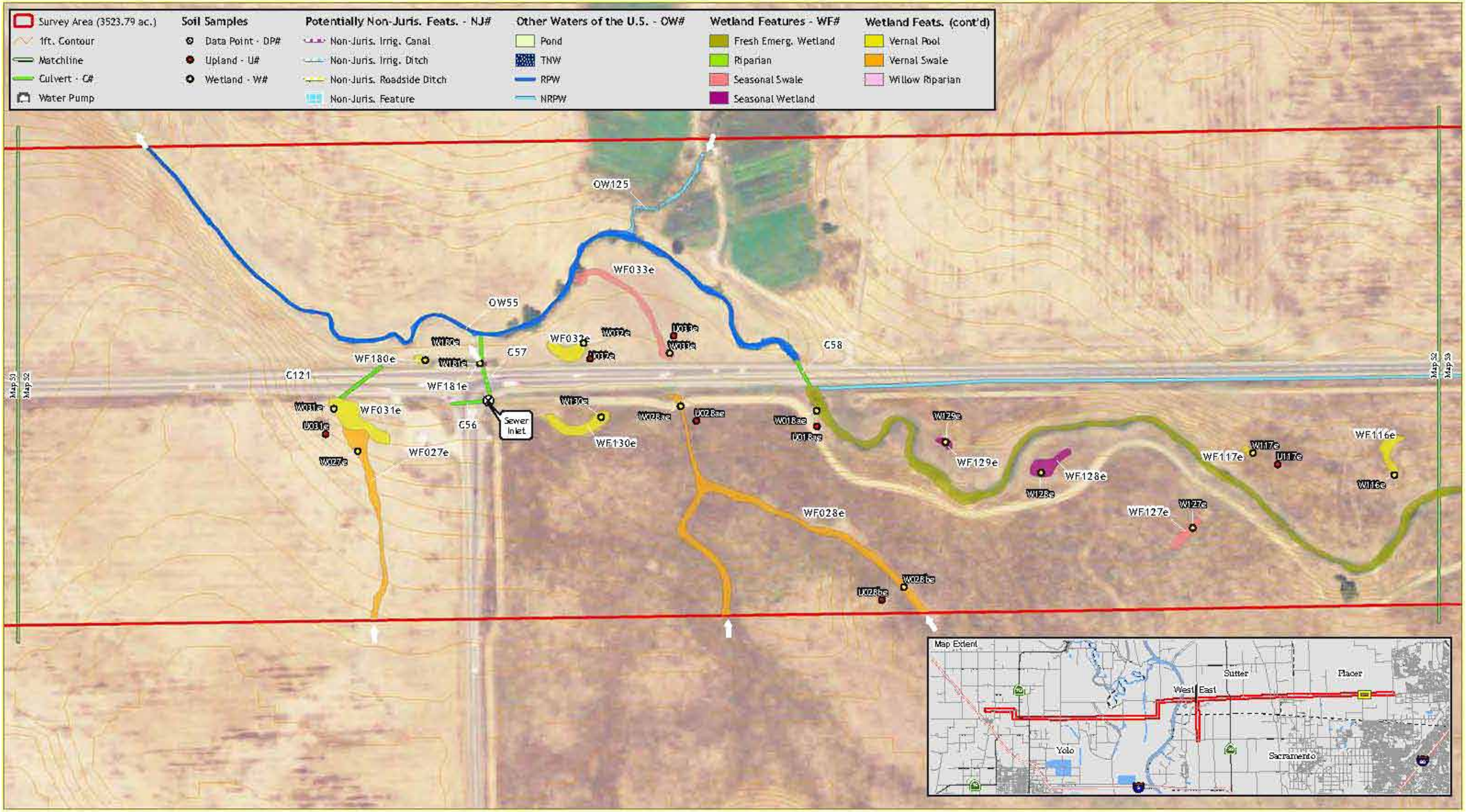

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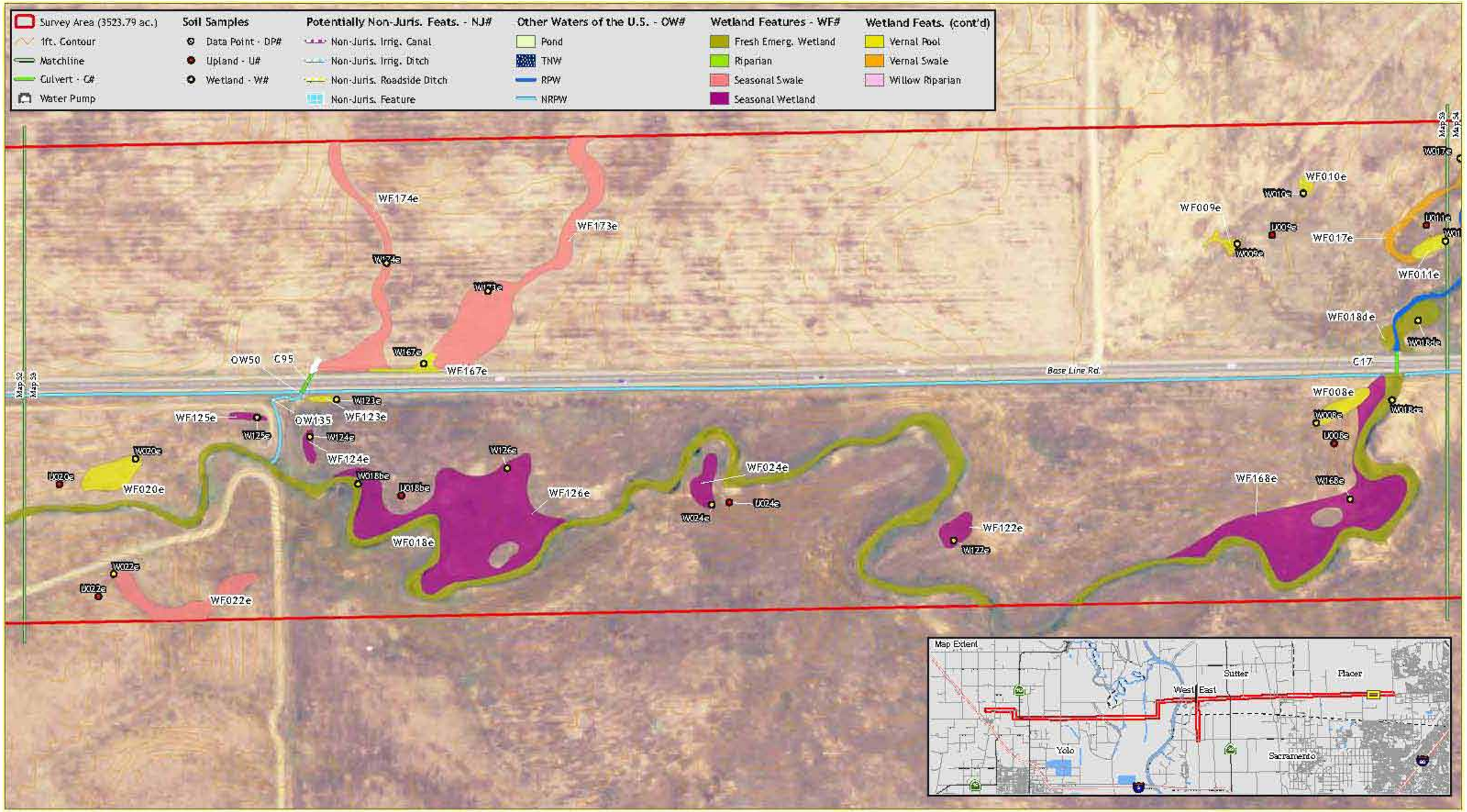

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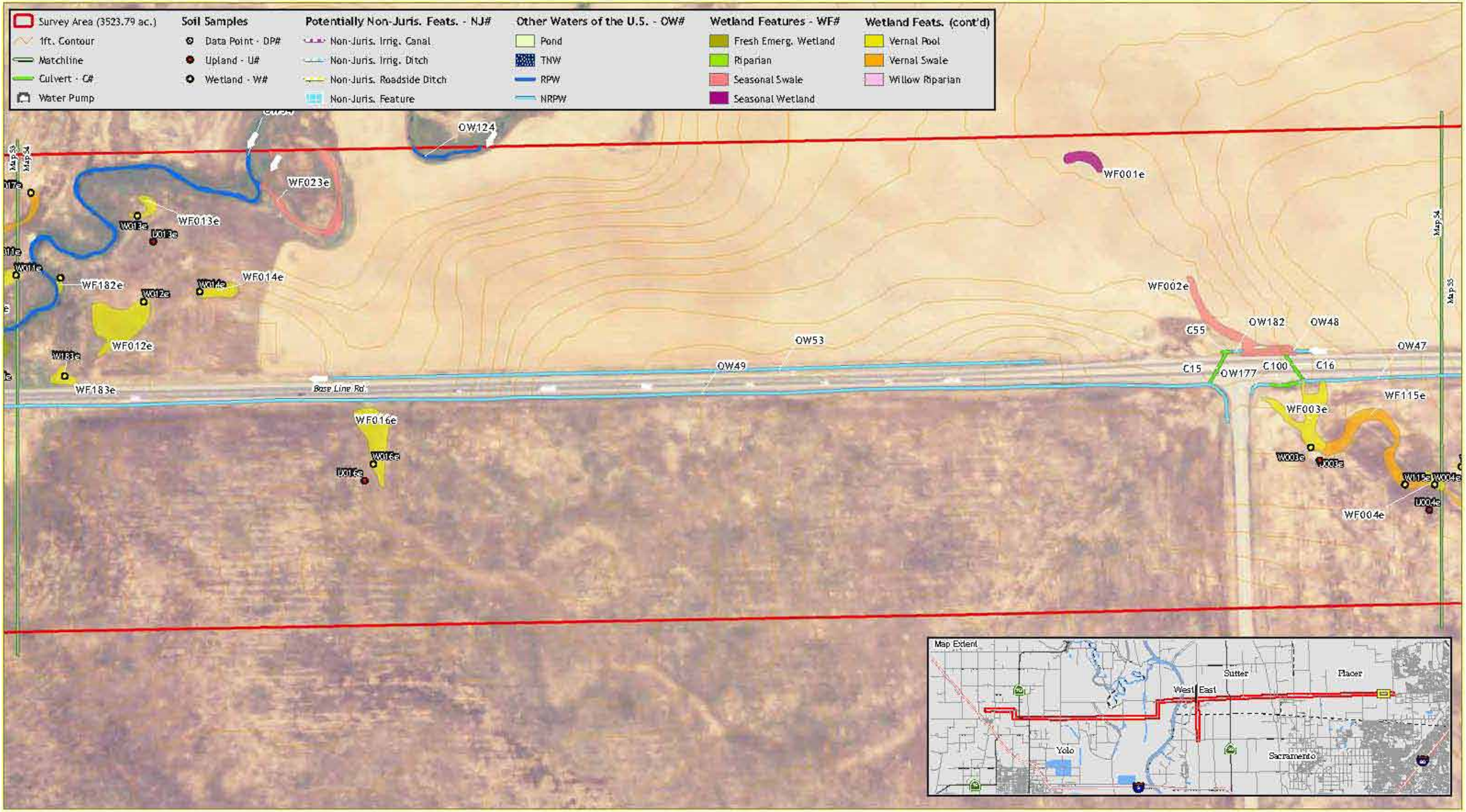

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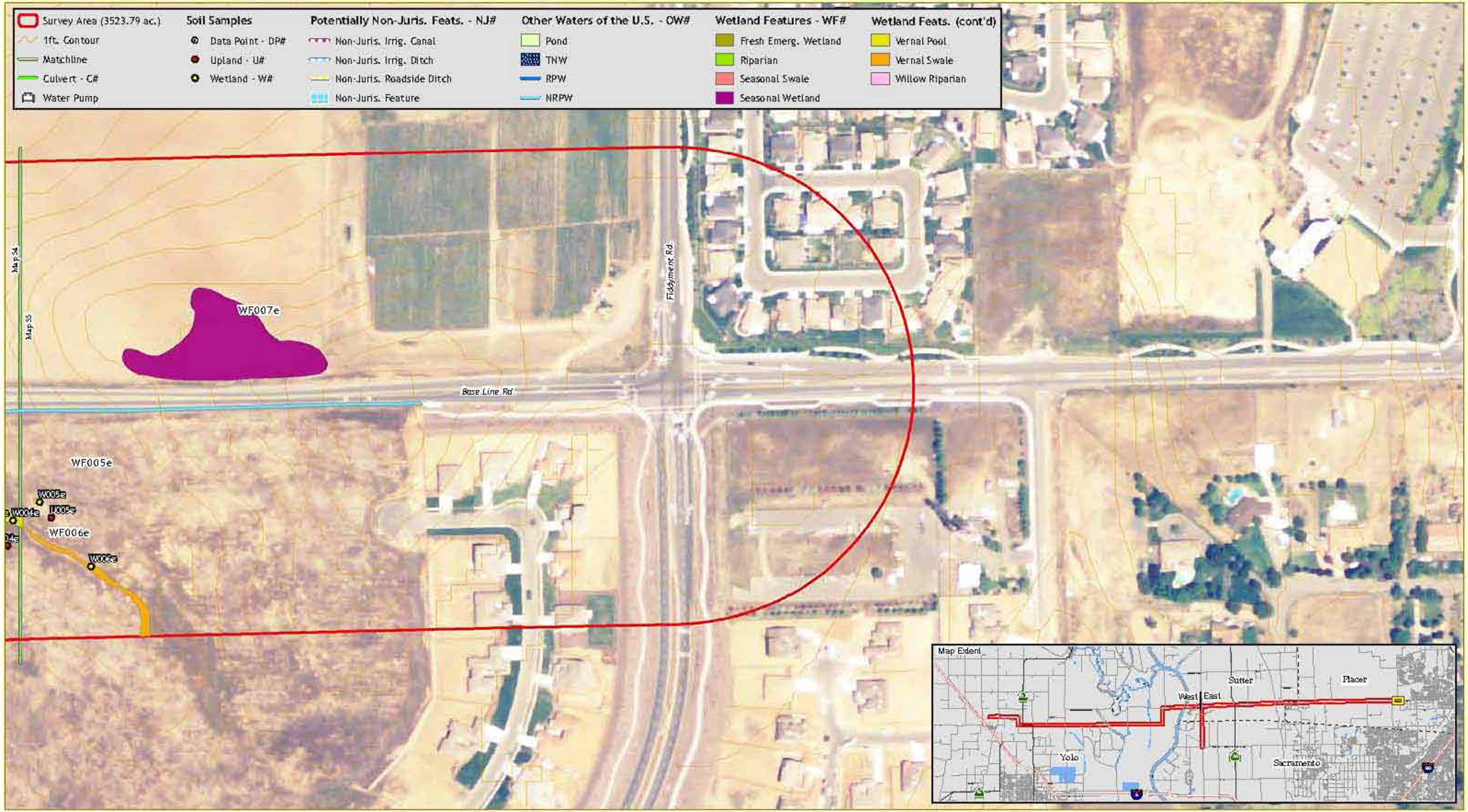

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Feet
0 100 200

GALLAWAY CONSULTING, INC.

Waters of the U.S. Table for the PG&E Line 407 Project

Culverts

Label	Type	Ave_Width	Length
C01	Culvert	4	43.55714083
C02	Culvert	3	27.96971331
C03	Culvert	3	43.7735575
C04	Culvert	3	19.29824207
C05	Culvert	3	41.28180653
C06	Culvert	3	31.76020589
C07	Culvert	3	29.89248232
C08	Culvert	4	58.74545046
C09	Culvert	1.5	188.4849409
C10	Culvert	1.5	128.4966634
C100	Culvert	1	64.93691126
C101	Culvert	1.5	20.63925988
C102	Culvert	1	28.72091881
C103	Culvert	2	82.3796401
C104	Culvert		34.7853939
C105	Culvert	1.5	25.11351706
C106	Culvert	2	25.10914645
C107	Culvert	2	15.45166964
C108	Culvert	1.5	21.2642169
C109	Culvert	1	48.38539252
C11	Culvert	1.5	35.9990054
C110	Culvert	1.5	34.39183174
C111	Culvert	1	45.54257026
C112	Culvert	1	26.21529486
C113	Culvert	0.5	56.26297974
C114	Culvert	0.5	180.8314387
C115	Culvert	0.5	42.38477335
C117	Culvert	1	49.35898964
C118	Culvert	1	23.56133578
C119	Culvert	1	41.44520997
C12	Culvert	1.5	41.98158139
C120	Culvert	1	49.52627531
C121	Culvert	1	113.1249674
C122	Culvert	1	23.23425197
C123	Culvert	1	19.27633125
C124	Culvert	1	15.41207349
C125	Culvert	2	28.0511811
C126	Culvert	2	48.53444882
C127	Culvert	2	58.76861968
C128	Culvert	2	19.60208744
C129	Culvert	2	78.73203241
C13	Culvert	1.5	46.94409509
C130	Culvert	2	15.42456437
C131	Culvert	2	68.34198978

Label	Type	Ave_Width	Length
C132	Culvert	2	68.34198978
C133	Culvert	1	52.74540682
C134	Culvert	2	59.5698472
C135	Culvert	1.5	26.5711894
C136	Culvert	2	90.19986877
C137	Culvert	3	84.31580734
C138	Culvert	1	16.18919038
C139	Culvert	3	77.35190177
C14	Culvert	1	29.61398606
C140	Culvert	1.5	42.36118872
C141	Culvert	1	32.66701453
C142	Culvert	1.5	290.4943097
C143	Culvert	1	42.41283619
C144	Culvert	2	18.39346746
C145	Culvert	2	18.68605294
C146	Culvert	2	19.87005654
C147	Culvert	2	36.71519275
C148	Culvert	2	56.91785662
C149	Culvert	1	64.67054955
C15	Culvert	2	84.3466052
C150	Culvert	2	29.12233949
C151	Culvert	1	202.9808173
C152	Culvert	1	31.77427821
C154	Culvert		33.35988581
C155	Culvert	2	23.99138123
C156	Culvert	2	22.56721038
C157	Culvert	2	18.25080304
C158	Culvert	2	26.76748567
C159	Culvert	2	30.59179247
C16	Culvert	2	87.36625394
C160	Culvert	2	31.36318897
C161	Culvert	2	18.07480315
C162	Culvert	2	33.95352898
C163	Culvert	2	104.8365872
C164	Culvert	2	27.14400435
C165	Culvert	2	28.35579415
C166	Culvert	1	28.67113183
C167	Culvert	4	56.45405933
C168	Culvert	1.5	33.58543032
C169	Culvert	1.5	56.42949175
C17	Culvert	8	53.01509683
C170	Culvert	1.5	60.90002185
C171	Culvert	2	37.17036838
C172	Culvert	1.5	28.68858677
C173	Culvert	2	66.31764177
C174	Culvert	2.5	56.94667309

Label	Type	Ave_Width	Length
C175	Culvert	2	38.37925075
C176	Culvert	1.5	26.03569345
C177	Culvert	2	60.82608847
C178	Culvert	1	27.02032803
C179	Culvert	1.5	33.08401312
C18	Culvert	3	64.55791143
C180	Culvert	1	49.78946923
C181	Culvert	1.5	63.5471369
C182	Culvert	1.5	50.74772826
C183	Culvert	1	62.44813259
C184	Culvert	1	69.11529195
C185	Culvert	1	22.18382759
C186	Culvert	1	48.33837452
C187	Culvert	0.5	19.39267659
C188	Culvert	0.5	23.07880156
C189	Culvert	0.5	13.44636682
C19	Culvert	3	76.83000822
C190	Culvert	0.5	29.54977951
C191	Culvert	0.5	22.14292185
C192	Culvert	0.5	12.48685965
C193	Culvert	0.5	45.68071329
C194	Culvert	0.5	12.56038618
C195	Culvert	0.5	15.50639476
C196	Culvert	0.5	21.35368837
C197	Culvert	0.5	40.51155799
C198	Culvert	1.5	70.43879573
C199	Culvert	1	87.05727081
C20	Culvert	1.5	18.56995915
C200	Culvert		45.05822023
C201	Culvert	1	38.74245407
C202	Culvert	2	38.63783436
C203	Culvert	1.5	44.35912394
C21	Culvert	1	13.53961132
C22	Culvert	2	22.92576655
C23	Culvert	2	37.4174464
C24	Culvert	3	67.53557415
C25	Culvert	2	21.62813893
C26	Culvert	3.5	12.05110441
C27	Culvert	4	38.98995083
C28	Culvert	1	15.71244838
C29	Culvert	3	30.80379485
C30	Culvert	2.5	36.26413239
C31	Culvert	1.5	15.08918743
C32	Culvert	1.5	14.39679914
C33	Culvert	2	61.96123122
C34	Culvert	1	47.93505745
C35	Culvert	1	20.77817696

Label	Type	Ave_Width	Length
C36	Culvert	1.5	14.39679915
C37	Culvert	2	20.53379265
C38	Culvert	2	54.06547941
C39	Culvert	1.5	37.02174215
C40	Culvert	1.5	16.03758567
C41	Culvert	2.5	40.75181037
C42	Culvert	3.5	64.98457432
C43	Culvert	3	37.14604922
C44	Culvert	3	140.2731895
C45	Culvert	1.5	11.6855482
C46	Culvert	1.5	8.69560169
C47	Culvert	10.5	38.0698819
C48	Culvert	2	57.39437318
C49	Culvert	2	56.43087015
C50	Culvert	2	40.21334094
C51	Culvert	2	15.62411949
C52	Culvert	4	31.96650405
C53	Culvert	4	20.69795509
C53	Culvert	1	34.53740157
C55	Culvert	0.5	25.80797335
C56	Culvert	1	70.56916994
C57	Culvert	3	143.2008234
C58	Culvert	3	69.58571213
C59	Culvert	1	19.85137795
C60	Culvert	1	33.66305775
C61	Culvert	2	58.67653597
C62	Culvert	2	52.51915454
C63	Culvert	1	37.32644358
C64	Culvert	1.5	27.79295442
C65	Culvert	1	30.39462693
C66	Culvert	2	24.30544619
C67	Culvert	2.5	108.3587647
C68	Culvert	2	95.637803
C69	Culvert	3	23.53095343
C70	Culvert	1	27.87860893
C71	Culvert	3	86.94247131
C72	Culvert	3	181.3386874
C73	Culvert	2	21.29447014
C74	Culvert	2	42.58861288
C75	Culvert	2	26.76935268
C76	Culvert	2	27.45382751
C77	Culvert	2	31.53248033
C78	Culvert	2	45.94858041
C79	Culvert	2	24.00189448
C80	Culvert	2	23.30643045
C81	Culvert	2	45.28912131
C82	Culvert	2	27.41961944

Label	Type	Ave_Width	Length
C83	Culvert	2	30.87753855
C84	Culvert	1.5	78.71352359
C85	Culvert	2	101.2004036
C86	Culvert	2	34.1551739
C87	Culvert	2	34.24994567
C88	Culvert	8	58.97301925
C89	Culvert	2	51.43944863
C90	Culvert	4	30.30185639
C91	Culvert	2	47.39924272
C93	Culvert	2	25.45733263
C94	Culvert	2	28.66321653
C95	Culvert	2	64.02671737
C96	Culvert	1	23.67563337
C97	Culvert	2.5	101.5646773
C98	Culvert	2	43.30010881
C99	Culvert	2	18.21553989

Other Waters of the U.S.

Label	Designation	Type	Ave_Width	Length	Area	Acres
OW125	NRPW	Ephemeral	6	268.927	1519.138	0.035
OW126	NRPW	Roadside Ditch	5	297.733	1488.667	0.034
OW135	NRPW	Ephemeral	5.5	220.862	1214.738	0.028
OW142	NRPW	Roadside Ditch	2	128.023	256.045	0.006
OW143	NRPW	Roadside Ditch	1.5	178.732	268.099	0.006
OW144	NRPW	Roadside Ditch	1.5	702.260	1053.389	0.024
OW146	NRPW	Roadside Ditch	2	1321.432	2642.863	0.061
OW147	NRPW	Roadside Ditch	2	854.957	1709.915	0.039
OW148	NRPW	Roadside Ditch	1.5	669.606	1004.409	0.023
OW149	NRPW	Roadside Ditch	1.5	689.692	1034.538	0.024
OW153	NRPW	Roadside Ditch	1.5	1426.310	2139.465	0.049
OW155	NRPW	Roadside Ditch	1	117.217	117.217	0.003
OW156	NRPW	Roadside Ditch	1	1232.608	1232.608	0.028
OW161	NRPW	Roadside Ditch	1	1394.172	1394.172	0.032
OW162	NRPW	Roadside Ditch	1	180.259	180.259	0.004
OW165	NRPW	Roadside Ditch	2	429.308	858.616	0.020
OW166	NRPW	Roadside Ditch	2	338.495	676.991	0.016
OW167	NRPW	Roadside Ditch	2	135.959	271.918	0.006
OW168	NRPW	Roadside Ditch	2	345.654	691.308	0.016
OW169	NRPW	Irrigation Ditch	2	1427.029	2854.057	0.066
OW170	NRPW	Roadside Ditch	1	117.217	117.217	0.003
OW171	NRPW	Roadside Ditch	1	666.522	666.522	0.015
OW172	NRPW	Roadside Ditch	2	372.894	745.788	0.017
OW173	NRPW	Roadside Ditch	2	262.352	524.705	0.012
OW174	NRPW	Roadside Ditch	2	116.451	232.901	0.005
OW175	NRPW	Roadside Ditch	2	1949.123	3898.246	0.089
OW177	NRPW	Roadside Ditch	1	51.327	51.327	0.001
OW178	NRPW	Roadside Ditch	1	486.738	486.738	0.011

Label	Designation	Type	Ave_Width	Length	Area	Acres
OW179	NRPW	Roadside Ditch	1	181.043	181.043	0.004
OW181	NRPW	Roadside Ditch	1	467.044	467.044	0.011
OW23	NRPW	Irrigation Ditch	1.5	2224.098	3336.148	0.077
OW24	NRPW	Irrigation Ditch	1.5	2394.665	3591.997	0.082
OW25	NRPW	Irrigation Ditch	1.5	2247.889	3371.833	0.077
OW26	NRPW	Irrigation Ditch	1.5	1687.659	2531.488	0.058
OW27	NRPW	Irrigation Ditch	1.5	983.621	1475.431	0.034
OW32	NRPW	Roadside Ditch	1.5	993.080	1489.621	0.034
OW33	NRPW	Roadside Ditch	1.5	3170.089	4755.133	0.109
OW34	NRPW	Roadside Ditch	3	513.413	1540.238	0.035
OW35	NRPW	Roadside Ditch	2	2019.447	4038.893	0.093
OW36	NRPW	Roadside Ditch	3	1653.594	4960.781	0.114
OW40	NRPW	Roadside Ditch	3	1814.670	5444.010	0.125
OW47	NRPW	Roadside Ditch	1	1185.896	1185.896	0.027
OW48	NRPW	Roadside Ditch	1	167.705	167.705	0.004
OW49	NRPW	Roadside Ditch	1	2789.938	2789.938	0.064
OW50	NRPW	Roadside Ditch	1	4336.660	4336.660	0.100
OW53	NRPW	Roadside Ditch	1.5	1553.888	2330.832	0.054
OW56	NRPW	Roadside Ditch	1	164.212	164.212	0.004
OW57	NRPW	Roadside Ditch	1	147.270	147.270	0.003
OW58	NRPW	Roadside Ditch	1	219.260	219.260	0.005
OW63	NRPW	Roadside Ditch	1	1069.186	1069.186	0.025
OW85	NRPW	Roadside Ditch	1	670.664	670.664	0.015
OW86	NRPW	Roadside Ditch	1	116.404	116.404	0.003
OW89	NRPW	Roadside Ditch	5	3336.108	16680.542	0.383
OW158	Pond	Pond	n/a	n/a	483.844	0.011
OW159	Pond	Pond	n/a	n/a	958.728	0.022
OW160	Pond	Pond	n/a	n/a	1343.858	0.031
OW164	Pond	Pond	n/a	n/a	1841.036	0.042
OW01	RPW	Irrigation Canal	25	565.483	14418.651	0.331
OW02	RPW	Irrigation Canal	20	989.532	20219.892	0.464
OW03	RPW	Irrigation Canal	30	3425.669	101557.095	2.331
OW04	RPW	Irrigation Canal	35	2066.632	72309.101	1.660
OW05	RPW	Perennial Stream	117	815.520	95208.943	2.186
OW06	RPW	Perennial Stream	113	1001.129	113135.017	2.597
OW07	RPW	Perennial Stream	106	1231.639	130191.972	2.989
OW08	RPW	Perennial Stream	99	1214.657	120807.566	2.773
OW100	RPW	Irrigation Canal	10	558.826	5622.902	0.129
OW101	RPW	Irrigation Canal	11	669.110	7126.393	0.164
OW102	RPW	Irrigation Canal	11	1376.133	15156.305	0.348
OW103	RPW	Irrigation Canal	13	419.238	5550.071	0.127
OW104	RPW	Irrigation Canal	12	432.090	5081.682	0.117
OW105	RPW	Irrigation Canal	9	620.676	5277.962	0.121
OW106	RPW	Irrigation Canal	15	231.965	3503.525	0.080

Label	Designation	Type	Ave_Width	Length	Area	Acres
OW107	RPW	Irrigation Canal	9	1838.691	16766.505	0.385
OW108	RPW	Irrigation Canal	10	323.919	3148.473	0.072
OW109	RPW	Irrigation Canal	11	948.980	10716.252	0.246
OW11	RPW	Irrigation Canal	33	4099.088	135409.736	3.109
OW110	RPW	Irrigation Canal	20	456.802	9104.835	0.209
OW111	RPW	Irrigation Canal	10	1368.159	14120.092	0.324
OW112	RPW	Irrigation Canal	16	1342.788	20835.050	0.478
OW113	RPW	Irrigation Canal	18	124.938	2211.954	0.051
OW114	RPW	Irrigation Canal	14	572.944	8142.255	0.187
OW115	RPW	Irrigation Canal	17	135.255	2356.584	0.054
OW116	RPW	Irrigation Canal	11	1727.566	19818.921	0.455
OW117	RPW	Irrigation Canal	18	419.680	7390.445	0.170
OW118	RPW	Irrigation Canal	14	1486.216	20787.093	0.477
OW120	RPW	Irrigation Canal	10	586.041	5675.215	0.130
OW121	RPW	Irrigation Canal	9	959.124	8724.159	0.200
OW122	RPW	Irrigation Canal	7	2524.123	17966.638	0.412
OW123	RPW	Irrigation Canal	13	490.265	6445.100	0.148
OW124	RPW	Irrigation Canal	5	159.537	821.914	0.019
OW127	RPW	Irrigation Canal	17	498.838	8672.126	0.199
OW128	RPW	Irrigation Canal	11	3330.897	36997.801	0.849
OW129	RPW	Irrigation Canal	23	1064.708	24580.697	0.564
OW13	RPW	Irrigation Canal	12	896.816	10829.301	0.249
OW131	RPW	Irrigation Canal	33	1040.396	34338.401	0.788
OW133	RPW	Irrigation Canal	14	90.131	1244.862	0.029
OW134	RPW	Irrigation Canal	10	413.495	3975.804	0.091
OW138	RPW	Irrigation Canal	10	665.746	6710.813	0.154
OW14	RPW	Irrigation Canal	22	911.159	20044.983	0.460
OW15	RPW	Irrigation Canal	24	428.708	10372.481	0.238
OW154	RPW	Irrigation Canal	11	449.698	4872.701	0.112
OW163	RPW	Intermittent	1.5	1098.898	1648.347	0.038
OW176	RPW	Intermittent	21	1040.157	22320.459	0.512
OW18	RPW	Irrigation Canal	38	4082.947	154241.597	3.541
OW180	RPW	Intermittent	20	1026.984	21029.012	0.483
OW19	RPW	Irrigation Canal	59	391.683	23068.673	0.530
OW29	RPW	Irrigation Canal	28	502.486	13964.104	0.321
OW30	RPW	Irrigation Canal	24	5350.767	127229.233	2.921
OW31	RPW	Irrigation Canal	24	414.813	9820.037	0.225
OW37	RPW	Irrigation Canal	20	494.010	9839.744	0.226
OW38	RPW	Irrigation Canal	15	1874.860	27972.660	0.642
OW41	RPW	Irrigation Canal	8	321.189	2540.169	0.058
OW42	RPW	Irrigation Canal	28	508.310	14038.661	0.322
OW43	RPW	Irrigation Canal	49	542.511	26642.802	0.612
OW44	RPW	Irrigation Canal	45	545.045	24535.409	0.563
OW46	RPW	Irrigation Canal	8	460.915	3815.986	0.088
OW54	RPW	Intermittent	8	1358.639	10541.255	0.242
OW55	RPW	Intermittent	9	1891.267	17537.733	0.403
OW64	RPW	Irrigation Canal	11	265.983	2916.862	0.067

Label	Designation	Type	Ave_Width	Length	Area	Acres
OW87	RPW	Irrigation Canal	12	405.815	4994.721	0.115
OW88	RPW	Irrigation Canal	11	2030.535	22430.530	0.515
OW90	RPW	Irrigation Canal	7	1530.056	11256.621	0.258
OW91	RPW	Irrigation Canal	9	927.413	8594.903	0.197
OW92	RPW	Irrigation Canal	11	436.538	4992.365	0.115
OW93	RPW	Irrigation Canal	14	1899.072	26163.231	0.601
OW94	RPW	Irrigation Canal	13	87.095	1116.843	0.026
OW95	RPW	Irrigation Canal	18	473.305	8671.071	0.199
OW96	RPW	Irrigation Canal	10	1065.270	10188.931	0.234
OW97	RPW	Irrigation Canal	13	733.348	9814.647	0.225
OW98	RPW	Irrigation Canal	11	495.752	5563.931	0.128
OW99	RPW	Irrigation Canal	11	1581.524	16732.799	0.384
OW22	TNW	TNW	472	1134.538	535358.639	12.290

Other Waters of the U.S.

Designation	Length	Area (ft.2)	Acres
Pond Total =	n/a	4627.466	0.106
NRPW Total =	52489.359	96394.086	2.213
RPW Total =	78810.192	1832471.606	42.068
TNW Total =	1134.538	535358.639	12.290

Other Waters of the US Total =	**132434.089**	**2468851.797**	**56.677**

Wetland Features

Label	Type	Area	Acres
WF063e	Fresh Emergent Wetland	7051.71622	0.161885129
WF018e	Fresh Emergent Wetland	119915.7128	2.752885969
WF112e	Fresh Emergent Wetland	14761.41846	0.338875539
WF112e	Fresh Emergent Wetland	17128.75624	0.393222136
WF054e	Riparian	7576.328013	0.173928559
WF111e	Riparian	1885.865947	0.043293525
WF01w	Riparian	61348.53322	1.408368531
WF02w	Riparian	32497.1789	0.746032573
WF03w	Riparian	46777.9206	1.073873292
WF04w	Riparian	32365.323	0.743005578
WF05w	Riparian	89500.92142	2.054658435
WF06w	Riparian	47804.00327	1.097428909
WF07w	Riparian	20635.66784	0.473729748
WF08w	Riparian	127869.2443	2.935473928
WF121w	Riparian	68205.87951	1.565791541
WF169w	Riparian	65013.99006	1.492515842
WF170w	Riparian	68990.7866	1.583810528
WF002e	Seasonal Swale	6226.544422	0.142941791
WF081e	Seasonal Swale	1829.800514	0.04200644
WF087e	Seasonal Swale	8261.508459	0.189658137

Label	Type	Area	Acres
WF064e	Seasonal Swale	18899.78431	0.433879346
WF050e	Seasonal Swale	8688.504797	0.199460624
WF023e	Seasonal Swale	5649.692845	0.129699101
WF033e	Seasonal Swale	4325.135328	0.099291445
WF030e	Seasonal Swale	4324.829668	0.099284428
WF025e	Seasonal Swale	9157.075594	0.21021753
WF113e	Seasonal Swale	15124.90842	0.34722012
WF114e	Seasonal Swale	6937.801958	0.159270017
WF022e	Seasonal Swale	13090.38864	0.300513972
WF127e	Seasonal Swale	1789.15885	0.041073436
WF138e	Seasonal Swale	11036.45558	0.253362157
WF141e	Seasonal Swale	222.508013	0.005108081
WF140e	Seasonal Swale	6831.641905	0.156832918
WF174e	Seasonal Swale	16753.15363	0.384599486
WF173e	Seasonal Swale	34413.02654	0.790014383
WF068e	Seasonal Wetland	2750.279332	0.063137726
WF079e	Seasonal Wetland	2444.127463	0.056109446
WF080e	Seasonal Wetland	5974.891319	0.137164631
WF107e	Seasonal Wetland	193.2021157	0.00443531
WF108e	Seasonal Wetland	381.0436896	0.008747559
WF109e	Seasonal Wetland	193.0177375	0.004431078
WF088e	Seasonal Wetland	4917.411094	0.112888225
WF156e	Seasonal Wetland	30492.89229	0.700020484
WF157e	Seasonal Wetland	57914.22841	1.329527741
WF158e	Seasonal Wetland	43504.42612	0.998724199
WF159e	Seasonal Wetland	19330.85	0.443775252
WF160e	Seasonal Wetland	84709.45754	1.94466156
WF048e	Seasonal Wetland	58161.83457	1.335211996
WF049e	Seasonal Wetland	55883.75002	1.282914371
WF056e	Seasonal Wetland	7088.545702	0.162730618
WF161e	Seasonal Wetland	102832.983	2.360720456
WF162e	Seasonal Wetland	106408.3369	2.442799286
WF163e	Seasonal Wetland	46843.23361	1.075372672
WF164e	Seasonal Wetland	96079.77032	2.205688024
WF165e	Seasonal Wetland	23085.54179	0.529971116
WF144e	Seasonal Wetland	1740.051869	0.039946094
WF029e	Seasonal Wetland	706.8815253	0.016227767
WF026e	Seasonal Wetland	3856.908441	0.088542434
WF062e	Seasonal Wetland	2082.430193	0.047806019
WF059e	Seasonal Wetland	3844.809348	0.088264677
WF007e	Seasonal Wetland	46738.85877	1.072976556
WF001e	Seasonal Wetland	2153.707204	0.049442314
WF024e	Seasonal Wetland	4438.687603	0.101898246
WF046e	Seasonal Wetland	39320.03927	0.902663895
WF052e	Seasonal Wetland	11090.85253	0.25461094
WF053e	Seasonal Wetland	7501.48232	0.172210338
WF057e	Seasonal Wetland	1676.958962	0.03849768

Label	Type	Area	Acres
WF060e	Seasonal Wetland	1999.442219	0.045900877
WF061e	Seasonal Wetland	2188.811561	0.050248199
WF166e	Seasonal Wetland	25985.90368	0.596554263
WF094e	Seasonal Wetland	914.3431207	0.02099043
WF168e	Seasonal Wetland	45012.58362	1.033346731
WF122e	Seasonal Wetland	3889.048412	0.089280267
WF124e	Seasonal Wetland	1540.247626	0.03535922
WF125e	Seasonal Wetland	1114.402485	0.025583161
WF126e	Seasonal Wetland	63244.31408	1.451889671
WF128e	Seasonal Wetland	2613.834484	0.060005383
WF129e	Seasonal Wetland	613.1763486	0.014076592
WF131e	Seasonal Wetland	938.5483994	0.021546107
WF133e	Seasonal Wetland	188.1756115	0.004319918
WF134e	Seasonal Wetland	386.9930945	0.008884139
WF135e	Seasonal Wetland	594.0757452	0.013638103
WF136e	Seasonal Wetland	221.0345822	0.005074256
WF137e	Seasonal Wetland	525.0483078	0.012053451
WF139e	Seasonal Wetland	351.546272	0.008070392
WF145e	Seasonal Wetland	1941.199767	0.044563815
WF142e	Seasonal Wetland	209.108027	0.00480046
WF153e	Seasonal Wetland	6961.956339	0.159824526
WF154e	Seasonal Wetland	638.4915842	0.01465775
WF155e	Seasonal Wetland	974.0692096	0.022361552
WF172w	Seasonal Wetland	5863.638832	0.134610625
WF176e	Seasonal Wetland	8815.066644	0.202366085
WF175e	Seasonal Wetland	46.19624539	0.00106052
WF005e	Vernal Pool	219.9701462	0.00504982
WF016e	Vernal Pool	6940.56938	0.159333549
WF014e	Vernal Pool	2576.502153	0.059148351
WF008e	Vernal Pool	4122.914558	0.094649095
WF032e	Vernal Pool	2674.89898	0.061407231
WF047e	Vernal Pool	6516.355947	0.149594948
WF013e	Vernal Pool	1490.674937	0.034221188
WF012e	Vernal Pool	9619.427398	0.220831667
WF058e	Vernal Pool	937.8022545	0.021528977
WF066e	Vernal Pool	198.9350775	0.004566921
WF072e	Vernal Pool	2543.298578	0.058386101
WF073e	Vernal Pool	257.7814864	0.005917849
WF075e	Vernal Pool	980.550227	0.022510336
WF069e	Vernal Pool	6772.748573	0.155480913
WF070e	Vernal Pool	1204.902207	0.027660749
WF071e	Vernal Pool	243.0803515	0.005580357
WF074e	Vernal Pool	2076.846565	0.047677837
WF077e	Vernal Pool	1125.022372	0.02582696
WF078e	Vernal Pool	2987.914579	0.06859308
WF082e	Vernal Pool	2356.538981	0.054098691
WF083e	Vernal Pool	27337.83432	0.62759032

Label	Type	Area	Acres
WF089e	Vernal Pool	2736.224626	0.062815074
WF084e	Vernal Pool	1193.466559	0.027398222
WF085e	Vernal Pool	281.7249063	0.006467514
WF086e	Vernal Pool	733.8688998	0.016847312
WF010e	Vernal Pool	1027.041162	0.023577621
WF011e	Vernal Pool	2651.878482	0.060878753
WF009e	Vernal Pool	1693.310386	0.038873058
WF143e	Vernal Pool	1126.739404	0.025866378
WF031e	Vernal Pool	5125.524188	0.117665845
WF040e	Vernal Pool	2957.804393	0.067901846
WF003e	Vernal Pool	7029.734644	0.161380501
WF004e	Vernal Pool	1212.32934	0.027831252
WF020e	Vernal Pool	6721.209246	0.154297733
WF116e	Vernal Pool	2331.935389	0.05353387
WF117e	Vernal Pool	412.3512951	0.009466283
WF035e	Vernal Pool	3540.925691	0.081288469
WF036e	Vernal Pool	1706.004702	0.039164479
WF037e	Vernal Pool	4367.671692	0.100267945
WF038e	Vernal Pool	6502.399487	0.149274552
WF039e	Vernal Pool	2594.266176	0.059556156
WF043e	Vernal Pool	19811.00773	0.454798157
WF044e	Vernal Pool	14887.71177	0.341774834
WF045e	Vernal Pool	2388.876351	0.054841055
WF041e	Vernal Pool	5047.669752	0.115878553
WF042e	Vernal Pool	278.1320386	0.006385033
WF119e	Vernal Pool	1159.353188	0.026615087
WF091e	Vernal Pool	1221.704105	0.028046467
WF092e	Vernal Pool	1429.139778	0.032808535
WF090e	Vernal Pool	840.2607411	0.019289732
WF123e	Vernal Pool	929.5383295	0.021339264
WF167e	Vernal Pool	2471.481589	0.05673741
WF130e	Vernal Pool	3598.644042	0.0826135
WF132e	Vernal Pool	364.2152659	0.008361232
WF146e	Vernal Pool	69741.0383	1.601033937
WF147e	Vernal Pool	10417.77441	0.239159192
WF148e	Vernal Pool	6253.619339	0.143563346
WF149e	Vernal Pool	3279.721863	0.075292054
WF150e	Vernal Pool	2777.650562	0.063766083
WF151e	Vernal Pool	2121.016253	0.048691833
WF152e	Vernal Pool	1176.653647	0.027012251
WF067e	Vernal Swale	11683.73839	0.268221726
WF106e	Vernal Swale	1403.168461	0.032212315
WF006e	Vernal Swale	4796.942652	0.11012265
WF017e	Vernal Swale	5586.255405	0.128242778
WF028e	Vernal Swale	16533.63953	0.379560136
WF027e	Vernal Swale	6979.149091	0.160219217
WF034e	Vernal Swale	4657.635849	0.106924606

Label	Type	Area	Acres
WF115e	Vernal Swale	9011.699206	0.206880147
WF118e	Vernal Swale	490.313496	0.011256049
WF120e	Vernal Swale	160.110572	0.003675633
WF09w	Willow Riparian	82877.48046	1.902605153

Wetland Features

Designation	Length	Area (ft.2)	Acres
Fresh Emergent Wetland Total =	n/a	158857.604	3.647
Riparian Total =	n/a	670471.643	15.392
Seasonal Swale Total =	n/a	173561.919	3.984
Seasonal Wetland Total =	n/a	1052112.747	24.153
Vernal Pool Total =	n/a	289326.189	6.642
Vernal Swale Total =	n/a	61302.653	1.407
Willow Riparian Total =	n/a	82877.480	1.903
Wetland Features Total =	**n/a**	**2488510.235**	**57.128**

OWOTUS and WF Total =	**132434.089**	**4957362.032**	**113.805**

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 018de

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Fresh Emergent Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Typha latifolia*	75	Yes	OBL
2. *Rumex crispus*	5		FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	75	x 1 =	75	
FACW species	5	x 2 =	10	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	80 (A)		85	(B)

Prevalence Index = B/A = 1.06

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 018de

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					silty loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W58, 150-152e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Cometa-Fiddyment Complex, 1-5% slopes NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lasthenia fremontii*	30	Yes	OBL
2. *Polypogon monspeliensis*	35	Yes	FACW
3. *Plagiobothrys stipitatus var. micranthus*	20	Yes	OBL
4. *Lythrum sp.*	10		FAC
5. *Leontodon taraxacoides*	5		UPL
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	35	x 2 =	70
FAC species	10	x 3 =	30
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		175 (B)

Prevalence Index = B/A = 1.75

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W58, 150

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-2	10YR 3/4	75	7.5 YR 6/8	25			clay loam	
2-6	7.5YR 3/3	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [x] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [ ] Drift Deposits (B3) (**Nonriverine**)
- [x] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (●) Depth (inches):

Water Table Present? Yes ( ) No (●) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (●) Depth (inches):

Wetland Hydrology Present? Yes (●) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 122e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	50	Yes	OBL
2. *Rumex crispus*	20	Yes	FACW
3. *Hordeum marinum ssp. gussoneanum*	15	Yes	FAC
4. *Plagiobothrys stipitatus*	5		OBL
5.			
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	55	x 1 =	55	
FACW species	20	x 2 =	40	
FAC species	15	x 3 =	45	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	90 (A)		140	(B)

Prevalence Index = B/A = 1.56

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 122e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					silty clayloam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ◯

Remarks: Flood plain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 123e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 4

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Plagiobothrys stipitatus*	30	Yes	OBL
2. *Juncus buffonius*	10		FACW
3. *Hordeum marinum ssp. gussoneanum*	20	Yes	FACW
4. *Lolium multiflorum*	25	Yes	FAC
5. *Lasthinia fremontii*	10		OBL
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	40	x 1 =	40	
FACW species	30	x 2 =	60	
FAC species	25	x 3 =	75	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	95 (A)		175	(B)

Prevalence Index = B/A = 1.84

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 123e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					clay loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☒ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 124-125e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	50	Yes	OBL
2. *Rumex crispus*	20	Yes	FACW
3. *Hordeum marinum ssp. gussoneanum*	15	Yes	FAC
4. *Juncus buffonius*	10		FACW
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	50	x 1 =	50	
FACW species	30	x 2 =	60	
FAC species	15	x 3 =	45	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	95 (A)		155	(B)

Prevalence Index = B/A = 1.63

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 124-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					silty clayloam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks: Flood plain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 126e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	50	Yes	OBL
2. *Rumex crispus*	20	Yes	FACW
3. *Phalaris ssp.*	5		FACW
4. *Plagiobothrys stipitatus*	5		OBL
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	55	x 1 =	55	
FACW species	25	x 2 =	50	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	80 (A)		105	(B)

Prevalence Index = B/A = 1.31

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 126e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					silty loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ◯

Remarks: Flood plain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 127e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Swale

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	10		FACW
2. *Hordeum marinum ssp. gussoneanum*	30	Yes	FAC
3. *Lolium multiflorum*	40	Yes	FAC
4. *Polypogon monspeliensis*	5		FACW
5. *Juncus buffonius*	5		FACW
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	20	x 2 =	40	
FAC species	70	x 3 =	210	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	90	(A)	250	(B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 127e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					Clay loam	
5	7.5YR 3/4	97	7.5YR 5/9	3	C	M	Clay pan	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Clay pan

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 128-129e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	20	Yes	FACW
2. *Hordeum marinum ssp. gussoneanum*	25	Yes	FAC
3. *Lolium multiflorum*	30	Yes	FAC
4. *Polypogon monspeliensis*	5		FACW
5. *Juncus ssp.*	10		FACW
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	35	x 2 =	70	
FAC species	55	x 3 =	165	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	90	(A)	235	(B)

Prevalence Index = B/A = 2.61

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 128-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					Clay loam	
5	7.5YR 3/4	97	7.5YR 5/9	3	C	M	Clay pan	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Clay pan

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 130e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eleocharis macrostachya*	20	Yes	OBL
2. *Eryngium castrense*	5		OBL
3. *Ranunculus sp.*	5		UPL
4. *Plagiobothrys stipitatus*	25	Yes	OBL
5. *Deschampsia danthonioides*	20	Yes	FACW
6. *Lasthinia fremontii*	25	Yes	OBL
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species	20	x 2 =	40
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		140 (B)

Prevalence Index = B/A = 1.40

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 130e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5YR 3/2	85	7.5YR 5/8	15	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☒ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 131,133-134

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: The wetland features WF 131, 133, and 134 located within the roadside ditch all had the same characteristics and similar vegetation composition, hence they are all addressed in one data form.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Glyceria declinata*	30	Yes	OBL
2. *Juncus ssp.*	15		FACW
3. *Lolium multiflorum*	30	Yes	FAC
4. *Rumex crispus*	2	Yes	FACW
5.			
6.			
7.			
8.			
Total Cover:	77 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 23 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	30	x 1 =	30	
FACW species	17	x 2 =	34	
FAC species	30	x 3 =	90	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	77 (A)		154	(B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks: Algal matting was present within the features.

SOIL

Sampling Point: W 131,1:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					Clay loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		Clay pan	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Clay pan

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 132e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: San Joaquin- Cometa, 1-5% slopes NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eryngium castrense*	20	Yes	OBL
2. *Hordeum marinum ssp. gussoneanum*	25	Yes	FAC
3. *Lasthinia fremontii*	20	Yes	OBL
4. *Lolium multiflorum*	15		FAC
5. *Plagiobothrys stipitatus*	15		OBL
6. *Psilocarphus brevissimus*	5		OBL
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species		x 2 =	0
FAC species	40	x 3 =	120
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		180 (B)

Prevalence Index = B/A = 1.80

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 132e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5YR 3/4	90	7.5YR 5/8	10	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [x] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [x] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks: Listed on the National Hydric Soils list.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [x] Drift Deposits (B3) (**Nonriverine**)
- [x] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◯ No ◉ Depth (inches): _____

Water Table Present? Yes ◯ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ◯ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 135-137e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	30	Yes	FACW
2. *Hordeum marinum ssp. gussoneanum*	20	Yes	FAC
3. *Lolium multiflorum*	30	Yes	FAC
4. *Polypogon monspeliensis*	15	Yes	FACW
5. *Eremocarpus setigerus*	5		UPL
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	45	x 2 =	90	
FAC species	50	x 3 =	150	
FACU species		x 4 =	0	
UPL species	5	x 5 =	25	
Column Totals:	100	(A)	265	(B)

Prevalence Index = B/A = 2.65

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 135-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					Clay loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		Clay pan	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Clay pan

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 138e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes NWI classification: Seasonal Swale

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	35	Yes	FACW
2. *Eremocarpus setigerus*	15	Yes	UPL
3. *Polypogon monspeliensis*	15	Yes	FACW
4. *Lolium multiflorum*	25	Yes	FAC
5. *Cynodon dactylon*	10		FAC
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	50	x 2 =	100	
FAC species	35	x 3 =	105	
FACU species		x 4 =	0	
UPL species	15	x 5 =	75	
Column Totals:	100	(A)	280	(B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks: Eremocarpus and Lolium tend to colonize wetlands late in the season (summer-fall).

SOIL

Sampling Point: W 138e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5YR 3/4	95	7.5YR 5/8	5	C	M	Clay loam w/sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [x] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [x] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 5

Hydric Soil Present? Yes (●) No ( )

Remarks: Listed on National Hydric Soils List

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [ ] Drift Deposits (B3) (**Nonriverine**)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (●) Depth (inches):

Water Table Present? Yes ( ) No (●) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (●) Depth (inches):

Wetland Hydrology Present? Yes (●) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 139e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes & San Joaquin-Cometa NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	25	Yes	FACW
2. *Lolium multiflorum*	35	Yes	FAC
3. *Polypogon monspeliensis*	20	Yes	FACW
4. *Eremocarpus setigerus*	10		UPL
5. *unknown grass*	5		
6. *Lythrum hyssopifolia*	5		FACW
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	50	x 2 =	100
FAC species	35	x 3 =	105
FACU species		x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	95 (A)		255 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks: Eremocarpus and Lolium tend to colonize wetlands late in the season (summer-fall).

SOIL

Sampling Point: W 139e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5YR 3/4	98	7.5YR 5/8	2	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ◯

Remarks: Listed on the National Hydric Soils list.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 142e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Juncus xiphioides*	90	Yes	OBL
2. *Lolium multiflorum*	5		FAC
3. *Bromus hordeaceous*	5		UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		130 (B)

Prevalence Index = B/A = 1.30

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 142e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ◯

Remarks: Hydric soils assumed due to presence of FACW- and OBL hydrophytes

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 143e

Investigator(s): Erin Hess, E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes & San Joaquin-Cometa NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Plagiobothrys stipitatus*	30	Yes	FAC
2. *Lasthinia fremontii*	25	Yes	OBL
3. *Layia fremontii*	20	Yes	FACW
4. *Leontodon taraxacoides*	10		UPL
5. *Downingia bicornuta*	10		OBL
6. *Eryngium castrense*	5		OBL
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	40	x 1 =	40	
FACW species	20	x 2 =	40	
FAC species	30	x 3 =	90	
FACU species		x 4 =	0	
UPL species	10	x 5 =	50	
Column Totals:	100	(A)	220	(B)

Prevalence Index = B/A = 2.20

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 143e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☒ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks: Soils assumed due to dominance by OBL and FACW hydrophytes. Also, redox features and oxidized rhizospheres were observed in the top layer of soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 144e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes & San Joaquin-Cometa NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	30	Yes	FACW
2. *Lolium multiflorum*	20	Yes	FAC
3. *Polypogon monspeliensis*	25	Yes	FACW
4. *Cyperus esculentus*	15		FACW
5. *Polygon arenastrum*	5		UPL
6. *Xanthium strumarium*	5		FAC
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	70	x 2 =	140	
FAC species	25	x 3 =	75	
FACU species		x 4 =	0	
UPL species	5	x 5 =	25	
Column Totals:	100 (A)		240	(B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 144e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5YR 3/4	98	7.5YR 5/8	2	C	M	clay loam w/ sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [x] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [x] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ◯

Remarks: Hydric soils assumed due to inundation and presence of FACW and OBL hydrophytes

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [x] Drift Deposits (B3) (**Nonriverine**)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 145e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes & San Joaquin-Cometa NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Glyceria declinata*	30	Yes	OBL
2. *Lolium multiflorum*	20	Yes	FAC
3. *Juncus ssp.*	15	Yes	FACW
4. *Rumex crispus*	15	Yes	FACW
5. *Hordeum marinum ssp. gussoneanum*	10		FAC
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	30	x 1 =	30	
FACW species	30	x 2 =	60	
FAC species	30	x 3 =	90	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	90 (A)		180	(B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks: algal matting was present on the soil surface.

SOIL

Sampling Point: W 145e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5YR 3/4	98	7.5YR 5/8	2	C	M	clay loam w/ sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [x] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [x] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ◯

Remarks: Hydric soils assumed due to inundation and presence of FACW and OBL hydrophytes

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [x] Drift Deposits (B3) (**Nonriverine**)
- [x] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 146-147e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes & San Joaquin-Cometa NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Plagiobothrys stipitatus*	30	Yes	OBL
2. *Lolium multiflorum*	20	Yes	FAC
3. *Eleocharis macrostachya*	15	Yes	OBL
4. *Lasthinia fremontii*	15	Yes	OBL
5. *Downingia bicornuta*	5		OBL
6. *Juncus buffonius*	5		FACW
7. *Psilocarphus brevissimus*	10		OBL
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	75	x 1 =	75	
FACW species	5	x 2 =	10	
FAC species	20	x 3 =	60	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	100 (A)		145	(B)

Prevalence Index = B/A = 1.45

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 146-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5YR 3/4	98	7.5YR 5/8	2	C	M	clay loam w/ sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [x] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [x] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6

Hydric Soil Present? Yes (●) No ( )

Remarks: Hydric soils assumed due to inundation and presence of FACW and OBL hydrophytes

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [x] Drift Deposits (B3) (**Nonriverine**)
- [x] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ( )	No (●)	Depth (inches):
Water Table Present?	Yes ( )	No (●)	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ( )	No (●)	Depth (inches):

Wetland Hydrology Present? Yes (●) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 148-149e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Cometa-Fiddyment Complex 1-5% slopes NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	30	Yes	FAC
2. *Lolium multiflorum*	25	Yes	FAC
3. *Deschampsia danthonoides*	15		FACW
4. *Lasthinia fremontii*	15		OBL
5. *Plagiobothrys stipitatus*	15		OBL
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	15	x 2 =	30
FAC species	55	x 3 =	165
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		225 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 148-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☒ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks: No soil sample was taken, however, oxidized rhizospheres and redox features were observed within the top layer of soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 153e

Investigator(s): Erin Hess, E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Cometa-Fiddyment Complex 1-5% slopes NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: This feature was unable to access, therefore, interpretation is based on roadside observations and aerial imagery. Field data is limited.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	75	Yes	FAC
2. *Rumex crispus*	5		FACW
3. *Hordeum marinum ssp. gussoneanum*	10		FAC
4. *Leontodon taraxacoides*	10		UPL
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	85	x 3 =	255	
FACU species		x 4 =	0	
UPL species	10	x 5 =	50	
Column Totals:	100 (A)		315	(B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 153e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks: Is listed on the National Hydric Soils List

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 154e

Investigator(s): Erin Hess (USACE), Elena Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Cometa-Fiddyment Complex, 1-5% slopes NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		

Herb Stratum			
1. *Lolium multiflorum*	80	Yes	FAC
2. *Bromus hordeaceous*	10		UPL
3. *Juncus ssp.*	5		FACW
4. *Hordeum marinum ssp. gussoneanum*	5		FAC
5.			
6.			
7.			
8.			
Total Cover:	100%		

Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	85	x 3 =	255	
FACU species		x 4 =	0	
UPL species	10	x 5 =	50	
Column Totals:	100 (A)		315	(B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 154e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR 3/3	85	10YR 5/8	15	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 155e

Investigator(s): Erin Hess (USACE), Elena Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: San Joaquin Complex, 1-5% slopes NWI classification: Seasonal wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	40	Yes	FAC
2. *Hordeum marinum ssp. gussoneanum*	25	Yes	FAC
3. *Leontodon taraxacoides*	15		UPL
4. *Rumex crispus*	10		FACW
5.			
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	10	x 2 =	20	
FAC species	65	x 3 =	195	
FACU species		x 4 =	0	
UPL species	15	x 5 =	75	
Column Totals:	90	(A)	290	(B)

Prevalence Index = B/A = 3.22

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 155e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/3	90	2.5YR 4/8	10	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [x] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 5

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [ ] Drift Deposits (B3) (**Nonriverine**)
- [x] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (●) Depth (inches):

Water Table Present? Yes ( ) No (●) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (●) Depth (inches):

Wetland Hydrology Present? Yes (●) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 167e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 4

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Plagiobothrys stipitatus*	40	Yes	OBL
2. *Juncus buffonius*	10	Yes	FACW
3. *Eleocharis macrostachya*	10	Yes	OBL
4. *Lolium multiflorum*	25	Yes	FAC
5.			
6.			
7.			
8.			
Total Cover:	85 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 15 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	50	x 1 =	50	
FACW species	10	x 2 =	20	
FAC species	25	x 3 =	75	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	85 (A)		145	(B)

Prevalence Index = B/A = 1.71

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 167e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					clay loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☒ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 168e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	50	Yes	OBL
2. *Rumex crispus*	20	Yes	FACW
3. *Phalaris ssp.*	5		FACW
4. *Plagiobothrys stipitatus*	10		OBL
5.			
6.			
7.			
8.			
Total Cover:	85 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 15 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	60	x 1 =	60	
FACW species	25	x 2 =	50	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	85 (A)		110	(B)

Prevalence Index = B/A = 1.29

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 168e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					silty loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ◯

Remarks: Flood plain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 3/3/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 172 e

Investigator(s): Erin Hess (USACE), Elena Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: San Joaquin Complex, 1-5% slopes NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Juncus effusus*	20	Yes	OBL
2. *Plantago lanceolata*	30	Yes	FAC
3. *Salix ssp.*	10		FACW
4. *Rumex crispus*	10		FACW
5. *Bromus hordeaceous*	15	Yes	UPL
6. *Lolium multiflorum*	15	Yes	FAC
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	20	x 1 =	20	
FACW species	20	x 2 =	40	
FAC species	45	x 3 =	135	
FACU species		x 4 =	0	
UPL species	15	x 5 =	75	
Column Totals:	100	(A)	270	(B)

Prevalence Index = B/A = 2.70

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 172 e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 173-174e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 4

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Swale

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	70	Yes	FAC
2. *Juncus buffonius*	10	Yes	FACW
3. *Hordeum marinum ssp. gussoneanum*	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	10	x 2 =	20	
FAC species	80	x 3 =	240	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	90	(A)	260	(B)

Prevalence Index = B/A = 2.89

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 173-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					clay loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◯ No ◉ Depth (inches): _____

Water Table Present? Yes ◯ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ◯ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 175e

Investigator(s): Erin Hess, E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes & San Joaquin-Cometa NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		

Herb Stratum			
1. *Typha sp.*	40	Yes	OBL
2. *Rumex crispus*	35	Yes	FACW
3. *Polypogon monspellensis*	25	Yes	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		

Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	40	x 1 =	40	
FACW species	60	x 2 =	120	
FAC species		x 3 =	0	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	100 (A)		160	(B)

Prevalence Index = B/A = 1.60

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 175e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks: Soils assumed due to inundation and dominance by OBL and FACW hydrophytes

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 176e

Investigator(s): Erin Hess, E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Alamo-Fiddyment, 0-5% slopes & San Joaquin-Cometa NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	40	Yes	FAC
2. *Rumex crispus*	35	Yes	FACW
3. *Polypogon monspeliensis*	25	Yes	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	60	x 2 =	120	
FAC species	40	x 3 =	120	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	100 (A)		240	(B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 176e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks: Soils assumed due to inundation and dominance by OBL and FACW hydrophytes

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 177e

Investigator(s): Erin Hess (USACE), Elena Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Cometa-Fiddyment Complex, 1-5% slopes NWI classification: Seasonal Swale

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks: A portion of this feature extends onto land that was denied access

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		

Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		

Herb Stratum			
1. *Rumex acetosella*	30	Yes	FAC
2. *Polypogon monspeliensis*	50	Yes	FACW
3. *Lolium multiflorum*	15		FAC
4. *Leontodon taraxacoides*	5		UPL
5.			
6.			
7.			
8.			
Total Cover:	100%		

Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	50	x 2 =	100
FAC species	45	x 3 =	135
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		260 (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 177e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-2	10YR 3/4	90	7.5 YR 6/8	10	C	RC	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 178e

Investigator(s): Erin Hess (USACE), Elena Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Cometa-Fiddyment Complex, 1-5% slopes NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	30	Yes	FACW
2. *Lolium multiflorum*	35	Yes	FAC
3. *Polypogon monspeliensis*	15		FACW
4. *Hordeum marinum ssp. gussoneanum*	10		FAC
5.			
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species		x 1 =	0	
FACW species	45	x 2 =	90	
FAC species	45	x 3 =	135	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	90	(A)	225	(B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 178e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-2	10YR 3/4	100					sandy clay loam	
2-6	7.5YR 3/3	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [x] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [ ] Sediment Deposits (B2) (**Nonriverine**)
- [ ] Drift Deposits (B3) (**Nonriverine**)
- [x] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [x] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ( ) No (●) Depth (inches):

Water Table Present? Yes ( ) No (●) Depth (inches):

Saturation Present? (includes capillary fringe) Yes ( ) No (●) Depth (inches):

Wetland Hydrology Present? Yes (●) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 179e

Investigator(s): Erin Hess, E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Cometa-Fiddyment Complex 1-5% slopes NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	75	Yes	FAC
2. *Rumex crispus*	5		FACW
3. *Hordeum marinum ssp. gussoneanum*	10		FAC
4. *Leontodon taraxacoides*	5		UPL
5. *Juncus buffonius*	5		FACW
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	85	x 3 =	255
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 179e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks: No soil sample was taken due to the presence of wet vegetation and hydrology. Also, redox features were observed near the soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 180e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Downingia bicornuta*	20	Yes	OBL
2. *Lasthinia fremontii*	5		OBL
3. *Hordeum marinum ssp. gussoneanum*	20	Yes	FAC
4. *Plagiobothrys stipitatus*	25	Yes	OBL
5. *Deschampsia danthonioides*	20	Yes	FACW
6. *Psilocarphus brevissimus*	10		OBL
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	20	x 2 =	40
FAC species	20	x 3 =	60
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		160 (B)

Prevalence Index = B/A = 1.60

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 180e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	7.5YR 3/2	85	7.5YR 5/8	15	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☒ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◯	No ◉	Depth (inches):
Water Table Present?	Yes ◯	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◯	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 181e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Seasonal Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Rumex crispus*	10	Yes	FACW
2. *Eleocharis macrostachya*	15	Yes	OBL
3. *Lolium multiflorum*	25	Yes	FAC
4. *Polypogon monspeliensis*	5		FACW
5. *Juncus ssp.*	10	Yes	FACW
6.			
7.			
8.			
Total Cover:	65 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 35 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	15	x 1 =	15	
FACW species	25	x 2 =	50	
FAC species	25	x 3 =	75	
FACU species		x 4 =	0	
UPL species		x 5 =	0	
Column Totals:	65 (A)		140	(B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 181e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					Clay loam	
5	7.5YR 3/4	97	7.5YR 5/9	3	C	M	Clay pan	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Clay pan

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◯ No ◉ Depth (inches):

Water Table Present? Yes ◯ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◯ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 182e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lolium multiflorum*	30	Yes	FAC
2. *Plagiobothrys stipitatus*	20	Yes	OBL
3. *Psilocarphus ssp.*	20	Yes	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	70 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 30 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 %	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	20	x 2 =	40
FAC species	30	x 3 =	90
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	70 (A)		150 (B)

Prevalence Index = B/A = 2.14

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 182e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					Silty clay loam	
5-10	7.5YR 3/4	95	7.5YR 5/9	5	C		Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [x] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [x] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ◯

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [x] Drift Deposits (B3) (**Nonriverine**)
- [ ] Surface Soil Cracks (B6)
- [x] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◯ No ◉ Depth (inches):

Water Table Present? Yes ◯ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◯ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial from CaSIL, April 2004

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: PG&E Line 407(East) City/County: Placer/Sutter/Sacramento Sampling Date: 5/5/08

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: W 183e

Investigator(s): Erin Hess (USACE), E. Alfieri Section, Township, Range: Please see Location Map for all Sec,Town,Range

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C - Mediterranean California Lat: 38 45'03.51"N Long: 121 30'05.56" W Datum: WGS84

Soil Map Unit Name: Xerofluvents NWI classification: Vernal Pool

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ◯ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ◯

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ◯	
Hydric Soil Present?	Yes ◉	No ◯	**Is the Sampled Area within a Wetland?** Yes ◉ No ◯
Wetland Hydrology Present?	Yes ◉	No ◯	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	45	Yes	FAC
2. *Plagiobothrys stipitatus*	20	Yes	OBL
3. *Lolium multiflorum*	20	Yes	FAC
4. *Eryngium castrense*	5		FACW
5. *Psilocarphus brevissimus*	10		OBL
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	5	x 2 =	10
FAC species	65	x 3 =	195
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		235 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: W 183e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture[3]	Remarks
0-5	7.5YR 3/4	100					Clay loam	
5	7.5YR 3/4	95	7.5YR 5/9	5	C		Clay pan	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [x] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [x] Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ◯

Remarks: Claypan at 5"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [x] Drift Deposits (B3) (**Nonriverine**)
- [ ] Surface Soil Cracks (B6)
- [x] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◯ No ◉ Depth (inches):

Water Table Present? Yes ◯ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◯ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ◯

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Aerial from CaSIL, April 2004

Remarks:

Addendum to the Delineation of Waters of the U.S.
PG&E Line 407 Natural Gas Transmission Pipeline Project
Sacramento, Placer, Yolo, and Sutter Counties, CA (August 2007)

Non-Jurisdictional Status of Rice Fields within the Project Survey Area
July 2008

I. Introduction

The PG&E Line 407 Natural Gas Transmission Pipeline Project (Project) is located within portions of Yolo, Placer, Sutter and Sacramento Counties, CA. A number of cultivated rice fields exist within the central portion of the Project Area. This specific portion of the Project area occurs in Sutter and Sacramento counties, and is located east of the Sacramento River and west of Natomas Road.

A formal wetland delineation was performed for the Project in 2006 and 2007 by Gallaway Consulting, Inc. and submitted to the U.S. Army Corps of Engineers (USACE) for verification in August 2007. Following site visits in April and May 2008 with USACE project manager Erin Hess, changes were made to the delineation per Ms. Hess's comments with the exception of the jurisdictional status of the rice fields within the Project area. Throughout the delineation process, actively farmed areas, including rice fields, were not identified as distinct features, wetland or otherwise. While it was suggested that all rice fields within the Project area be delineated as jurisdictional wetlands, based on our interpretation of USACE policy, the delineation has not been amended in regards to rice fields.

This addendum provides additional information to support the position that the identified rice fields are not under the jurisdiction of USACE as authorized by the Clean Water Act (CWA) Section 404. Using the approach outlined in the U.S. Army Corps' Regulatory Branch Memorandum on irrigated wetlands (2007-01, March 13, 2007), we have assessed the rice fields within the project area and believe that the data demonstrates that they are not jurisdictional wetlands. Our assessment is provided below and we look forward to further discussions with USACE staff to determine the jurisdiction of these areas.

II. Analysis of Rice Fields Using USACE Policy on Irrigated Wetlands

According to the USACE, Sacramento District Regulatory Branch Memorandum 2007-01 (USACE March 13, 2007), artificially irrigated lands are generally not jurisdictional if without irrigation they would revert to uplands. The best method to verify jurisdictional status would be to discontinue irrigation. However, the Corps' memorandum notes that it is impractical in many cases to do so and provides an alternative approach to verify non-jurisdiction, including aerial imagery, historical documentation, and historical and current data regarding the hydrology, soils and historical conditions of the site in question provided by federal, state, and local agencies, as well as, the landowner or neighbors (USACE March 13, 2007).

It is impractical in this case to halt irrigation on active rice fields and thus, we have evaluated the rice fields using the alternative approach provided in the memorandum.

1. Aerial Imagery and Land Use Information

Historically, the area immediately surrounding the Sacramento River would periodically flood during high flow events; however, due to the construction of an extensive levee system along the Sacramento River and its tributaries, the land within the Project area immediately surrounding the Sacramento River no longer floods naturally. Although a comprehensive flood control plan wasn't authorized by congress until 1917, construction of levees in the Sacramento area began in 1850 (Sacramento Area Flood Control Agency, 2008).

Based on topographic maps from 1905, no permanent water features occurred within the Project area (**Attachment A**). Water features which were present south of the Project area, such as Bush Lake, were described as "intermittent" (Tugel, 1993). These "lakes" were hydrologically supported by seasonal precipitation and slowly dried down during the summer months (Tugel, 1993). Numerous levees are depicted on the 1905 topographic map (**Attachment A**), verifying the extent of the Sacramento River levee system at that date.

Aerial images are one resource used to depict the non-static nature of agricultural fields, specifically those in rice production, and show the lack of naturally ponding features within the fields during the winter months, prior to the planting of rice and subsequent application of irrigation water (Terraserver.com). Additionally, fields exist within and adjacent to the Project area that are currently in hay, row crop, and tree crop production, which is further evidence of the area's upland status.

2. Hydrological Characteristics

The area in question has been in rice and other intensive agricultural production for more than 100 years, which has drastically altered and modified the soils, the micro-topography, and the water table. The long standing presence of levees controlling the natural flow of the Sacramento River has allowed for a patchwork of agricultural fields, managed under dry land and irrigated systems. Throughout the years of agricultural production the land has been continually manipulated and re-contoured, further changing the original hydrology of the region. Drainage systems have been utilized to lower water tables in the area to compensate for the fact that the elevation of the fields is lowered on a regular basis due to farming practices. "Many areas that were once at mean sea level are now 10 to 20 feet below sea level" and "the annual rate of [ground water] decline has ranged from an average of one foot in some areas to 3 feet in others" (Tugel, 1993).

Due to this intensive management, and the alteration of the natural surface flow regime of the site, as well as the lowering of the region's water-table level, wetland features which may have been present prior to the 1900's no longer exist. Additionally, since the hydrology of the rice fields is maintained by artificially placed irrigation water, the

"normal circumstances" (33CFR 328.3 (b)) of the site would be upland habitat if irrigation water were removed. The USACE has clarified the phrase "normal circumstances" as "…an evaluation of the extent and relative permanence of the physical alteration of wetlands hydrology and hydrophytic vegetation" (USACE Regulatory Guidance Letter 90-07). The extensive and permanent Sacramento River levee system has created a "normal circumstance" within and adjacent to the Project area, that includes the permanent removal of the historical hydrology of the area, resulting in highly productive dry land and irrigated agricultural fields. The productivity of the rice fields within the project area is dependent upon the application of water delivered via an intricate network of canals and irrigation ditches, supplied primarily through irrigation districts. Hence, the rice fields should not be considered jurisdictional since they have been created in and are artificially maintained in what are now uplands.

3. Soils Information

Hydric soils were determined to be present within the site, based on Natural Resources Conservation Services (NRCS) soil maps and GCI field assessment; however criteria utilized for the determination, such as presence of concretions, high organic streaking within the sandy soil layers, low-chroma color, and reducing conditions would all be present due to the annual flooding of the site for rice production for more than 100 years. Additionally, Tugel states that "where artificially drained, the soil retains [morphological] features even though the water table may be lowered or may be high for a shorter period." This point is reiterated in the *SPK Regulatory Branch Memorandum 2003-04, Subject: Irrigated Wetlands*, which states "…Specifically, hydrophytic vegetation can be established and maintained solely by irrigation practices. Also, hydric soils usually develop over a long period of time, and can exhibit hydric soil indicators even if the hydrology has been removed by such activities as dams, diversions, ditches, and other modifications." Although soils within the Project area were determined to contain hydric indicators, these conditions are the result of season long inundation of the fields through the application of irrigation water.

5. Water Delivery Information

Rice fields are actively managed through normal farming activities, including the bi-annual application of water, which mimics seasonal flooding. The fields are flooded shortly after planting in the early spring and remain flooded throughout most of the summer growing season. The elevation of the fields is above the ordinary high water mark (OHWM) of adjacent canals and irrigation ditches, so water must be pumped onto the fields or to a location from which it can be gravity fed onto the fields. Vegetation of the site is primarily dominated by *Oryza satvia, Epilobium sp., Cyperus eragrostis, Polygonum hydropiper* and *Typha* sp., as well as, various annual grasses and forbs. This vegetation is characteristic of rice fields, due to the irrigation regime, specifically the frequency and duration of these man-induced flooding events.

Most rice fields are additionally "flooded-up" in the late fall for overwintering waterfowl. However, this practice has only begun occurring more recently as a result of stricter air

quality standards and a collaborative effort between the State agencies, private landowners and waterfowl hunting enthusiasts. Aerial photos of the Project site and adjacent areas prior to this annual application of water in the winter show the fields as not maintaining surface hydrology (Terraserver.com).

Typically, rice fields in the Central Valley have been leveled with the use of lasers, to allow for fields to adequately drain when necessary to meet production cycles. This type of land preparation allows for the precise management of water levels, necessary for weed control and ideal rice growing conditions. From aerial photos of the site it is evident that the fields within the Project area have been "laser-leveled" rather than contour farmed, allowing for water to be placed on and be drained of off the fields (Terraserver.com).

6. Weather Information

The project area is located within the Northern Central Valley of California. California's Central Valley is characterized by a Mediterranean climate, with cool, rainy winters and hot, dry summers. Summers in California's Central Valley can go from 2-5 months without any significant amount of rainfall. The average annual temperature for the project area ranges from 51-75°F, with the hottest temperatures occurring in July, reaching on average a maximum of 94°F (weather.com, 2008). The average yearly rainfall totals for the area is approximately 19.37 inches, with the maximum annual precipitation occurring in January (weather.com, 2008). Due to the consecutive months lacking rain during the summer, water features and wetlands in the Central Valley tend to dry down significantly or completely. The rice fields in the project area, however, are artificially flooded during the summer months, when under normal conditions, the area would be dry during the summer.

III. Prior Converted Wetlands

Rice fields within the Central Valley are a unique situation that fit under both irrigated wetland and prior converted (PC) cropland. The rice fields within the Project area meet the requirements to be considered PC cropland in that they have been previously modified to an extent which removed any natural hydrology that may have existed on-site. Prior converted croplands are defined by the NRCS, formerly Soil Conservation Service (SCS), as "wetlands which were both manipulated (drained or otherwise physically altered to remove excess water from the land) and cropped before 23 December 1985, to the extent that they no longer exhibit important wetland values (Section 512.15 of the National Food Security Act Manual, SCS August 1988). Specifically, PC cropland is inundated for no more than 14 consecutive days during the growing season" (USACE, 1990). Though the rice fields in question are artificially flooded for more than 14 consecutive days, there is no natural hydrology to allow the land to return to its natural state. The NRCS has clarified this situation by stating that if it is "[concluded] that drainage was adequate to remove the wetland hydrology, the site can be considered PC" (NRCS, 2006). As stated above, the natural hydrology of the area has been permanently altered due to the extensive levee system and the continued

management of the agricultural land, including the current laser-leveling technology. Specifically, the rice fields are managed and designed to be drained and flooded on demand through a maze of irrigation ditches. These changes and management practices of the rice fields have clearly removed the natural wetland hydrology from the area. Although it is indeterminate as to the upland/wetland status of the fields within the Project area prior to 1850, they have been in continual agricultural production since the late 1800's, which is when the first levee was built in the Sacramento area. Subpart (8) of 33 CFR 328.3 (a), which provides the definition of "waters of the United States", indicates that "waters of the United States do not include prior converted cropland".

IV. Conclusions

In summary, it is our finding that the rice fields within the Project area, while demonstrating some indication of positive wetland parameters, are maintained by the application of irrigation water. Further, through analysis of historical data, past and present management activities, and current regional conditions the "normal circumstances" of the Project site and surrounding area, following the building of the Sacramento River levee system, is that of upland. According to item 7.c. of the above referenced "irrigated wetlands" memo, "If there are positive indicators for soils and vegetation, but the relative contribution of irrigation versus natural hydrology in maintaining these conditions cannot be precisely determined, then consideration must be give as to whether the current condition reflects the "normal circumstances" of the area.

Additionally, provided that the rice fields within the Project site contained historic wetlands prior to the installment of the levee system, they meet the criteria of PC cropland. Although this status is designated through NRCS, a defined set of criteria exists for the designation, and the rice fields in questions meet those criteria. As stated above, PC cropland is not included under those areas defined as waters of the U.S.

This addendum was provided to present additional information related to the jurisdictional status of rice fields within the Project area. While not an exhaustive discourse, it provides applicable evidence and justification as to the non-jurisdictional status of these fields based on our understanding of the available USACE policy.

References

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Holmes, L.C. and Nelson, J.W. 1915. *Reconnaissance Soil Survey of the Sacramento Valley, CA*. U.S. Department of Agriculture. Washington D.C.

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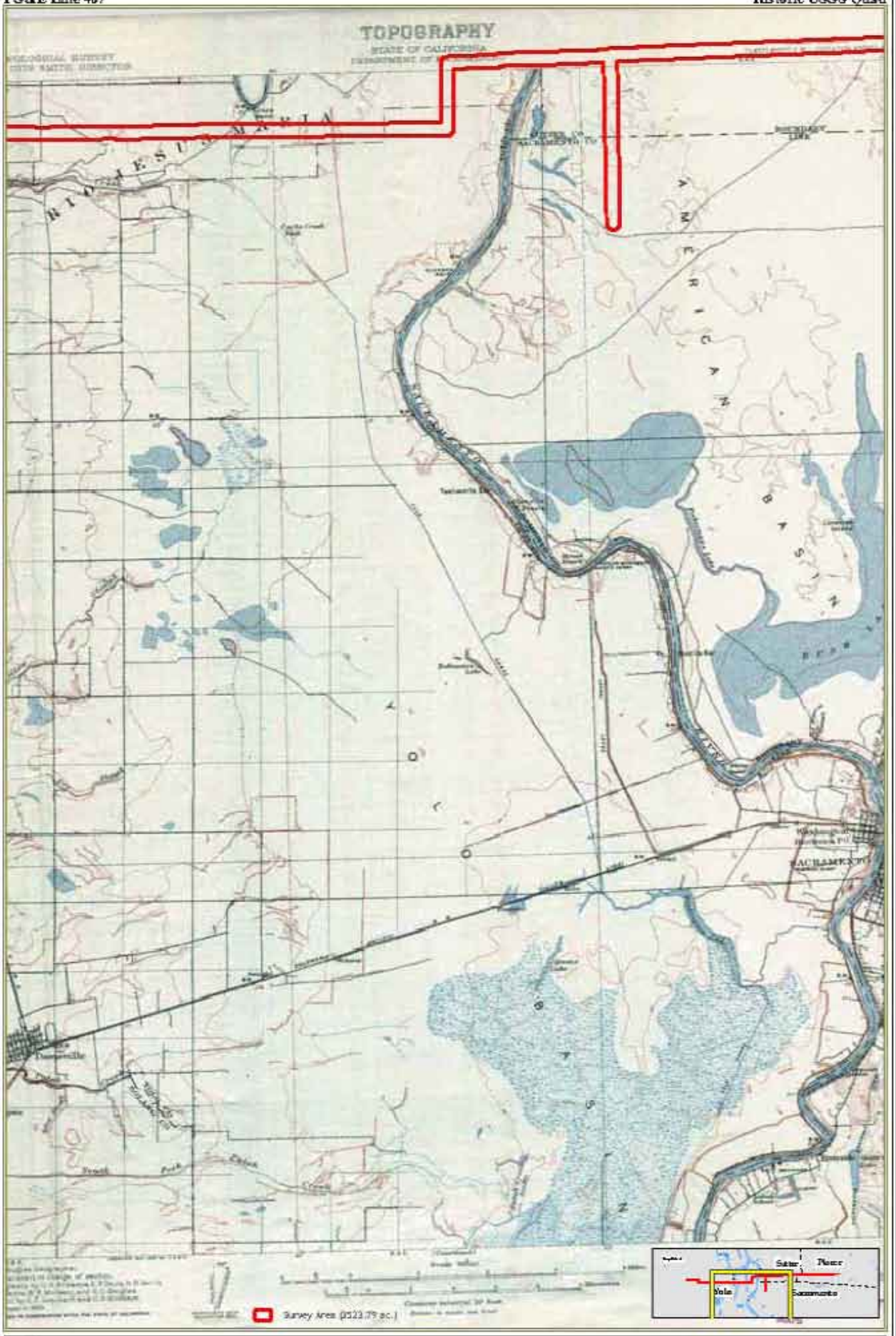
U.S. Army Corps of Engineers. November 13, 1986. Code of Federal Regulations. Title 33 part 328. Regulatory Programs of the Corps of Engineers.

U.S. Army Corps of Engineers. September 26, 1990. Regulatory Guidance Letter 90-07. Subject: Clarification of the Phrase "Normal Circumstances" as it Pertains to Cropped Wetlands. Sacramento District.



Survey area derived from SHPO shapefile of boundary
Map drawn: 1965 1:62500 Clarksville USGS Quad
Sheet: Quadrangle sheet CSU Chico
Milton Library Special Collections
Map Date: June 26, 2008.

Miles
0 0.5 1

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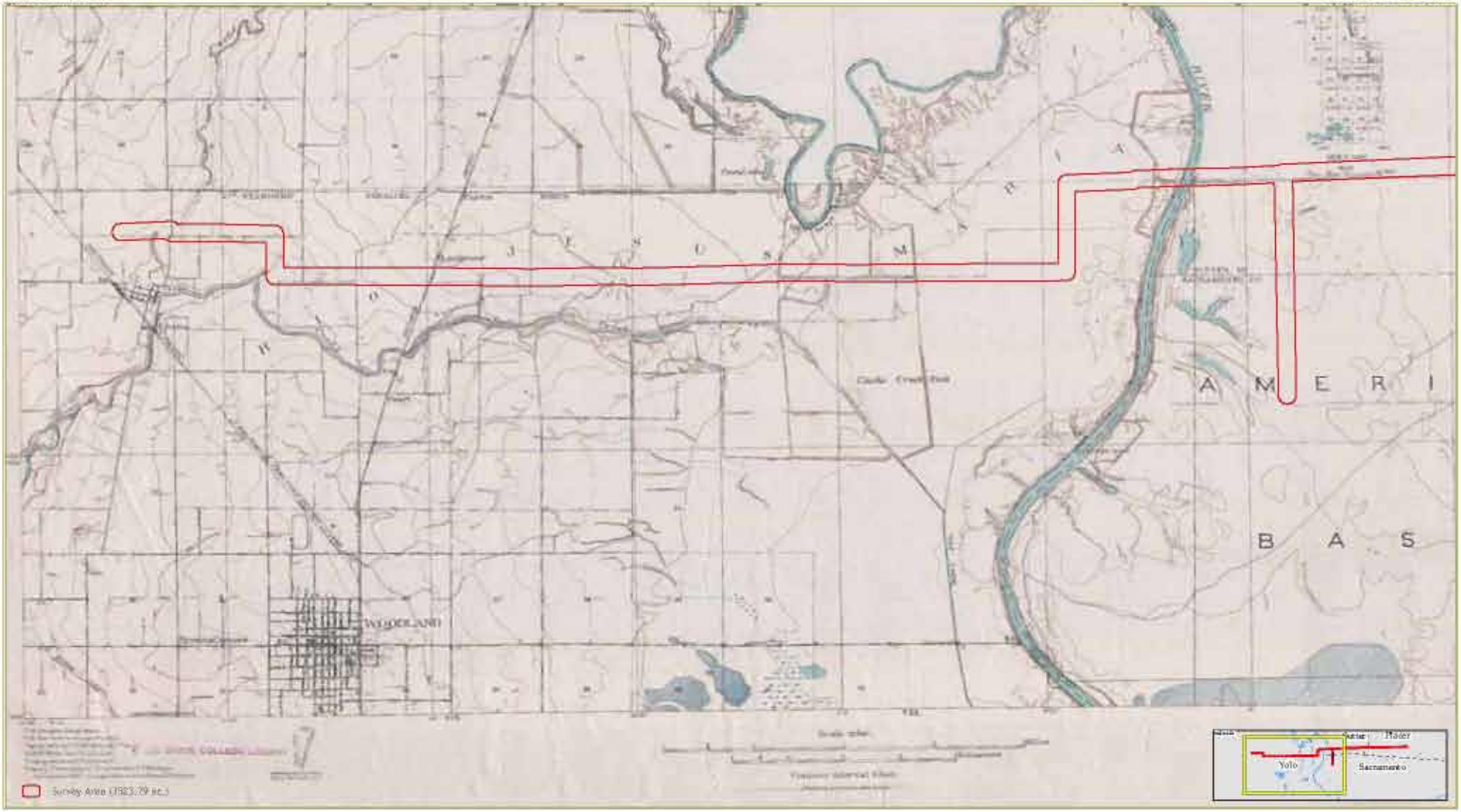
Exhibit 1

PG&E Line 407 **Historic USGS Quad**



Survey area derived from 300 ft. buffer of readers.
Map shows 1993 1:31,680 Sacramento Valley USGS Quad.
Historic Quad obtained from CSU, Chico
Meriam Library Special Collections
Map Date: June 17, 2008

Miles
0 0.5 1

GALLAWAY CONSULTING, INC.

Exhibit 2

Pacific Gas and
Electric Company®

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833

December 10, 2008

To: **Brian Vierria**
U.S. Army Corps of Engineers,
Regulatory Branch, Sacramento District
1325 J Street, Room 1480
Sacramento, CA 95814-2922

Re: **Revised Delineation of Waters of the U.S. Maps for the PG&E Line 407 Natural Gas Transmission Pipeline Project, Placer, Sutter, Yolo, and Sacramento Counties, CA (GCI# 2006-043).**

Dear Mr. Vierria:

Enclosed please find the revised Delineation of Waters of the U.S. maps (**Attachment A**) and Table of Waters of the U.S. Delineated (**Attachment B**) for the PG&E Line 407 Natural Gas Transmission Pipeline project. The delineation maps were revised to include rice fields as wetland features based on the USACE's comments during and subsequent to the field visits with Ms. Erin Hess and Gallaway Consulting staff conducted on January 30-31, March 3, April 17, and May 5, 2008. The enclosed maps and table replace the maps and table included as Attachments A & B to the letter addendum to the Delineation of Waters of the U.S. for the PG&E Line 407 Natural Gas Transmission Pipeline Project (Gallaway Consulting, Inc., July 23, 2008).

Feel free to contact me at (916) 923-7030 with any questions or comments.

Sincerely,

Chris Ellis

Chris Ellis, AICP
Principal Planner

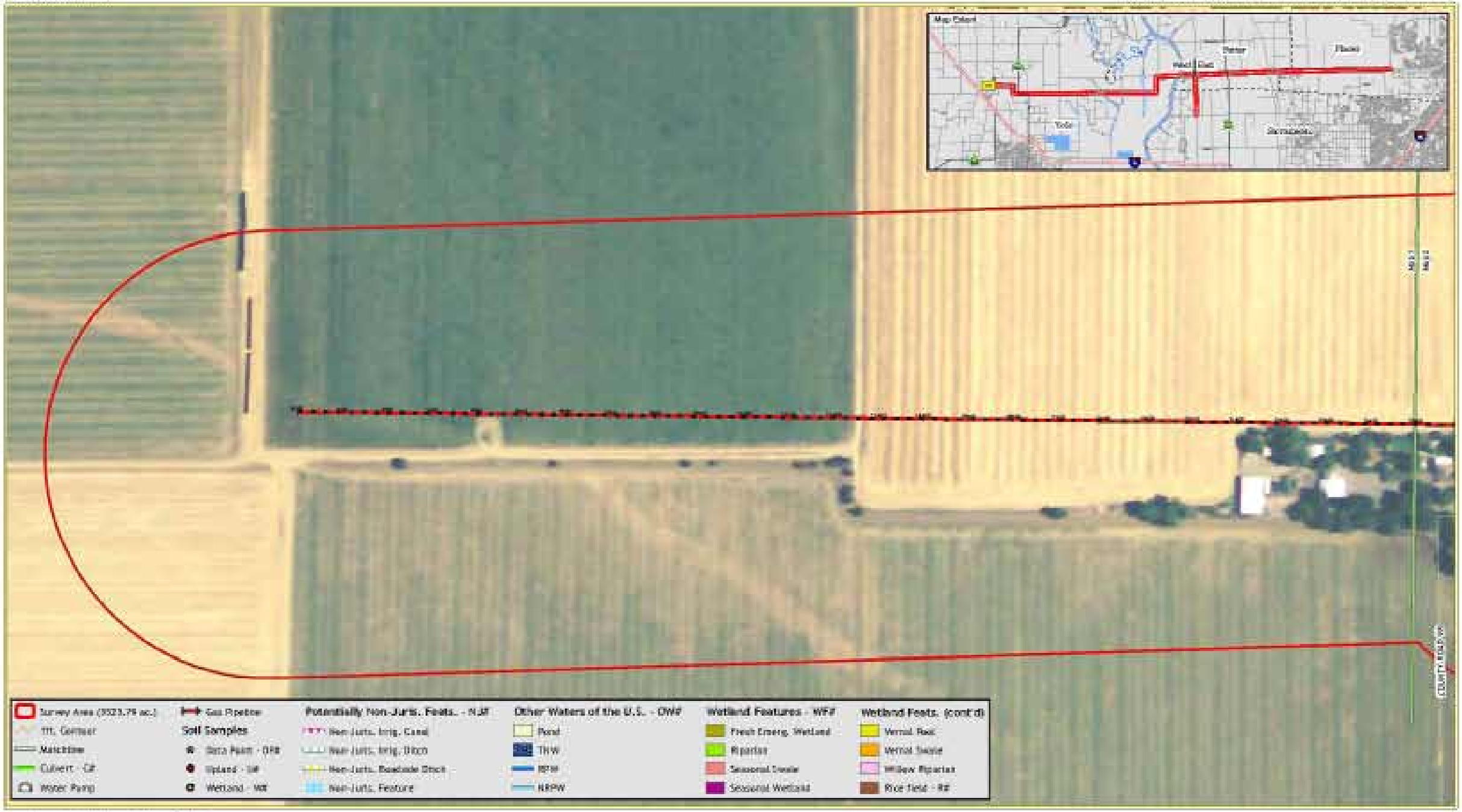
PG&E Line 406 and Line 407 Pipeline Project
Jurisdictional Waters Impacts

Site #	Feature and Map Number	Type	Proposed Crossing Method	Direct Impacts Acreage	Indirect Impacts Acreage	Federally-listed Species	Cultural Resources
1	Hungry Hollow Canal/ L406 Map 3A	Hungry Hollow Canal	Open Cut	0.05	0.01	GGS	Yes
2	Unnamed Canal 1/ L406 Map 3D	Unnamed Drainage Canal	Open Cut	0.02	0.01	GGS	No
3	Unnamed Canal 2/ L406 Map 3E	Unnamed Drainage Canal	Open Cut	0.02	0.01	GGS	No
5	Goodnow Slough/ L406 Map 3F	Goodnow Slough	Open Cut	0.03	0.01	CTS, GGS	Yes
6	Seasonal Wetland Swale #2/ L406 Map 3H	Seasonal Swale; Erosional Channel	Open Cut	0.03	0	CTS	No
7	Acacia Canal/ L406 Map 3K	Acacia Canal	Open Cut	0.02	0.01	GGS	No
12	OW13/ L407 Map 22	Unnamed Drainage Canal	Open Cut	0.05	0.01	GGS	No
13	OW14/ L407 Map 23	Unnamed Drainage Canal	Open Cut	0.06	0.02	GGS	No
14	OW15/ L407 Map 23	Unnamed Drainage Canal	Open Cut	0.06	0.02	GGS	No

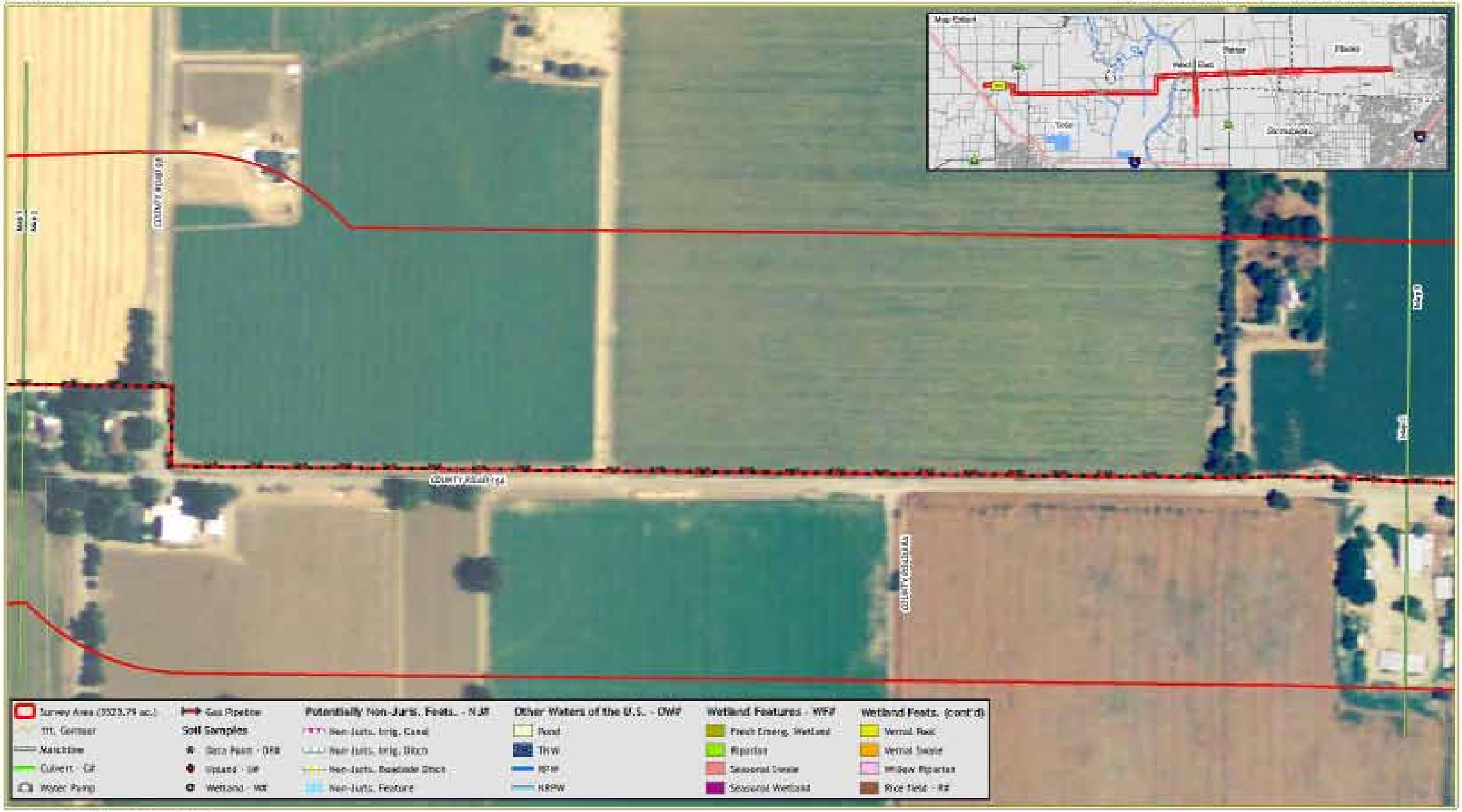
Site #	Feature and Map Number	Type	Proposed Crossing Method	Direct Impacts Acreage	Indirect Impacts Acreage	Federally-listed Species	Cultural Resources
17	NJ04/ L407 Map 26	Unnamed Drainage Canal	Open Cut	0.03	0.01	GGS	No
18	OW122/ L407 Map 27	Unnamed Drainage Canal	Open Cut	0.03	0.01	GGS	No
21	OW134/ L407 Map 31	Unnamed Drainage Canal	Open Cut	0.05	0.01	GGS	No
24	OW131/ L407 Map 36	North Drainage Canal	Open Cut	0.11	0.03	GGS	No
29	OW128/ L407 Map 40	Unnamed Drainage Canal	Open Cut	0.05	0.01	GGS	No
30	OW127/ L407 Map 41 WF164e, WF162e, WF161e, WF160e, WF159e, WF158e, WF166e, WF157e/ L407 Maps 41, 42	Unnamed Drainage Ditch; Seasonal Wetlands	Open Cut	4.80	0.01	GGS	No
33	WF155e/ L407 Map 43	Seasonal Wetland	Open Cut	0.02	0	*B. lynchi*	No
35	WF154e/ L407 Map 44	Seasonal Wetland	Open Cut	0.02	0	*B. lynchi*	No
36	WF060e, WF061e/ L407 Map 45	Seasonal Wetlands	Open Cut	0.07	0	*B. lynchi*	No
37	WF062e, WF179e, WF059e / L407 Map 46	Seasonal Wetlands	Open Cut	0.08	0	*B. lynchi*	No

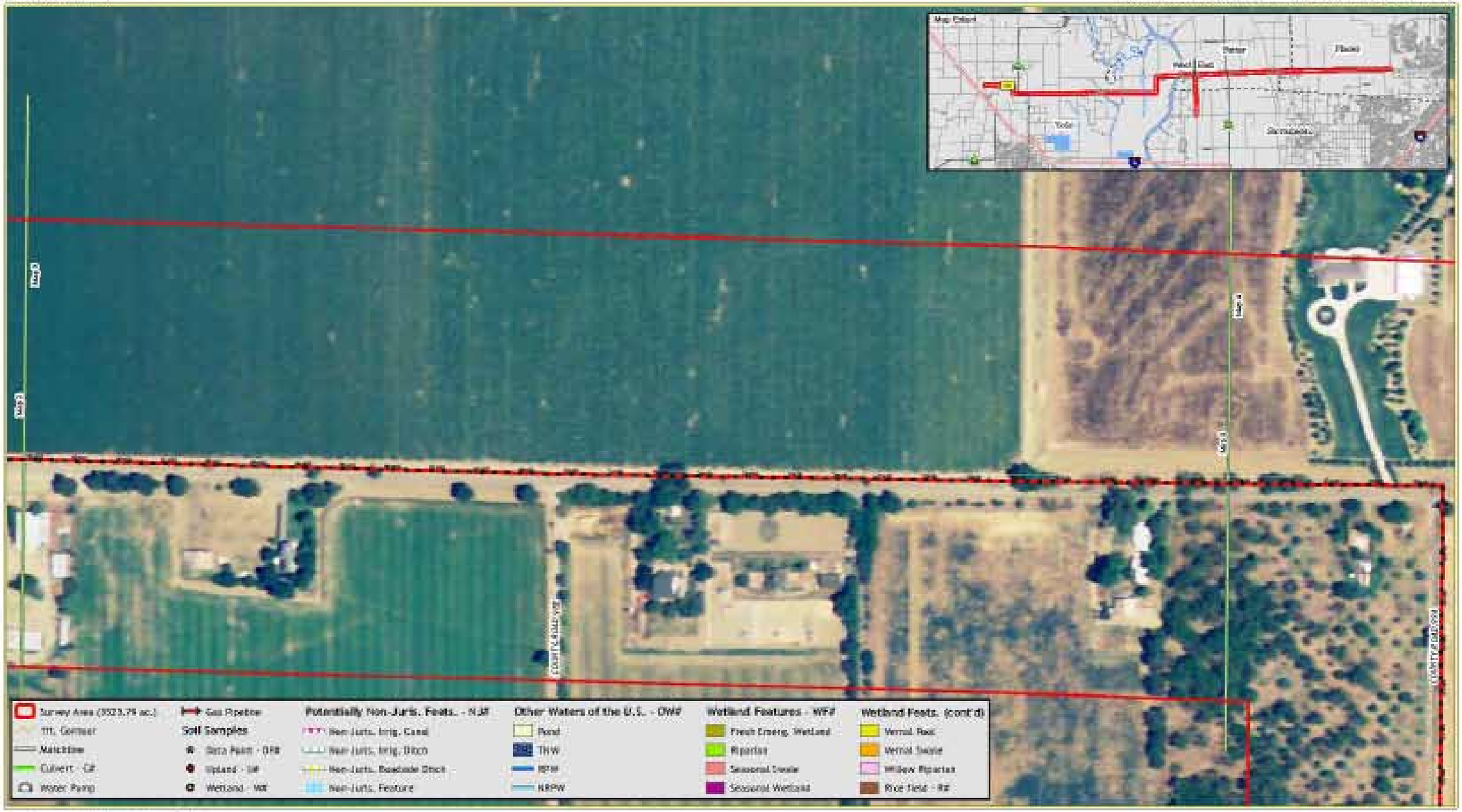
Site #	Feature and Map Number	Type	Proposed Crossing Method	Direct Impacts Acreage	Indirect Impacts Acreage	Federally-listed Species	Cultural Resources
38	WF114e/ L407 Map 47	Seasonal Swale	Open Cut	0.06	0	*B. lynchi*	No
39	WF144e/ L407 Map 47 WF054e/ L407 Maps 47, 48	Seasonal Wetland and Riparian Wetland	Open Cut	0.05	0	*B. lynchi*	No
40	WF050e/ L407 Map 49	Seasonal Swale	Open Cut	0.05	0	*B. lynchi*	No
42b	WF048e/ L407 Map 50	Seasonal Wetland	Open Cut	0.10	0	*B. lynchi*	No
43a	WF029e, WF030e/ L407 Map 51	Seasonal Swale, Seasonal Wetland/	Open Cut	0.03	0	*B. lynchi*	No
43c	WF174e, WF173e/ L407 Map 53	Seasonal Swales/	Open Cut	0.31	0	*B. lynchi*	No
45	WF002e/ L407 Map 54	Seasonal Swale	Open Cut	0.08	0	*B. lynchi*	No
46	WF007e/ L407 Map 55	Seasonal Wetland	Open Cut	0.72	0	*B. lynchi*	No

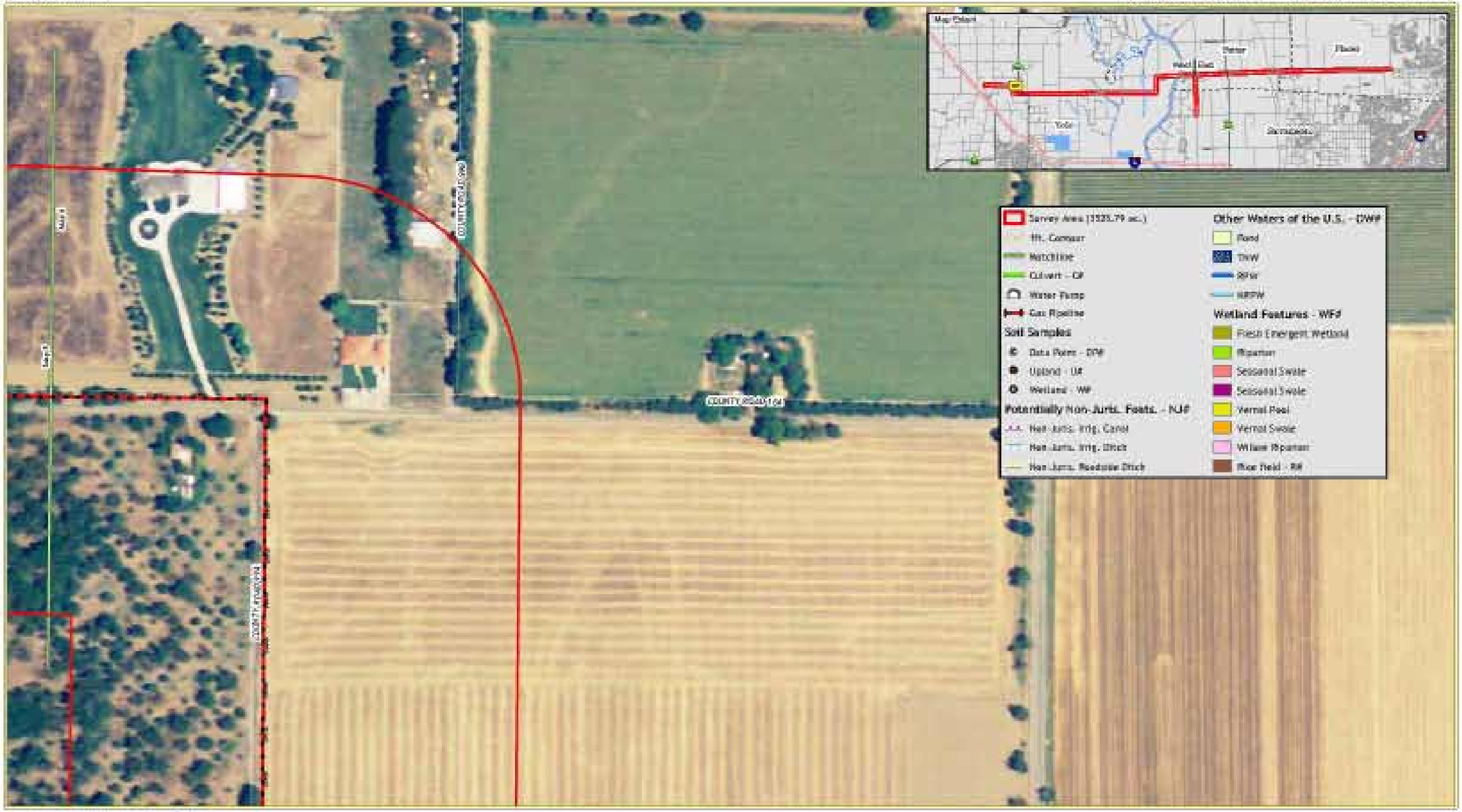
Site #	Feature and Map Number	Type	Proposed Crossing Method	Direct Impacts Acreage	Indirect Impacts Acreage	Federally-listed Species	Cultural Resources
47	R19/ L407 Map 26, 27 R18/ L407 Map 27, 36 R32/ L407 Map 28, 29 R33/ L407 Map30, 31 R04/ L407 Map 31, 32, 33 R05/ L407 Map 33, 34 R36/ L407 Map34 R02/ L407 Map 35 R21, R07, R23, R14, R09/ L407 Map 36, 36, 38, 39 R12, R28, R17/ L407 Map 40, 41	Rice	Open Cut	55.02	13.75	GGS	Yes



GALLAWAY CONSULTING, INC.

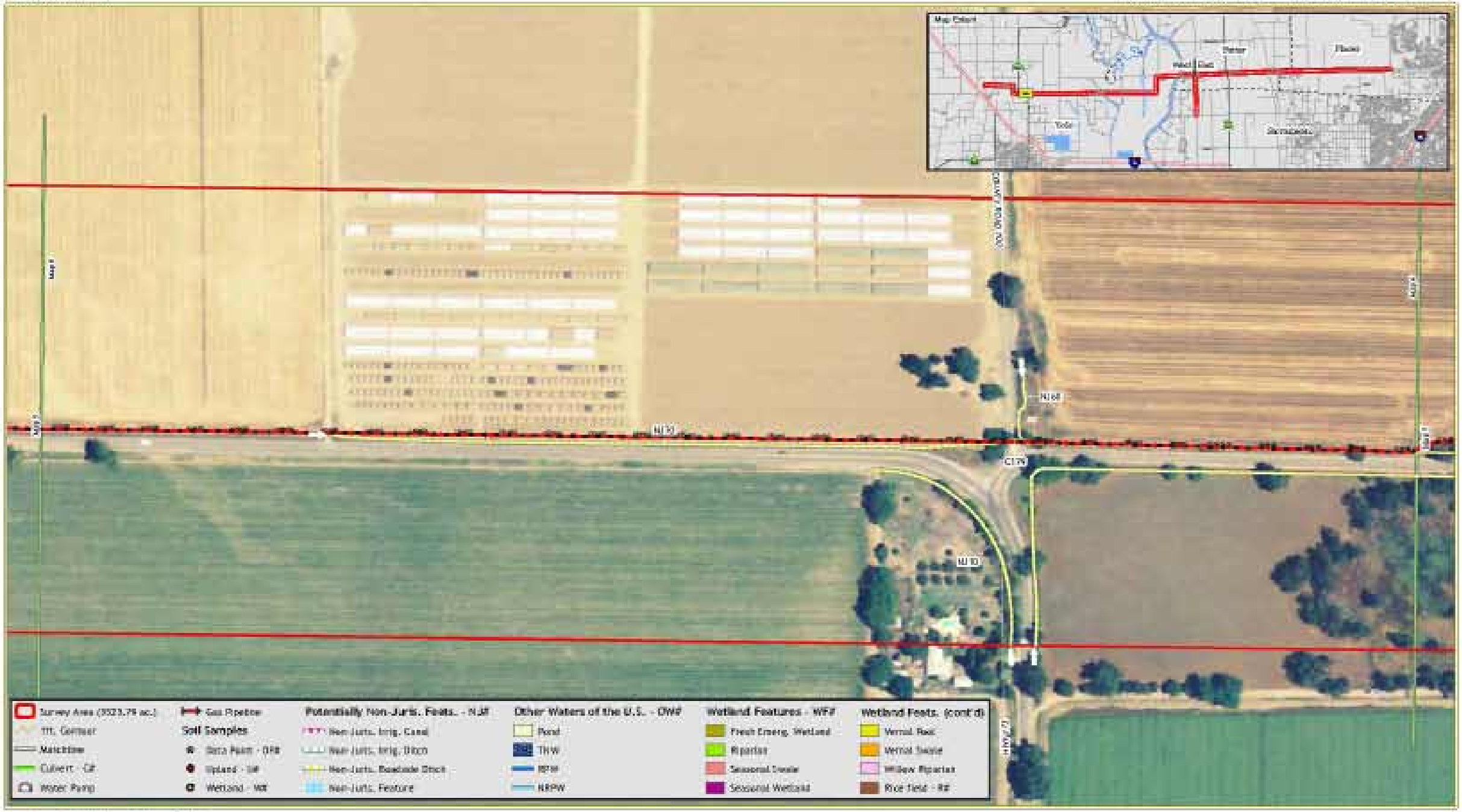

Map Detail
Yolo
Sacramento
Placer
COUNTY ROAD 94
COUNTY ROAD 95
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - Cul
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - Up
Wetland - Wet
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - Rif
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

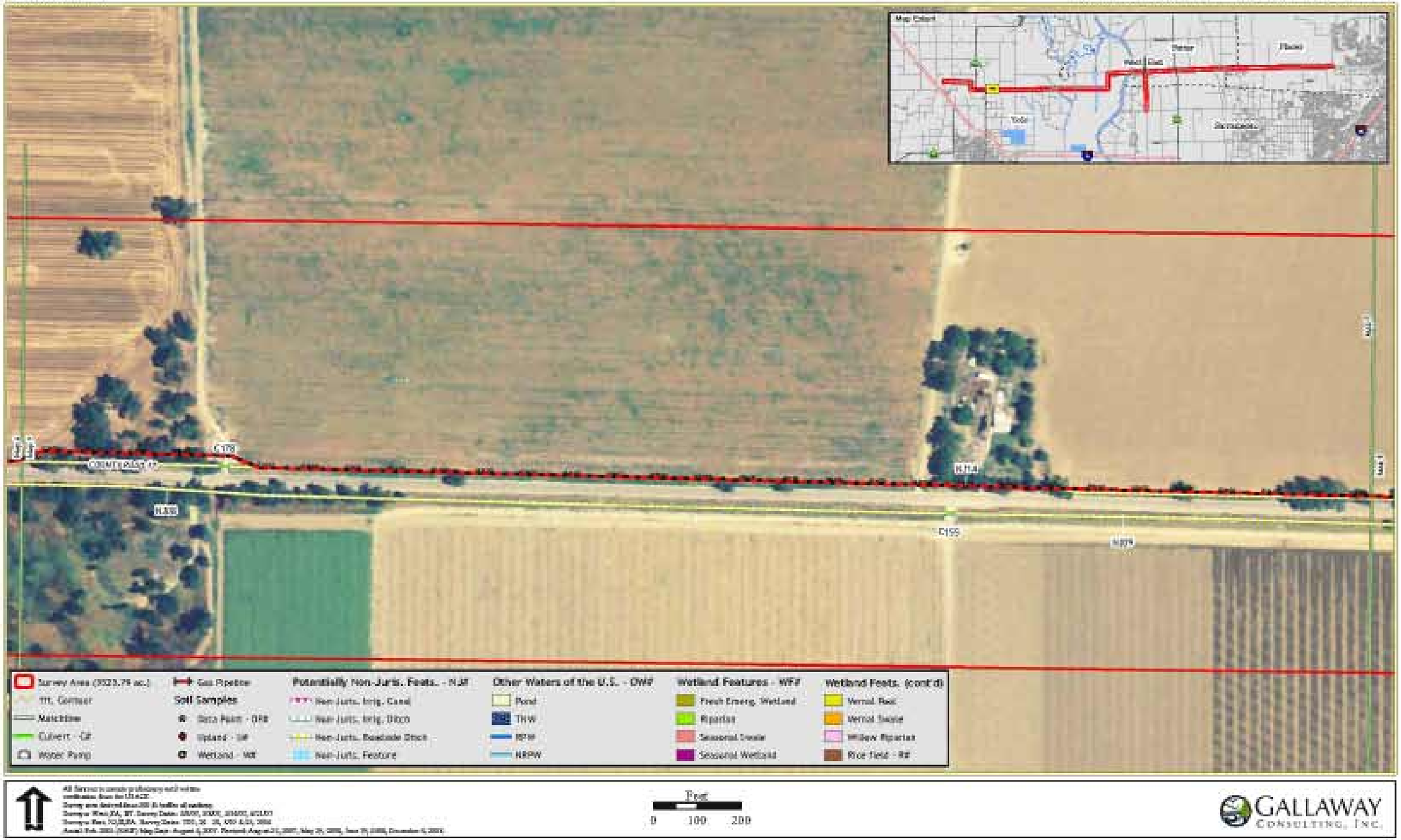

Survey Area (3523.79 ac.)
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Culvert - CU
Water Pump
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

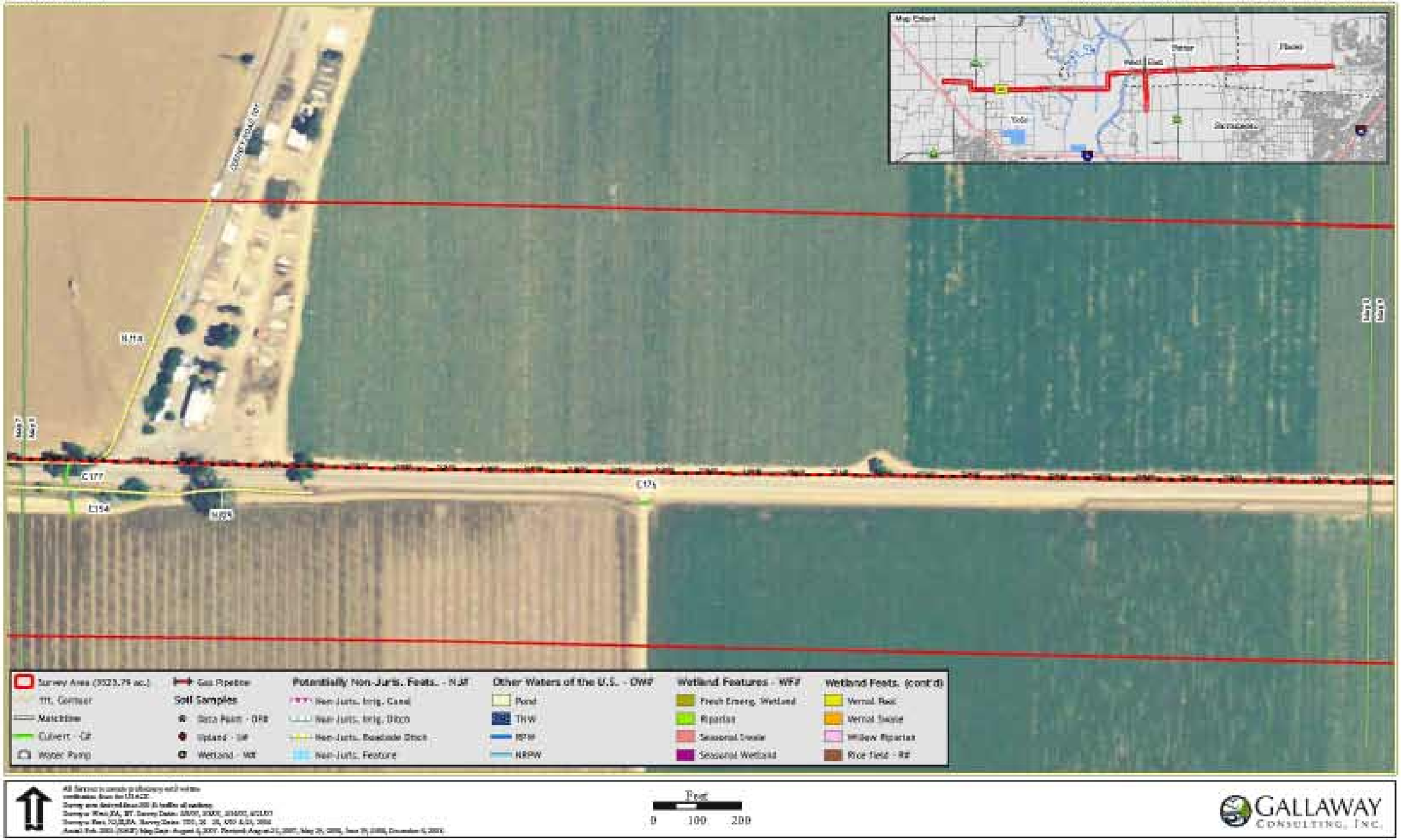


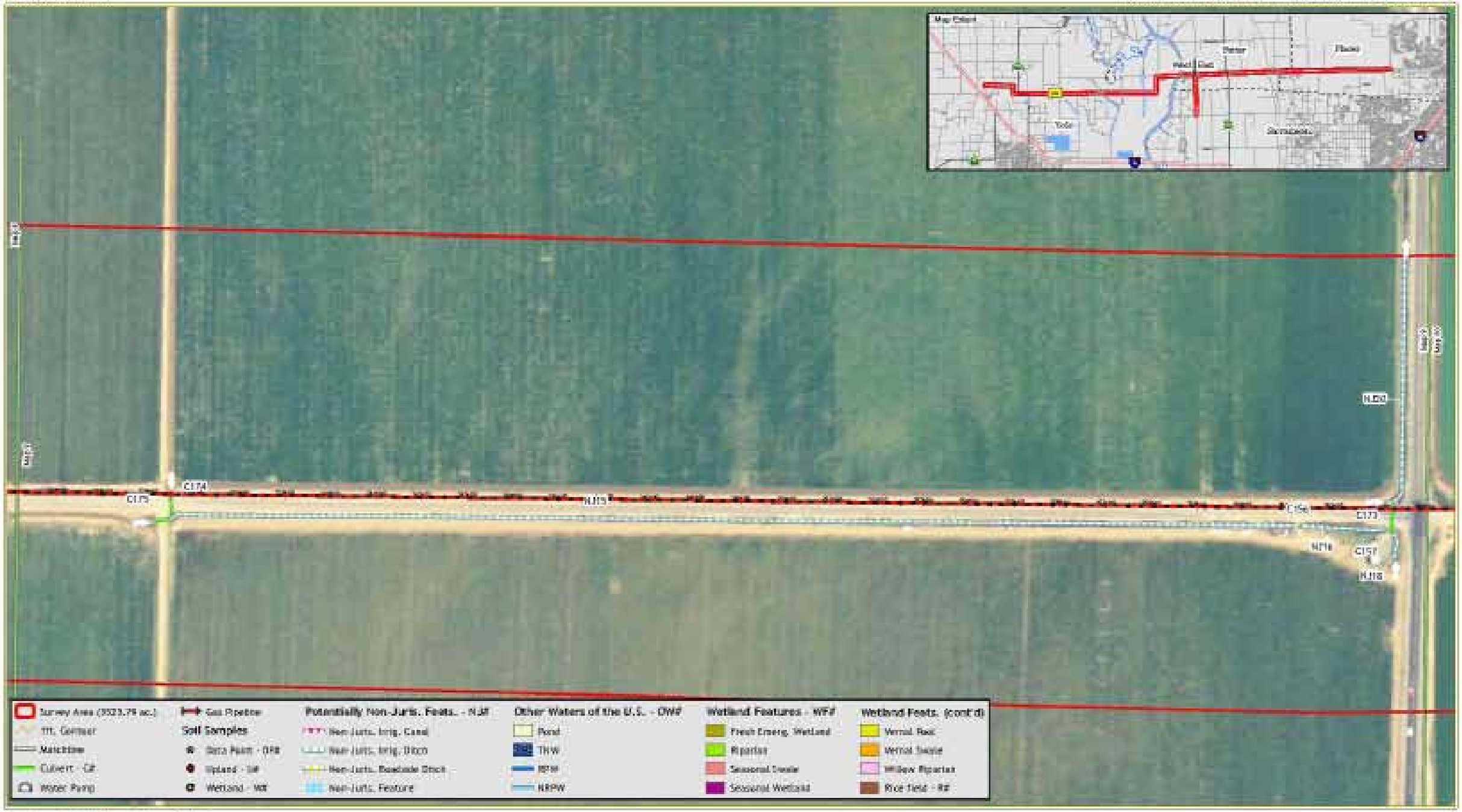
GALLAWAY CONSULTING, INC.

GALLAWAY CONSULTING, INC.


Map Point
Yolo
Sacramento
Solano
Sacramento
Yolo
Map 5
Map 7
NJ1
NJ2
NJ3
NJ4
NJ5
Survey Area (3523.79 ac.)
TTL Contour
Mainline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
RPW
NRPW
Wetland Features - WPF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Map Extent
Yolo
Sacramento
Placer
Sutter
Yuba
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
RPW
NRPW
Wetland Features - WPF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

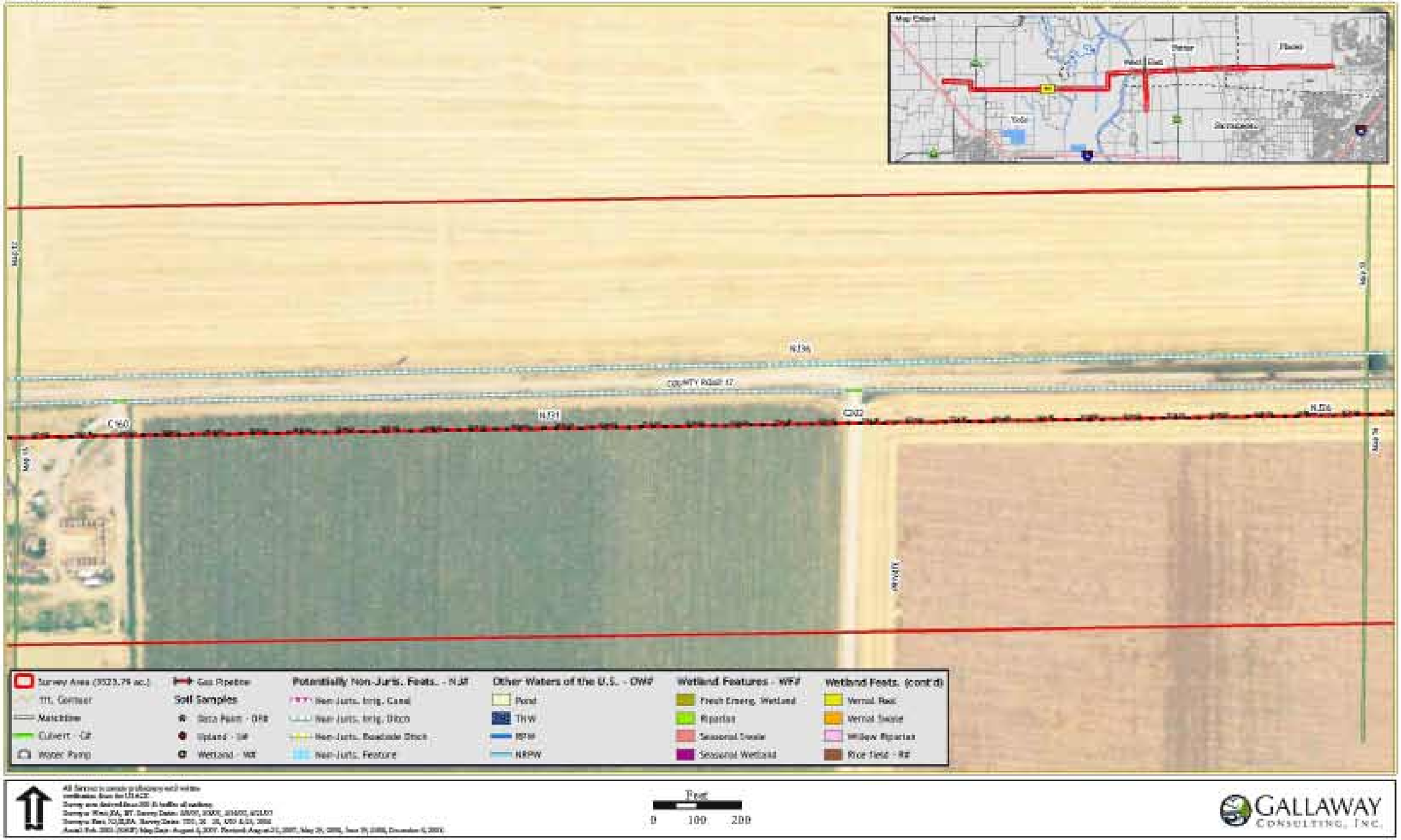


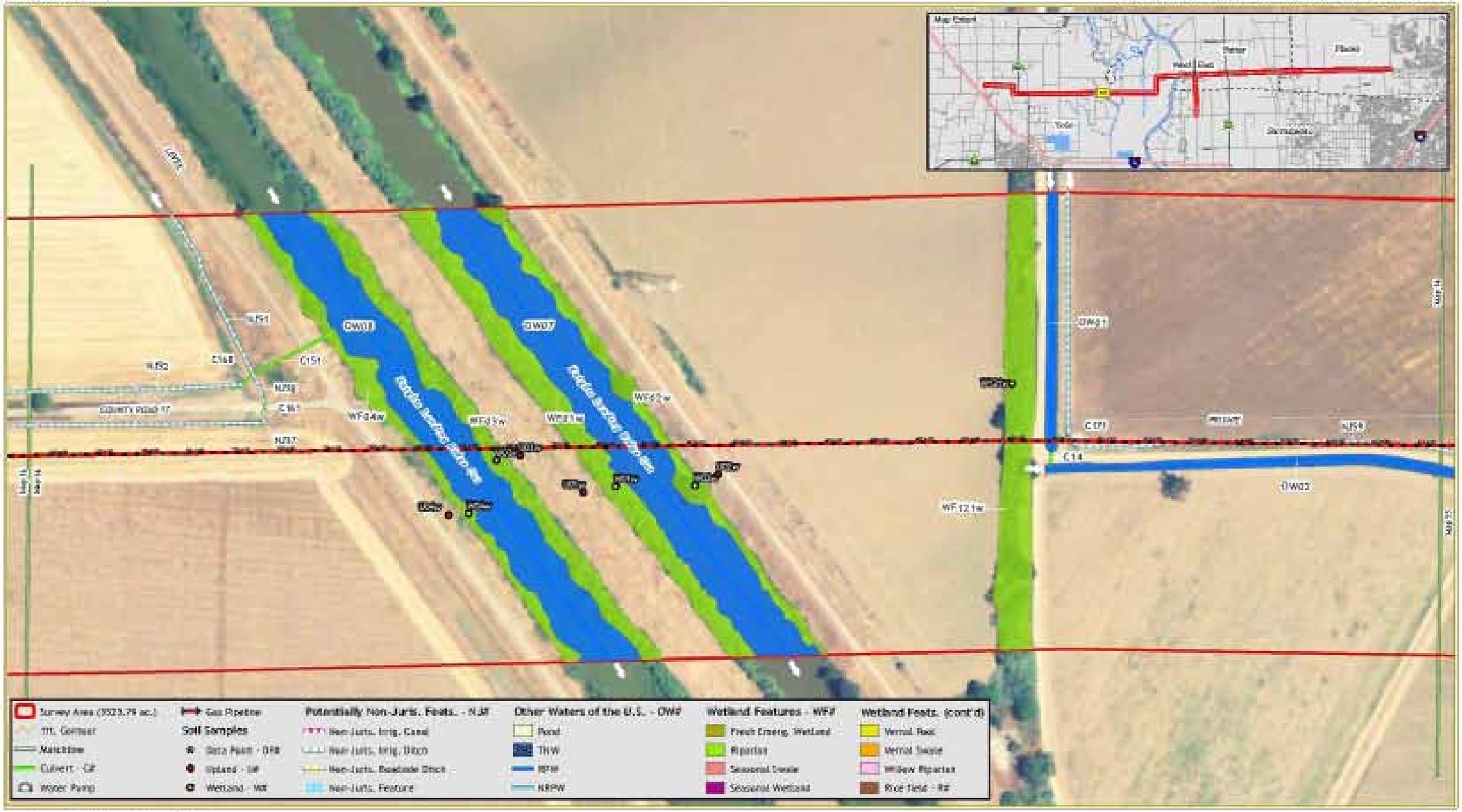
GALLAWAY CONSULTING, INC.

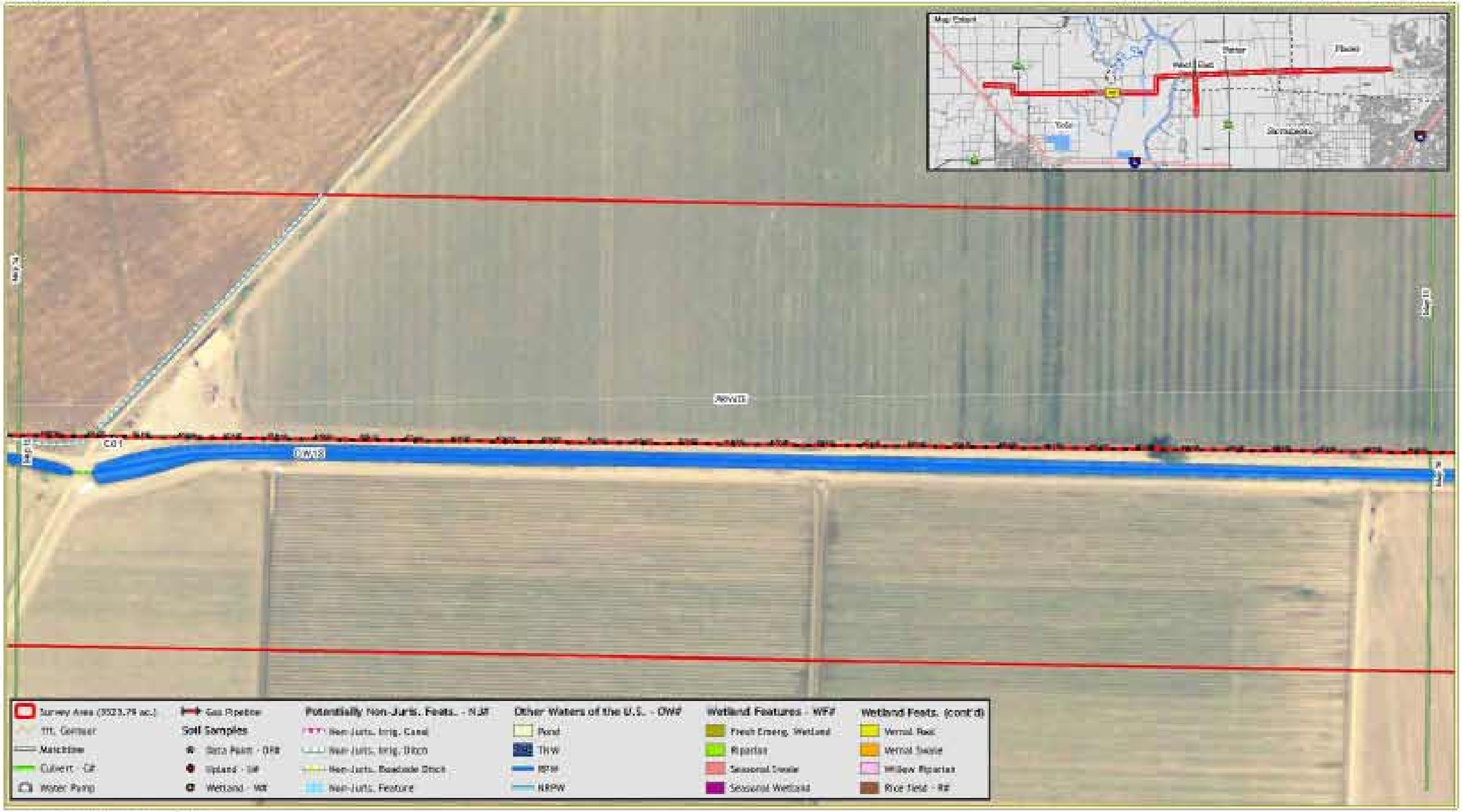
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - UP
Wetland - WT
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice field - RF
C157
C33
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

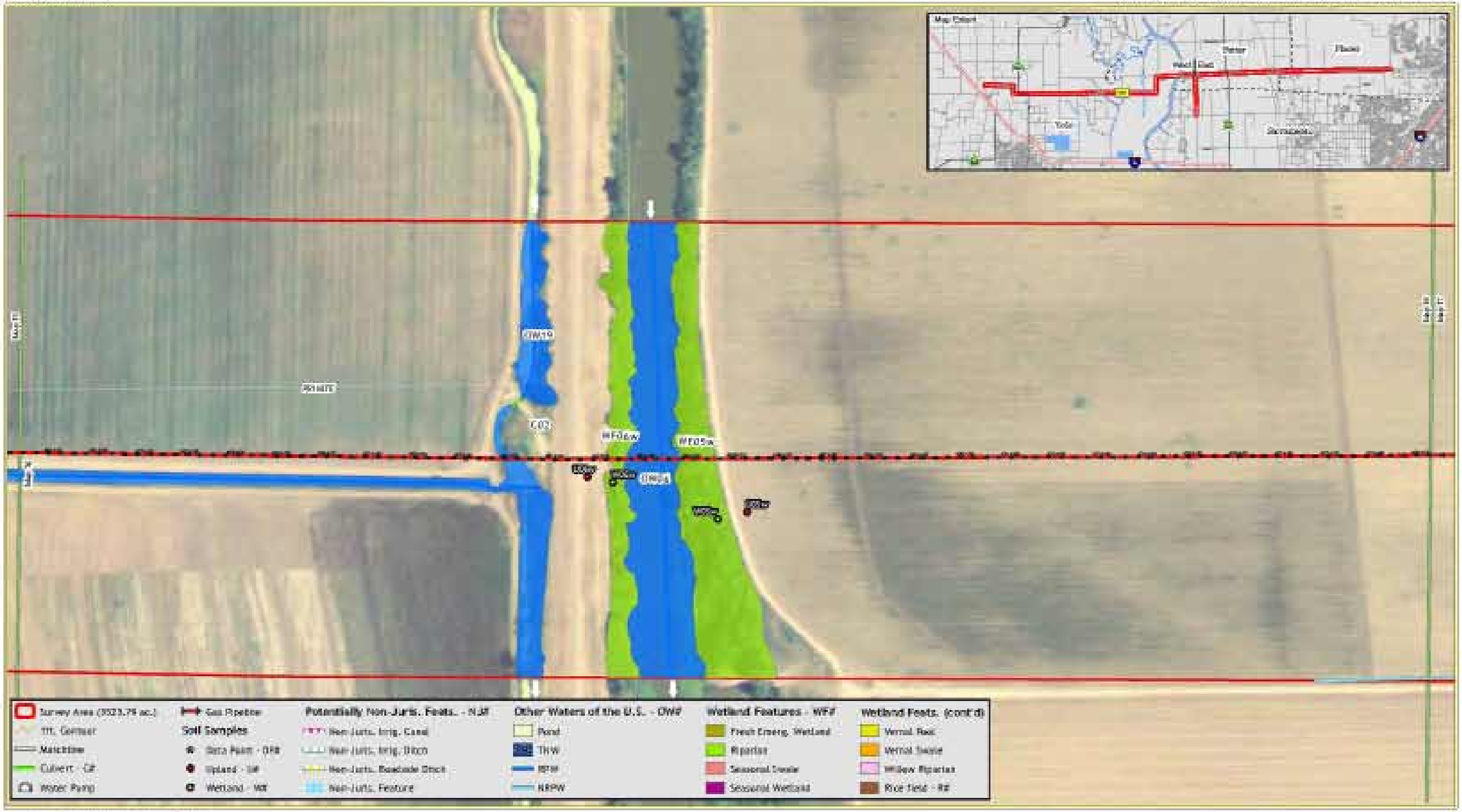
Map Extent
Yolo
Sacramento
Placer
Sutter
Colusa
Map 10
Map 12
C.172
C.158
N.D.1
N.D.3
COUNTY ROAD 17
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
RPW
NRPW
Wetland Features - WPF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

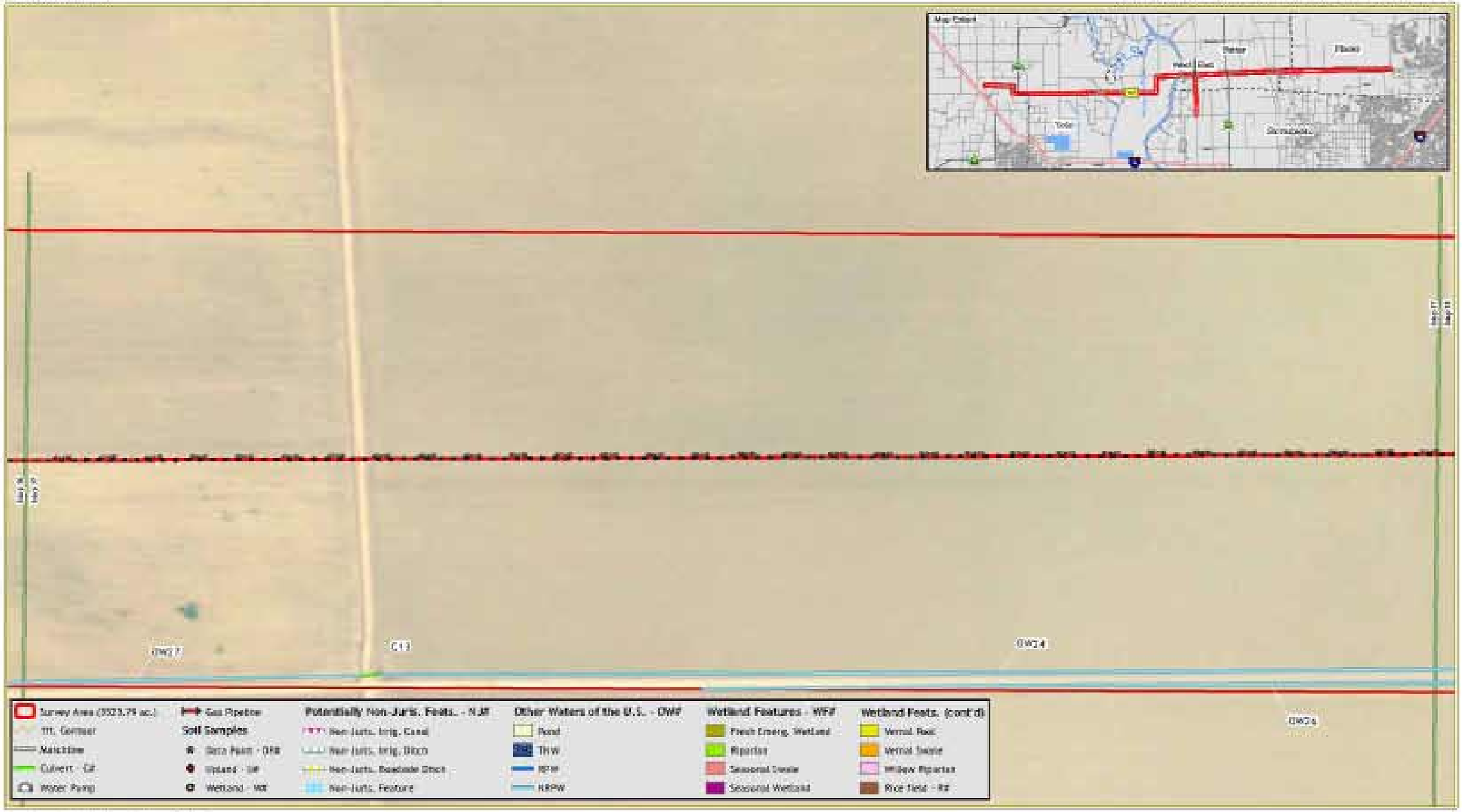
Map Extent
Yolo
Sacramento
Placer
N155
C201
C159
COUNTY ROAD 17
N29
N28
N43
Survey Area (3523.79 ac.)
TTL Centerline
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

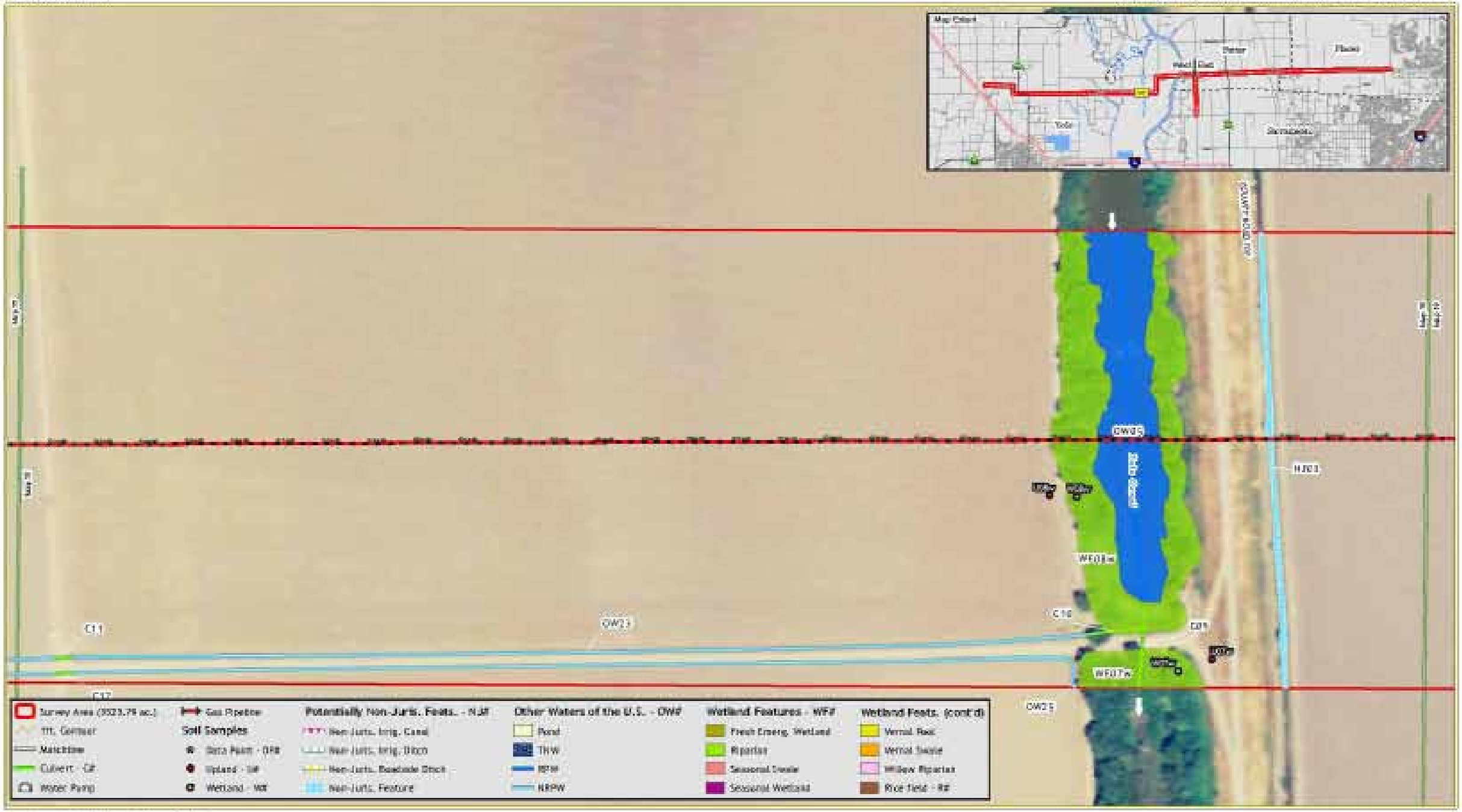

Map Extent
Yolo
Sacramento
Placer
Sutter
Colusa
Map 12
Map 13
N136
COUNTY ROAD 17
N131
C140
C142
N134
Map 14
Map 15
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - Cul
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - Up
Wetland - Wt
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WPF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - Rf
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

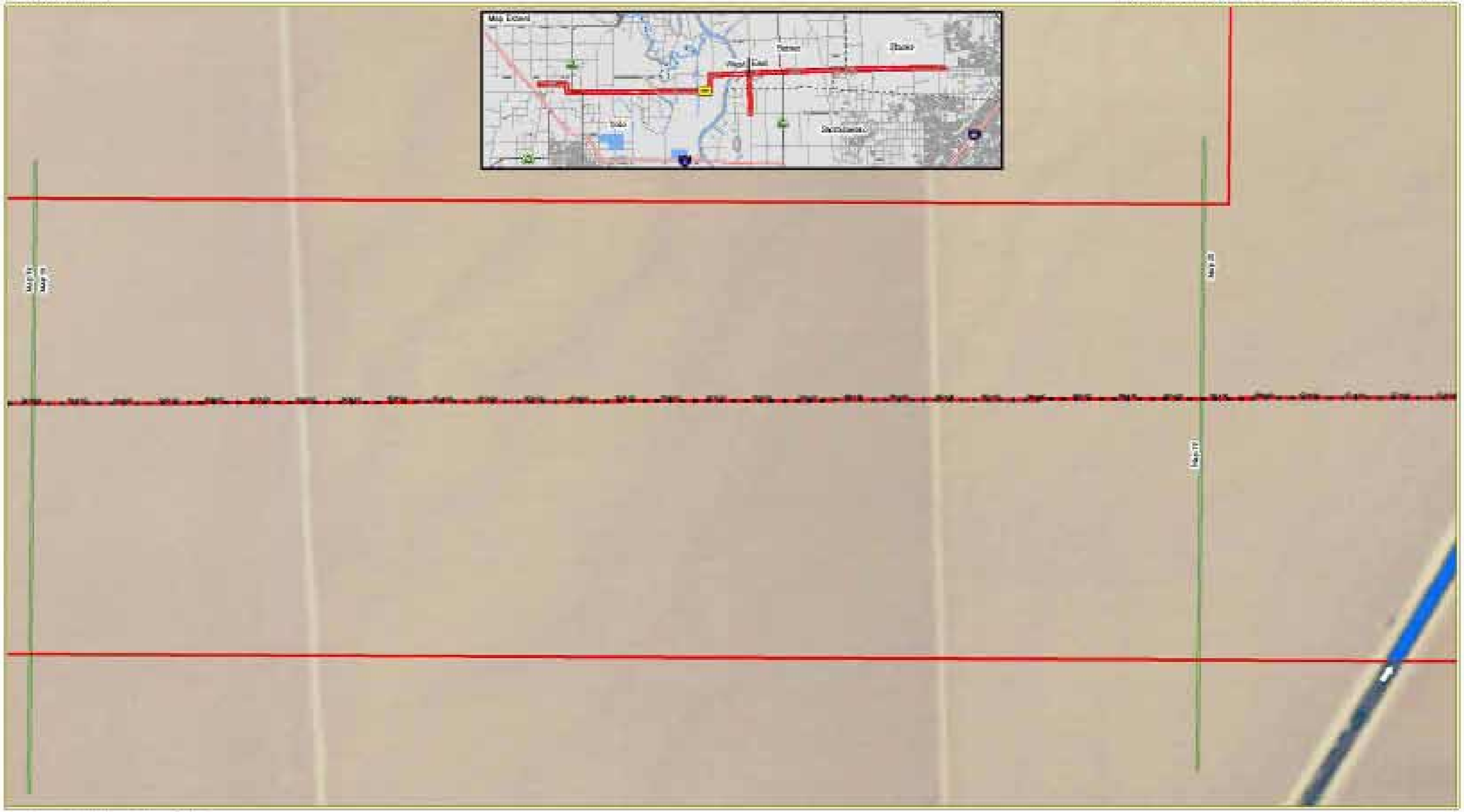

Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - UP
Wetland - WE
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Survey Area (3523.79 ac.)
Gas Pipeline
Potentially Non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
Soil Samples
Culvert - CU
Water Pump
Upland - UP
Wetland - WE
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Pond
TNW
RPW
NRPW
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Map Detail
Yolo
Sacramento
Sacramento
OW19
CO2
WF06w
WF05w
DW14
Survey Area (3523.79 ac.)
Gas Pipeline
Potentially Non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
TTL Contour
Soil Samples
Non-Juris. Irrig. Canal
Pond
Fresh Emerg. Wetland
Vernal Pool
Matchline
Data Point - DPR
Non-Juris. Irrig. Ditch
TNW
Riparian
Vernal Swale
Culvert - CU
Upland - UP
Non-Juris. Roadside Ditch
RPW
Seasonal Swale
Willow Riparian
Water Pump
Wetland - WT
Non-Juris. Feature
NRPW
Seasonal Wetland
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Map Extent
Yolo
Sacramento
Placer
Map 17
Map 18
Map 15
Map 16
DW27
C13
DW24
DW26
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Survey Area (3523.79 ac.)
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Culvert - CLF
Water Pump
Feet
0
100
200
GALLAWAY
CONSULTING, INC.



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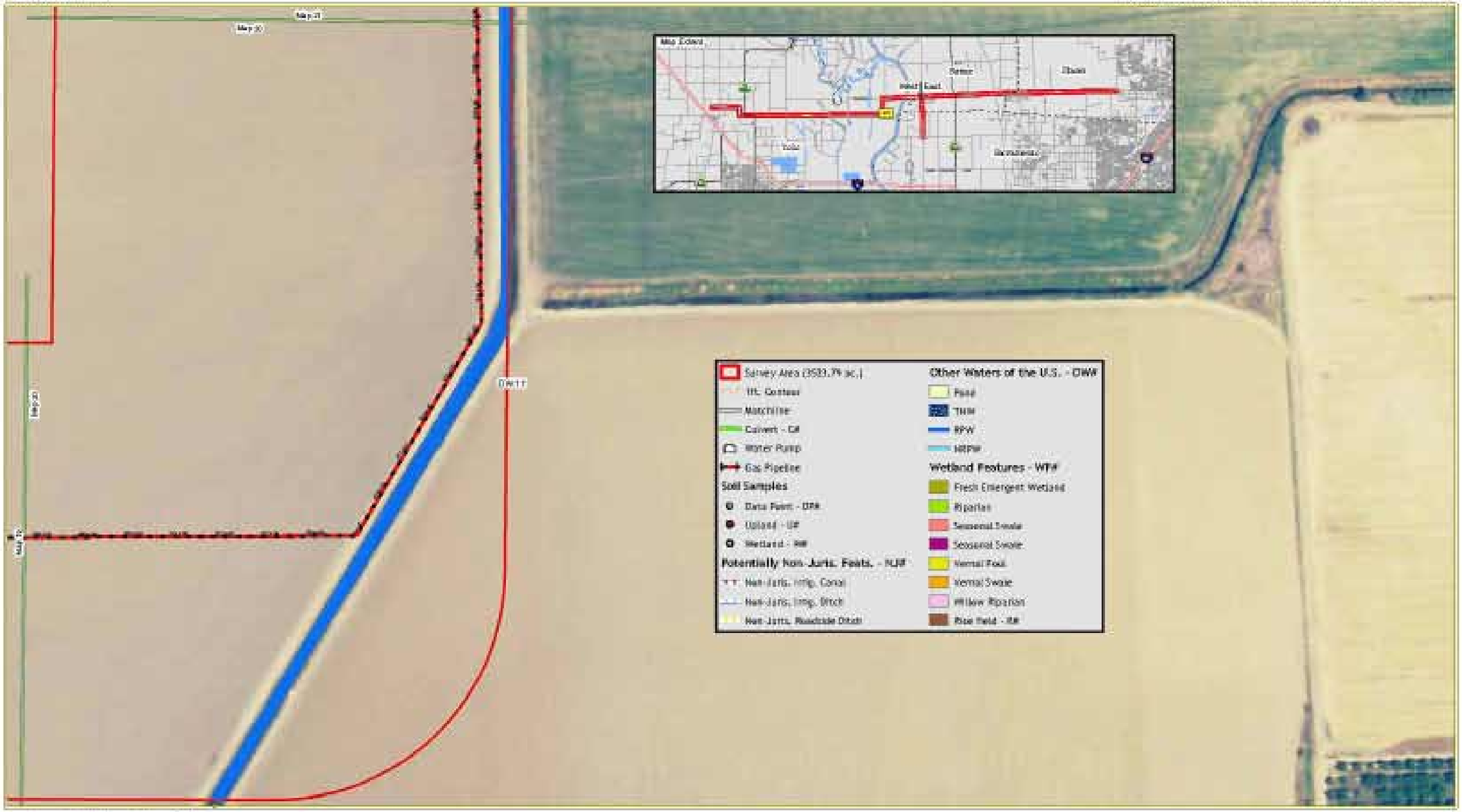
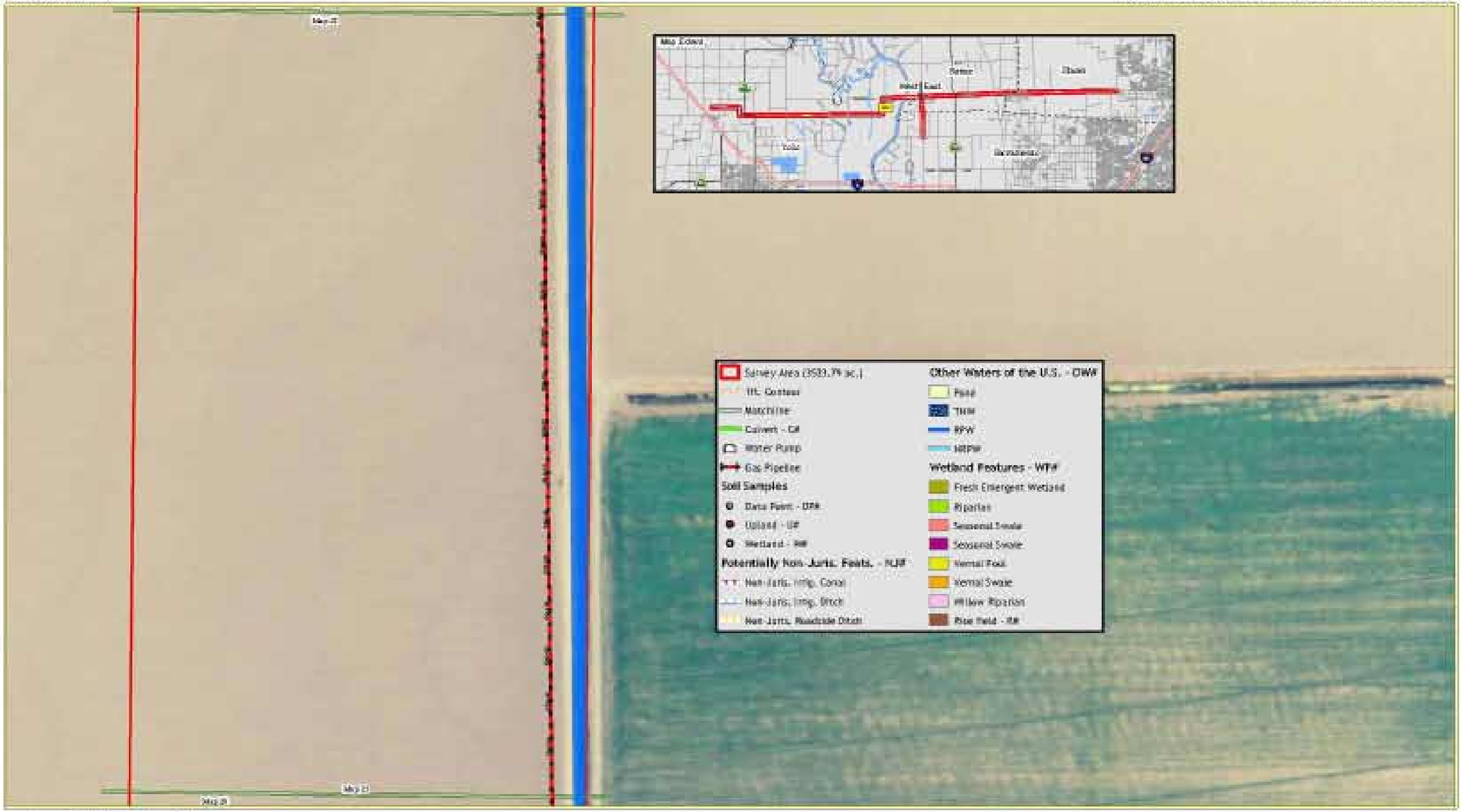
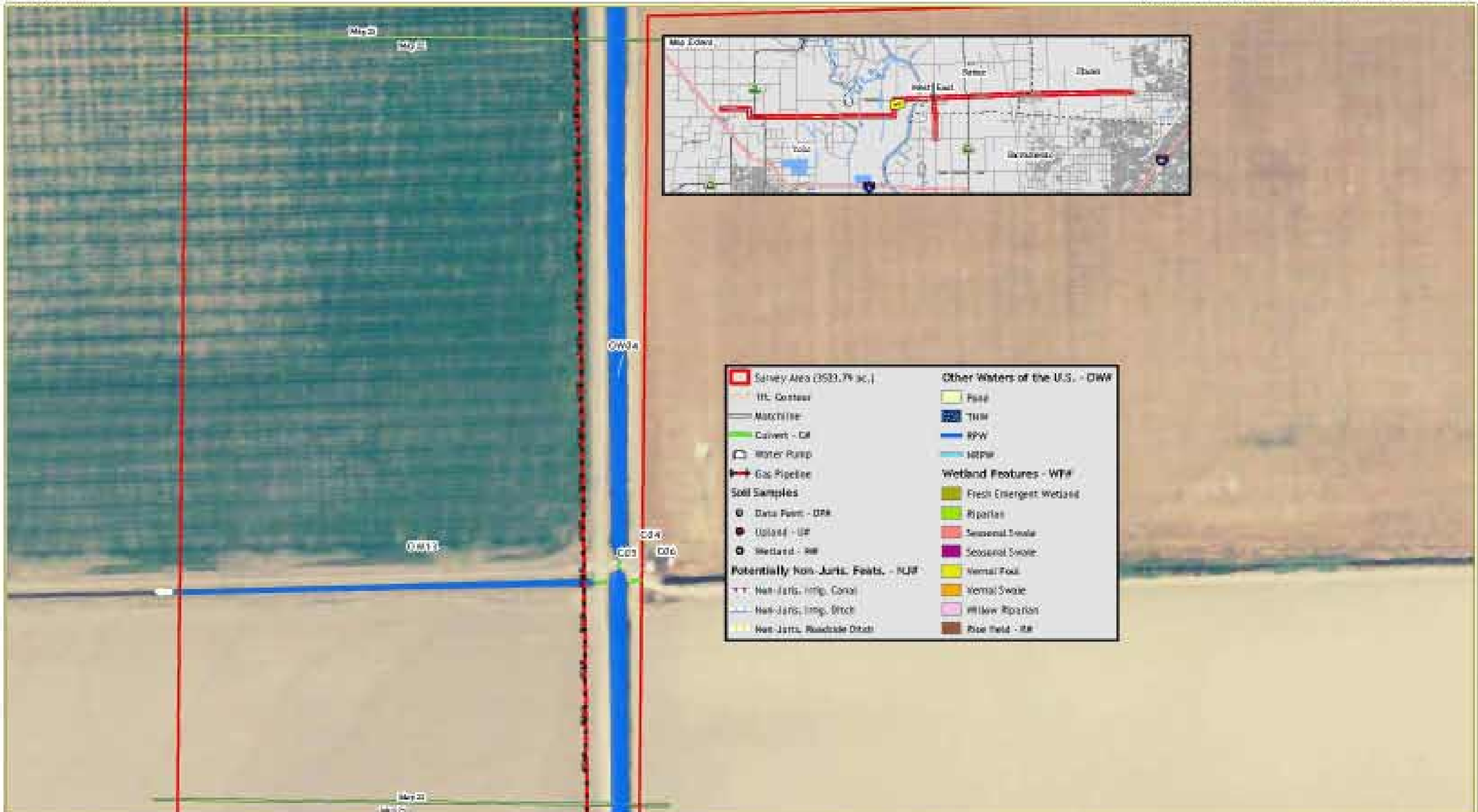
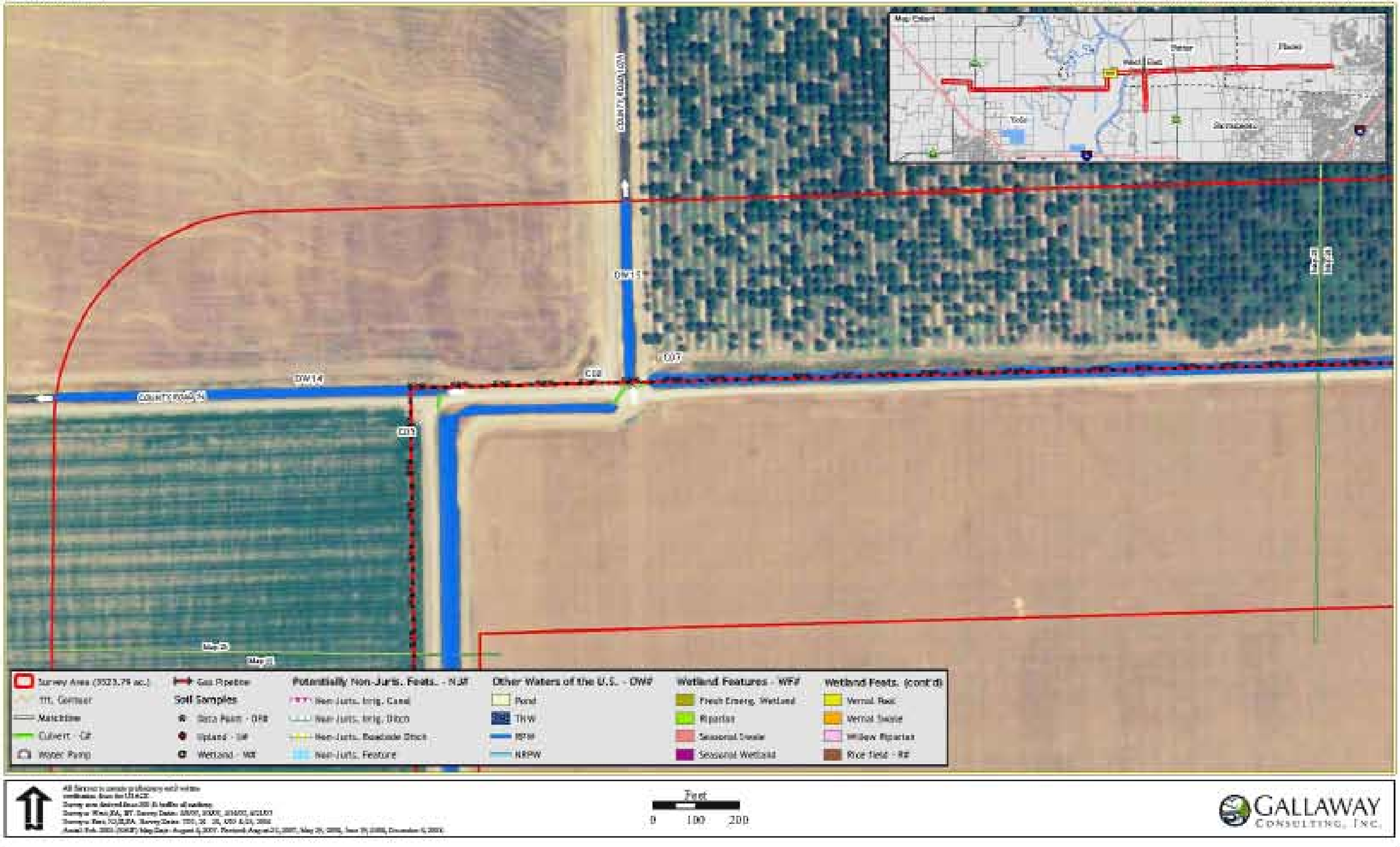
CONSULTING, INC.

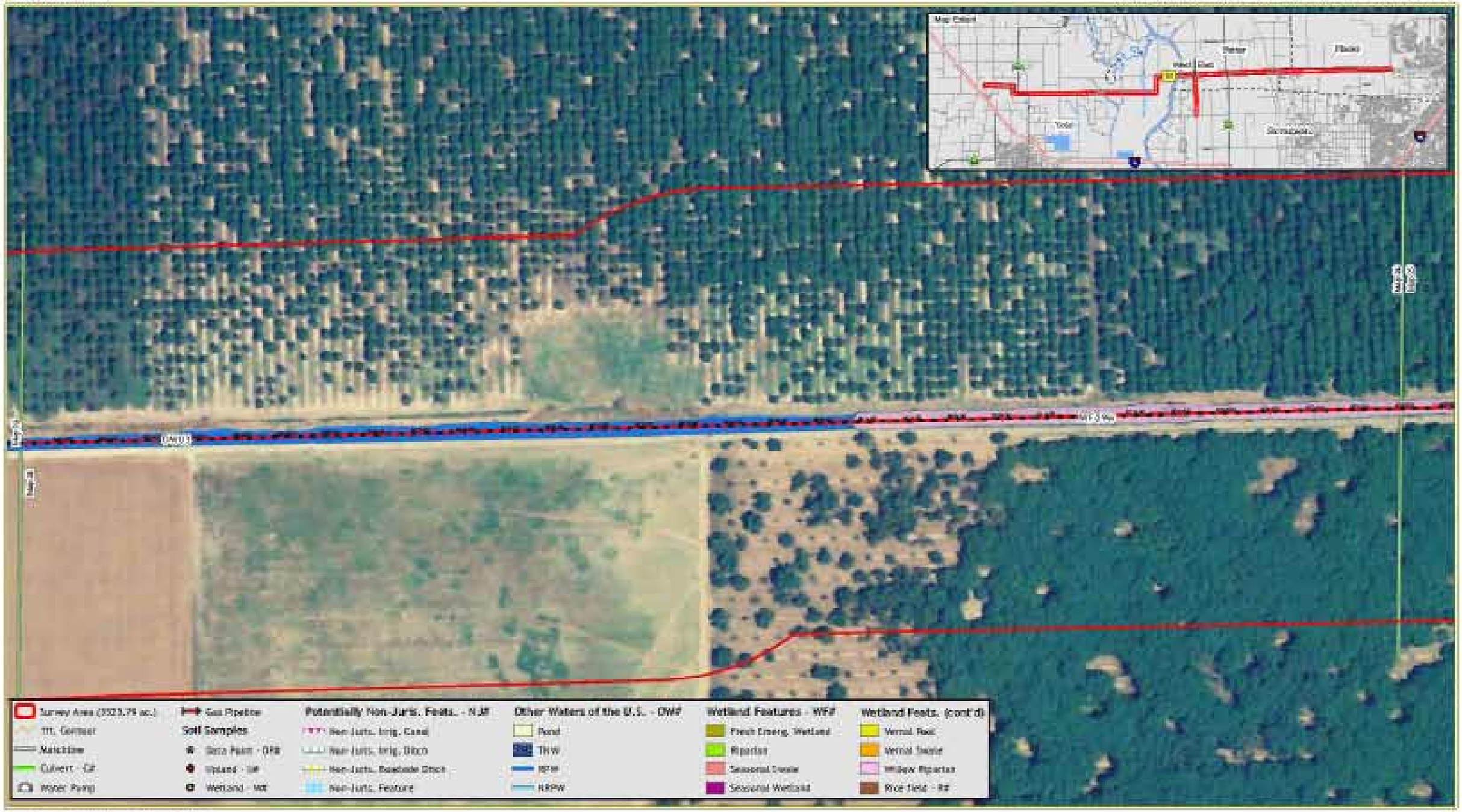

Survey Area (3523.79 ac.)
Int. Contour
Matchline
Culvert - Cul
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPX
Upland - UP
Wetland - WP
Potentially non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WTF
Fresh Emergent Wetland
Riparian
Seasonal Swale
Seasonal Swale
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RW
DW11
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

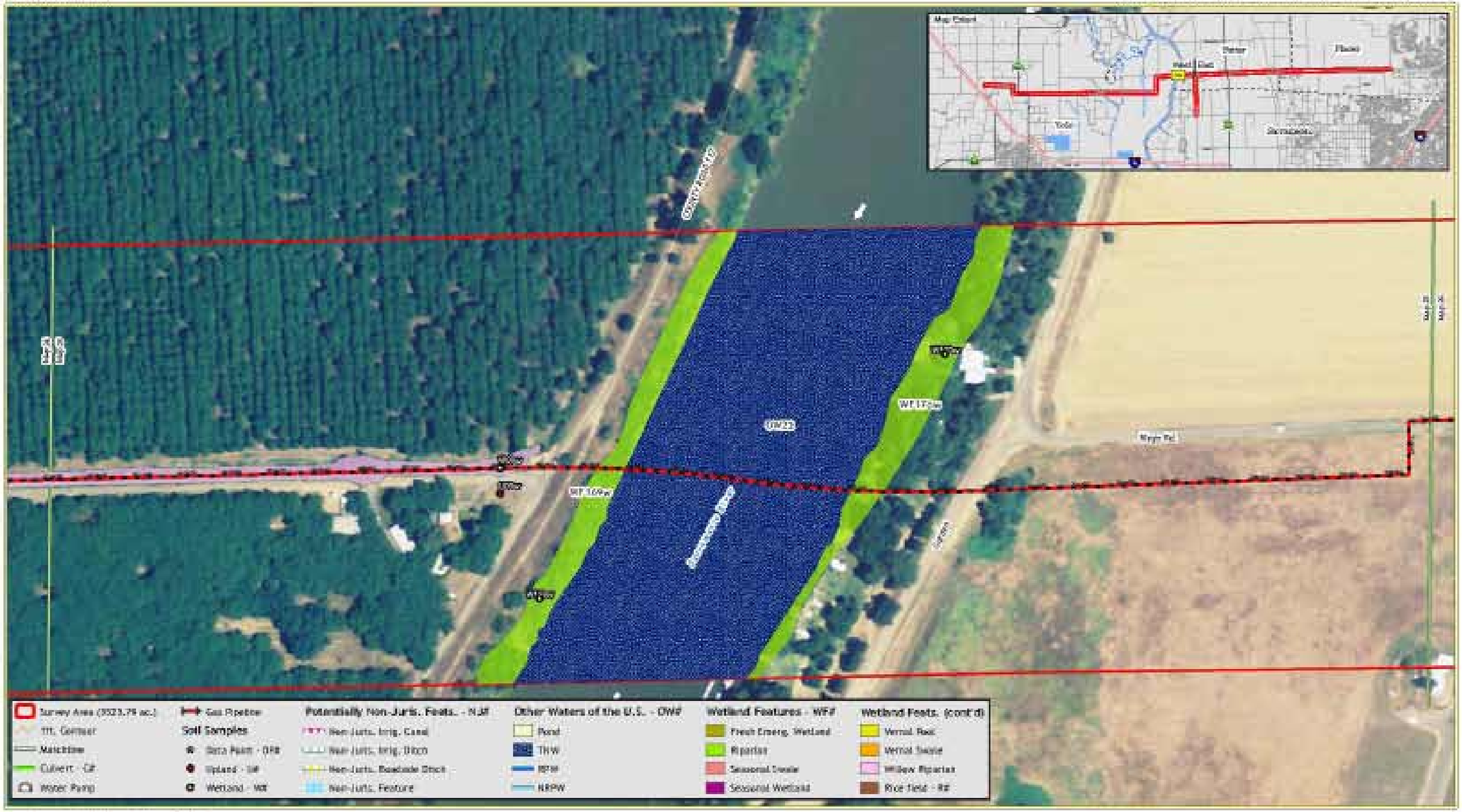


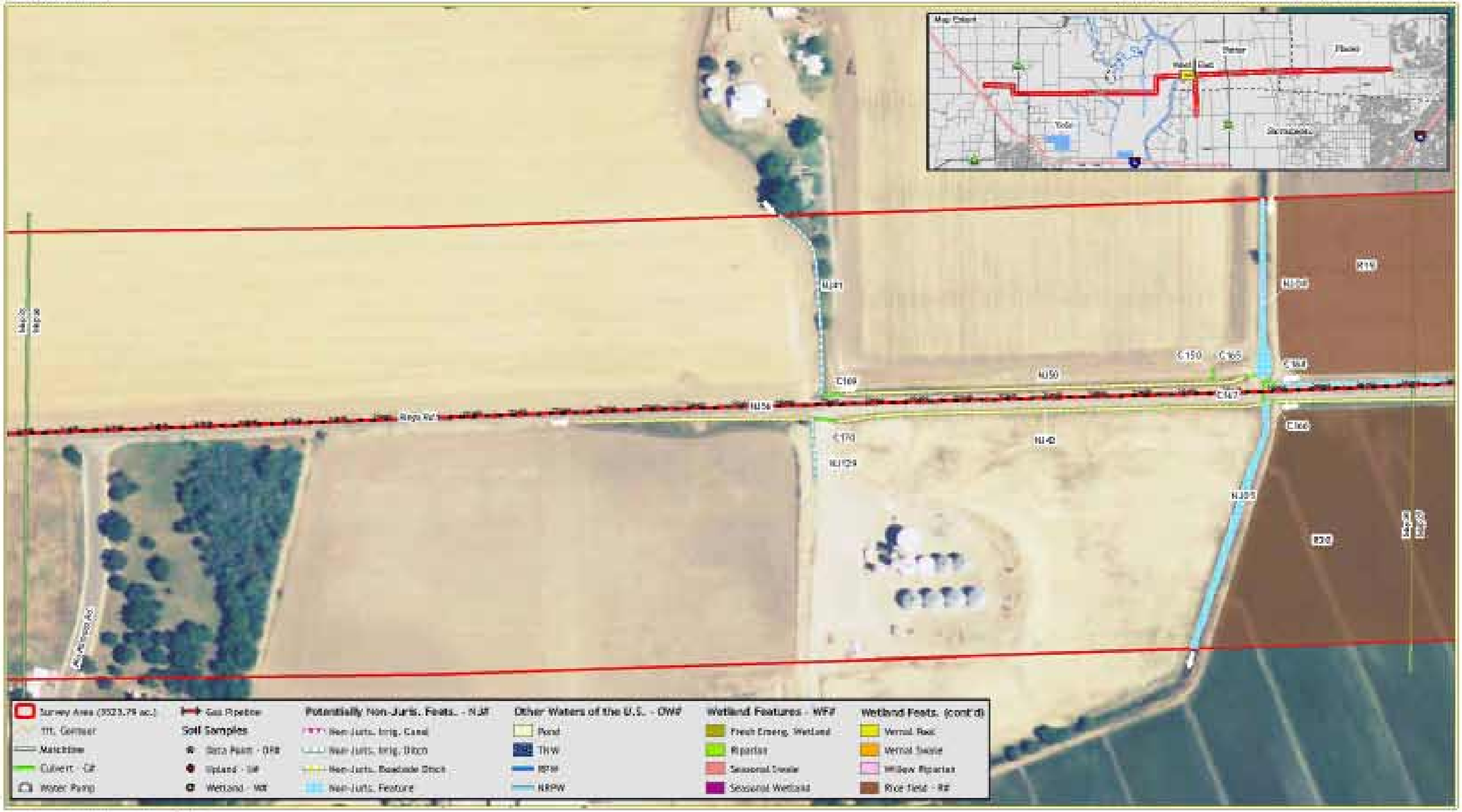
GALLAWAY CONSULTING, INC.


OW34
OW13
C03
C04
C06
Survey Area (3523.79 ac.)
Other Waters of the U.S. - OW#
Pond
TNW
RPW
NRPW
Wetland Features - WF#
Fresh Emergent Wetland
Riparian
Seasonal Swale
Seasonal Swale
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - UP
Wetland - WP
Potentially non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


COUNTY ROAD 16
DW15
DW14
COUNTY ROAD 24
CDF
Survey Area (3523.79 ac.)
TTL Centerline
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

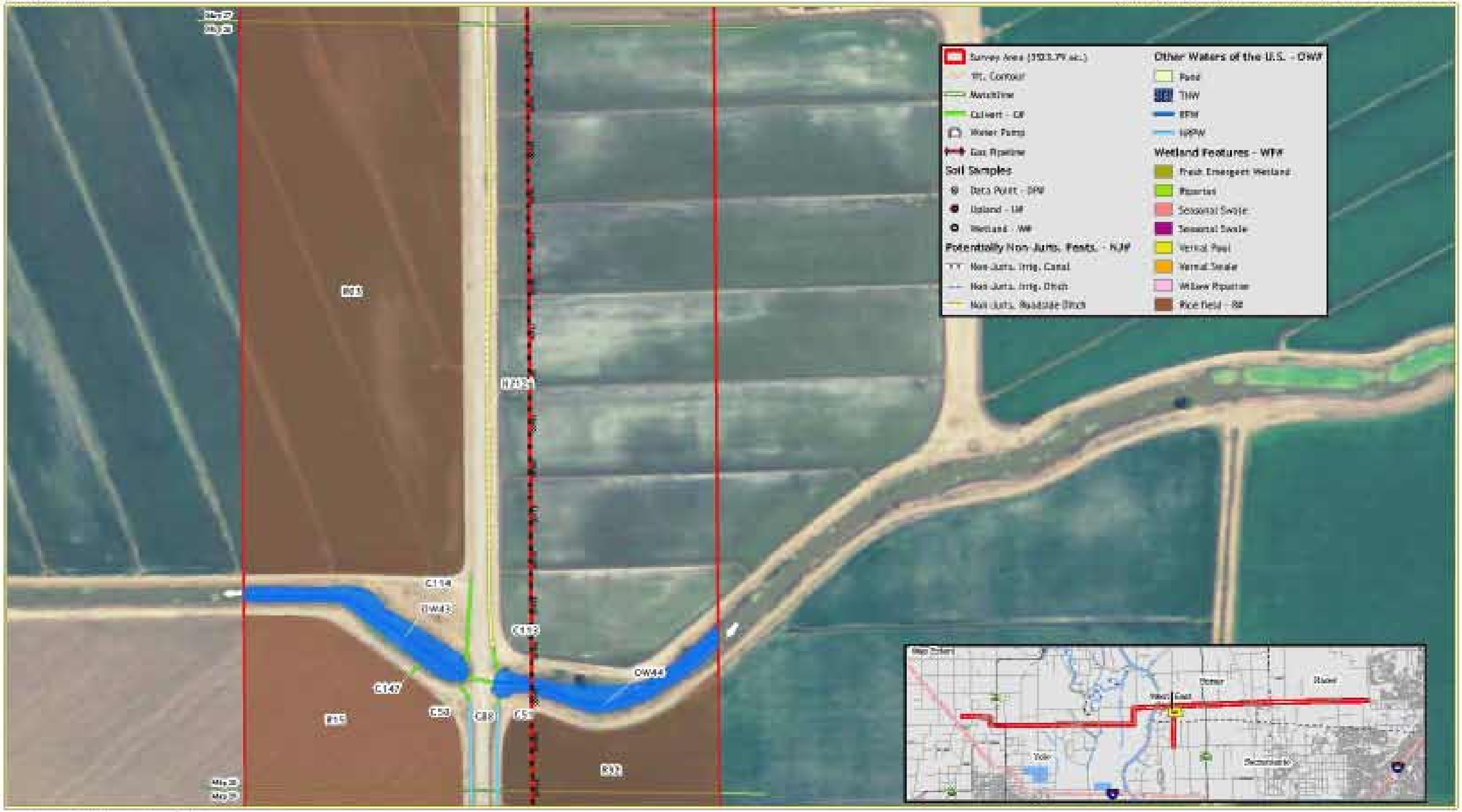

Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - Cul
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - Up
Wetland - Wt
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - Rif
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Survey Area (3523.79 ac.)
TTL Centerline
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.



GALLAWAY CONSULTING, INC.

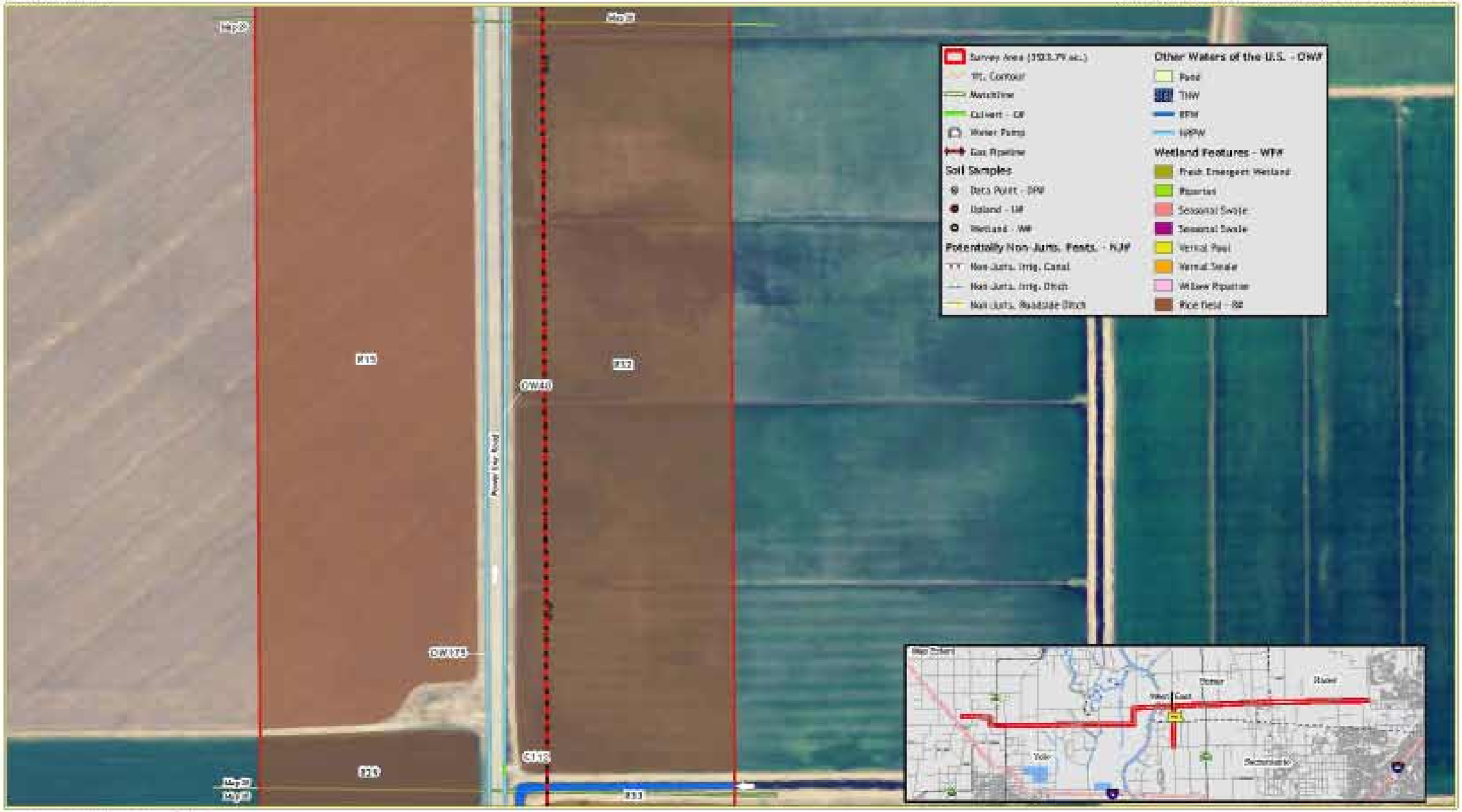
GALLAWAY
CONSULTING, INC.



Feet

0 100 200

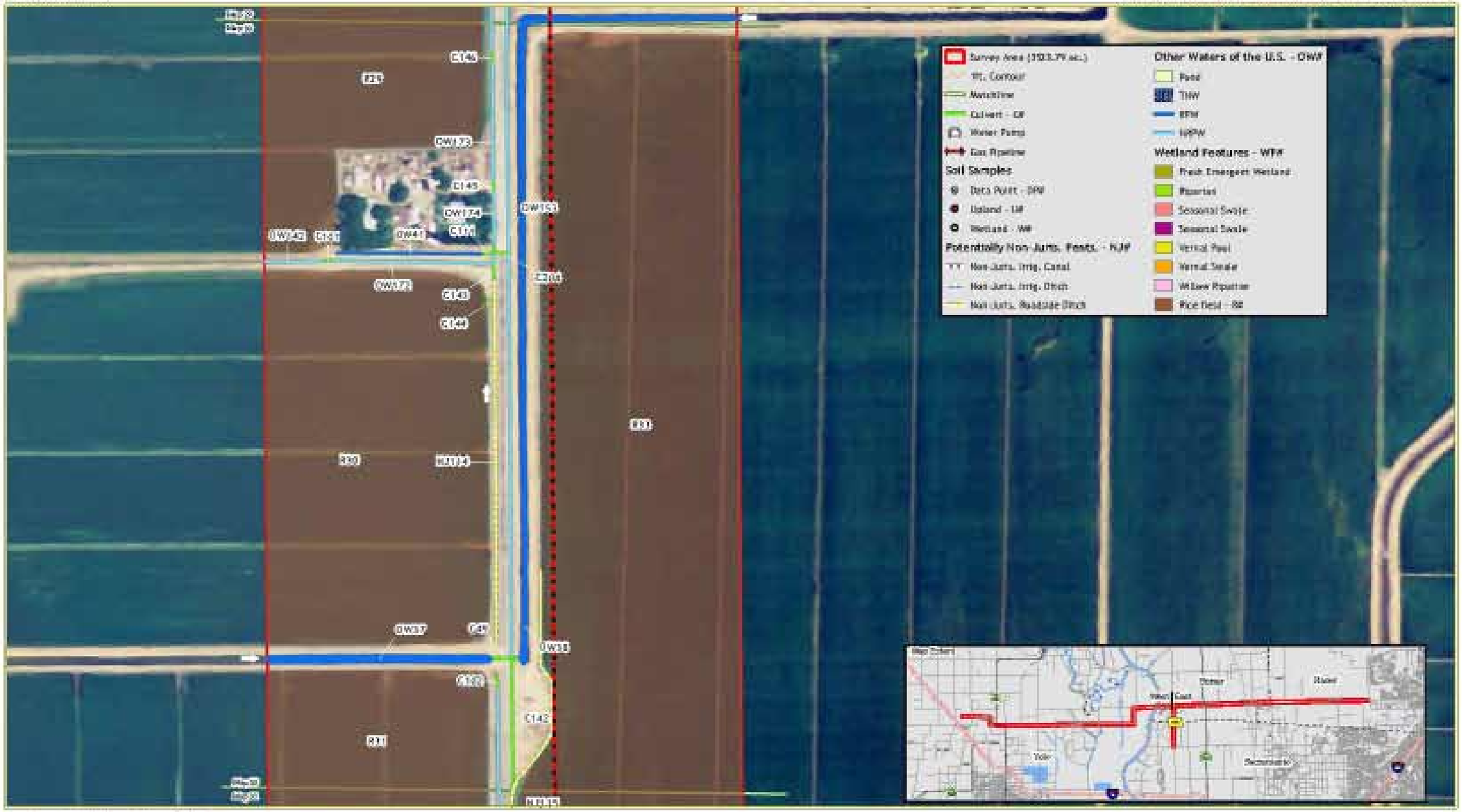
GALLAWAY CONSULTING, INC.

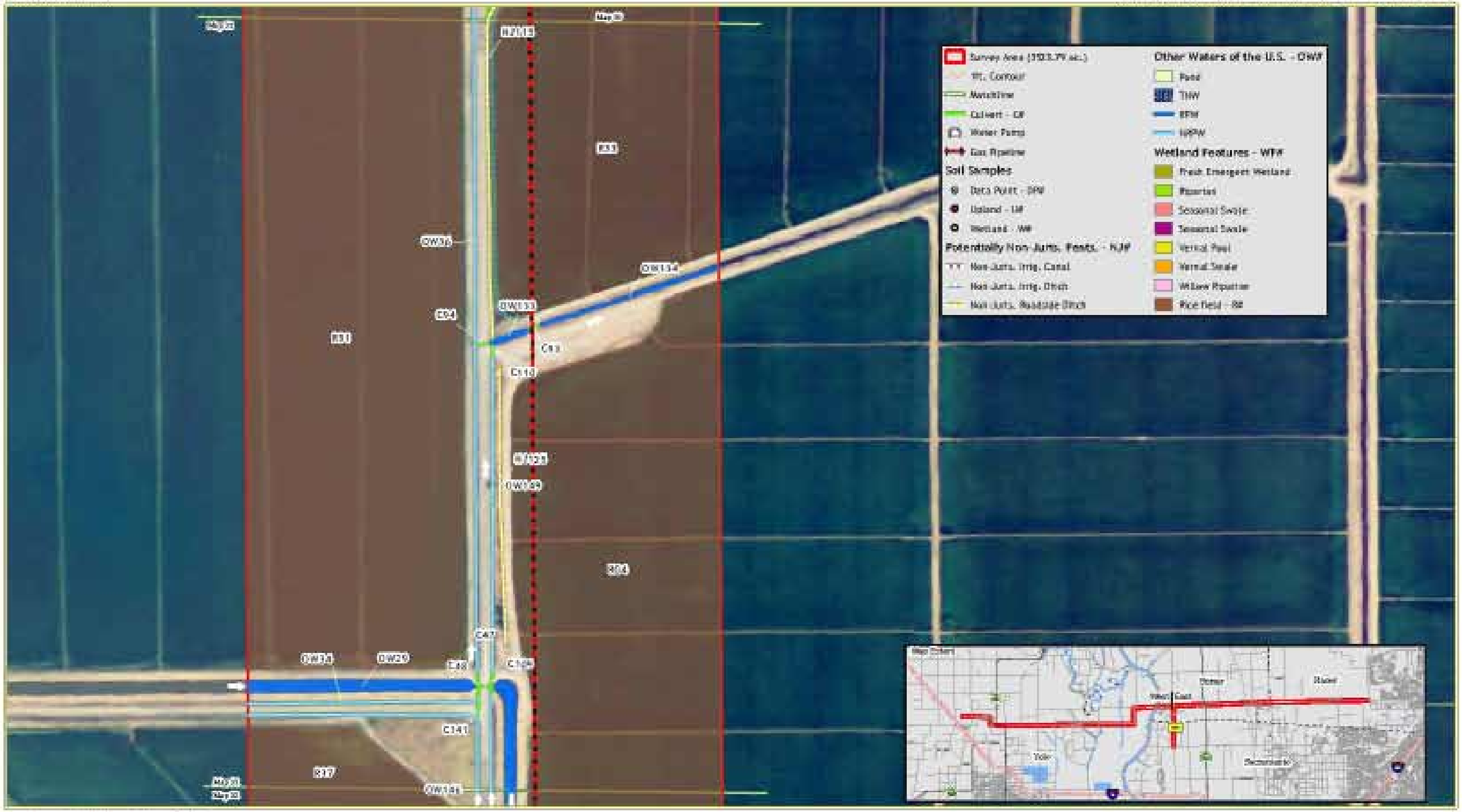


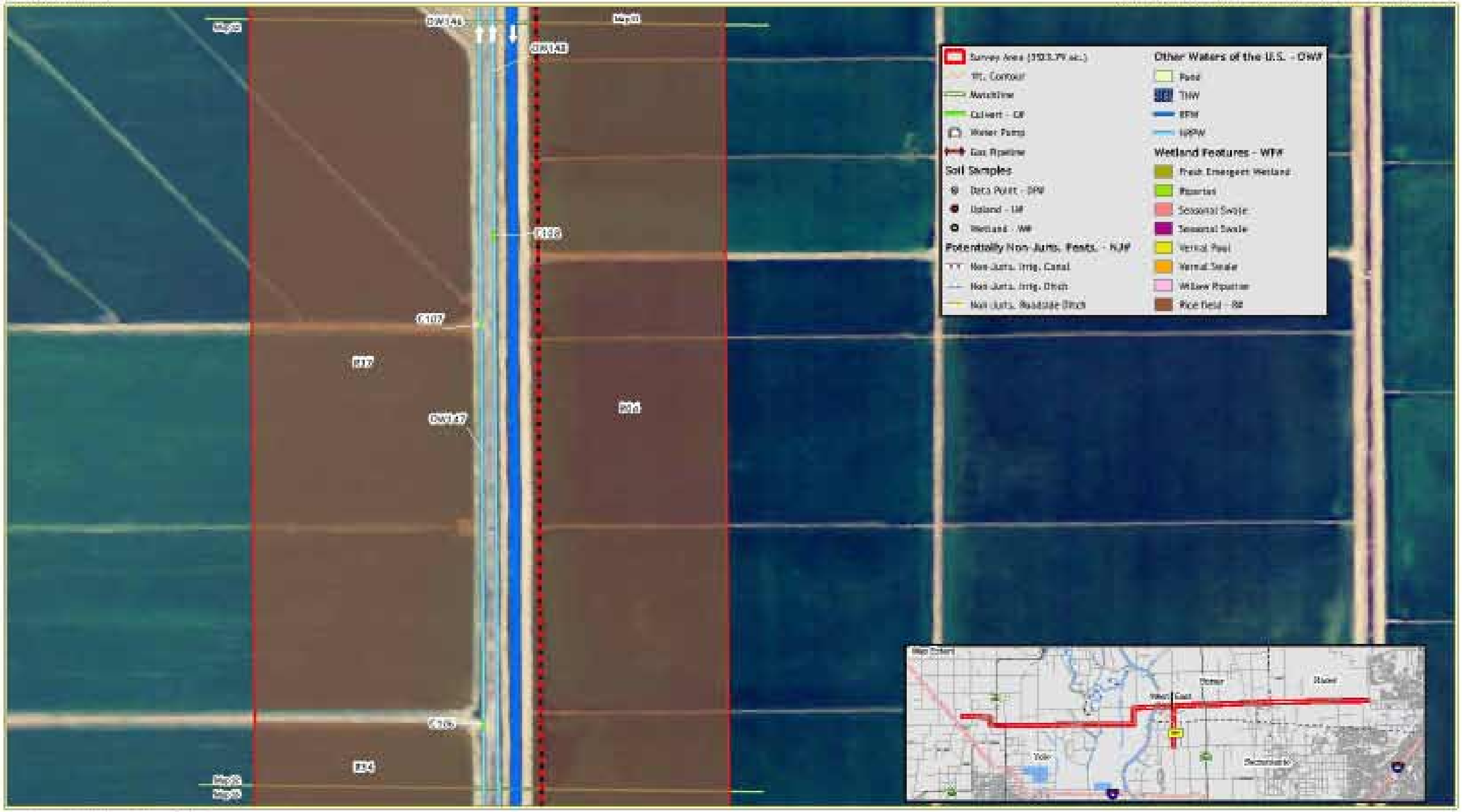
Feet

0 100 200

GALLAWAY CONSULTING, INC.

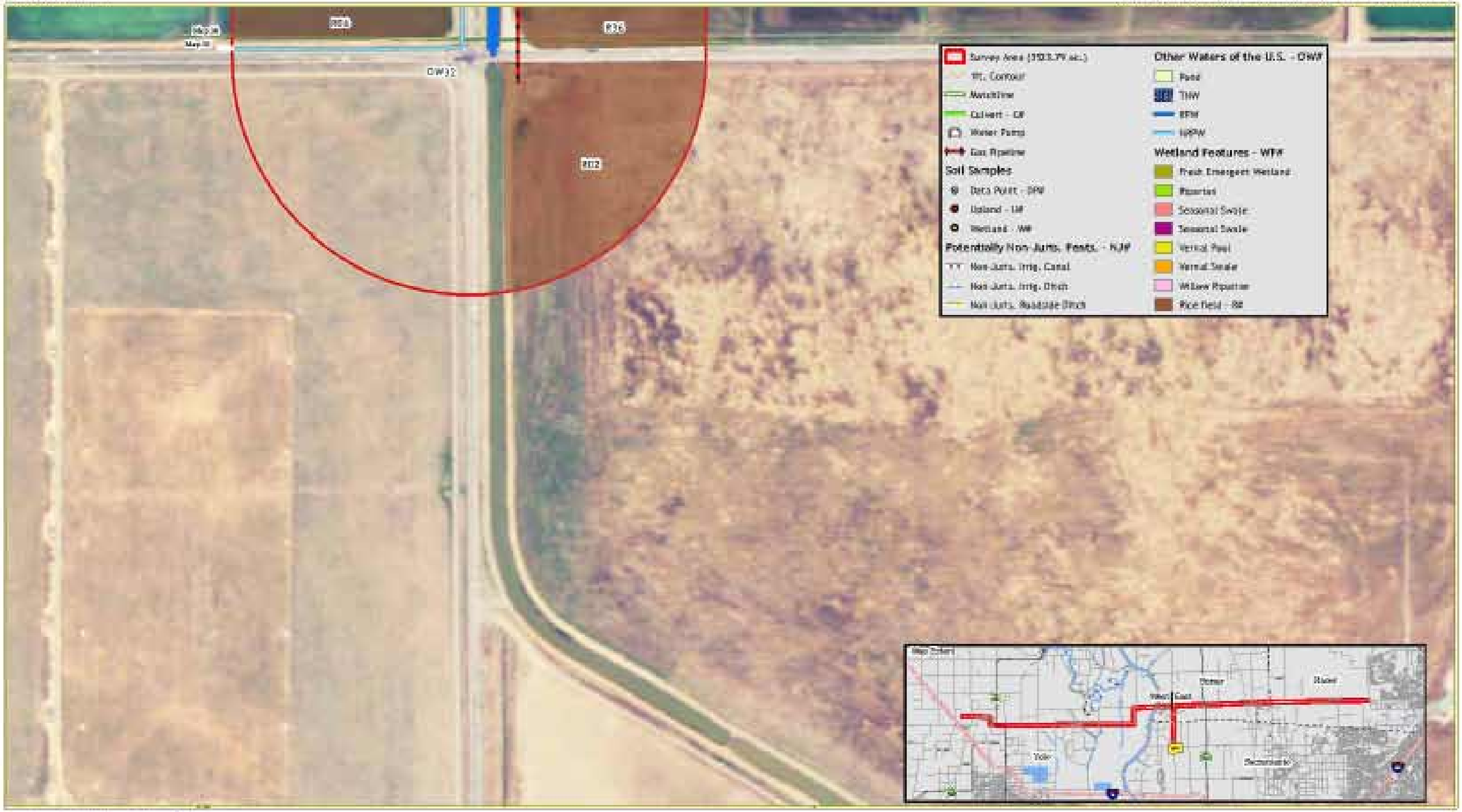

Survey Area (1503.79 ac.)
Ft. Contour
Aerialline
Culvert - CU
Water Points
Gas Pipeline
Soil Samples
Data Point - DPN
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NPW
Wetland Features - WFF
Fresh Emergent Wetland
Riparian
Seasonal Swale
Seasonal Swale
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
C145
C143
C144
C142
C141
C140
OW133
OW174
OW41
OW43
OW37
OW33
OW153
OW154
NJF14
NJF15
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Survey Area (1503.79 ac.)
Ft. Contour
Centerline
Culvert - CU
Water Points
Gas Pipeline
Soil Samples
Data Point - DPN
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NPW
Wetland Features - WFF
Fresh Emergent Wetland
Riparian
Seasonal Swale
Seasonal Swale
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
OW36
OW134
OW133
C4
C3
C116
OW33
OW129
304
C47
OW34
OW29
C48
C125
C141
317
OW141
Feet
0
100
200


Survey Area (1503.79 ac.)
Ft. Contour
Centerline
Culvert - CU
Water Points
Gas Pipeline
Soil Samples
Data Point - DPW
Upland - UW
Wetland - WW
Potentially Non-Juris. Feats. - NJW
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Other Waters of the U.S. - OWW
Pond
TNW
RPW
NPW
Wetland Features - WFW
Fresh Emergent Wetland
Riparian
Seasonal Swale
Seasonal Swale
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Yolo
Sacramento
Rural
Rural
Rural
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

GALLAWAY CONSULTING, INC.

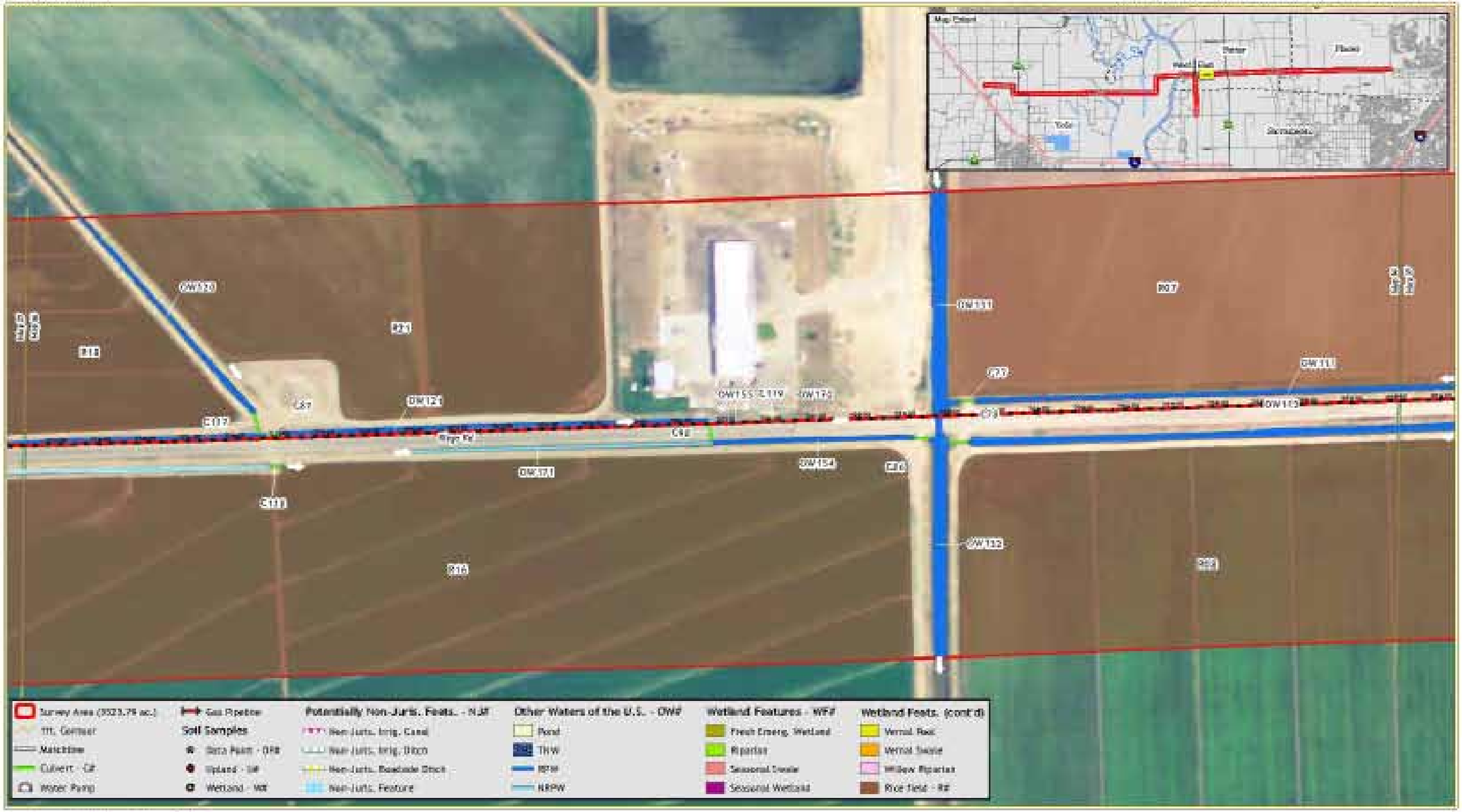
GALLAWAY CONSULTING, INC.



Feet

0 100 200

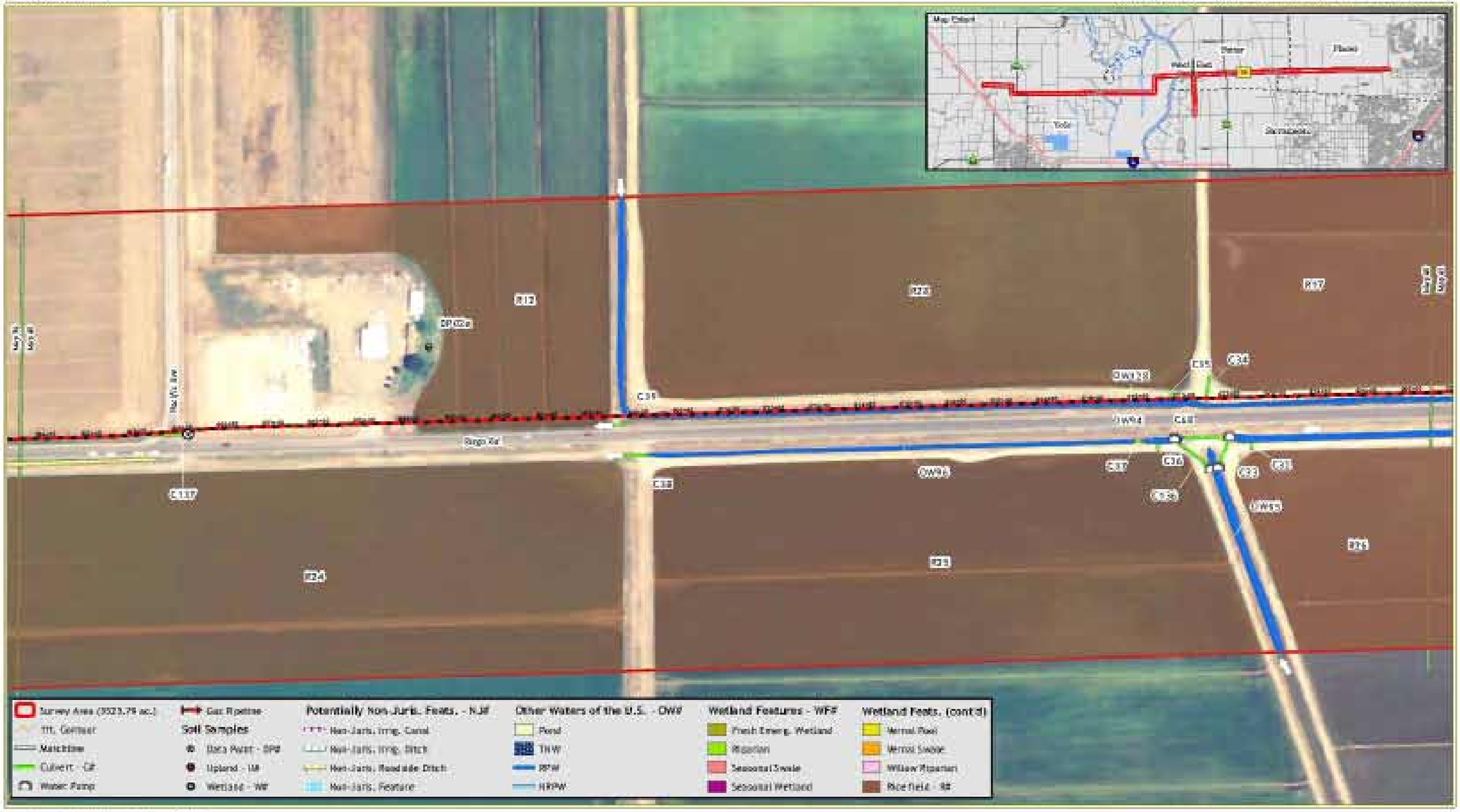
GALLAWAY CONSULTING, INC.


Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPR
Upland - UP
Wetland - WE
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

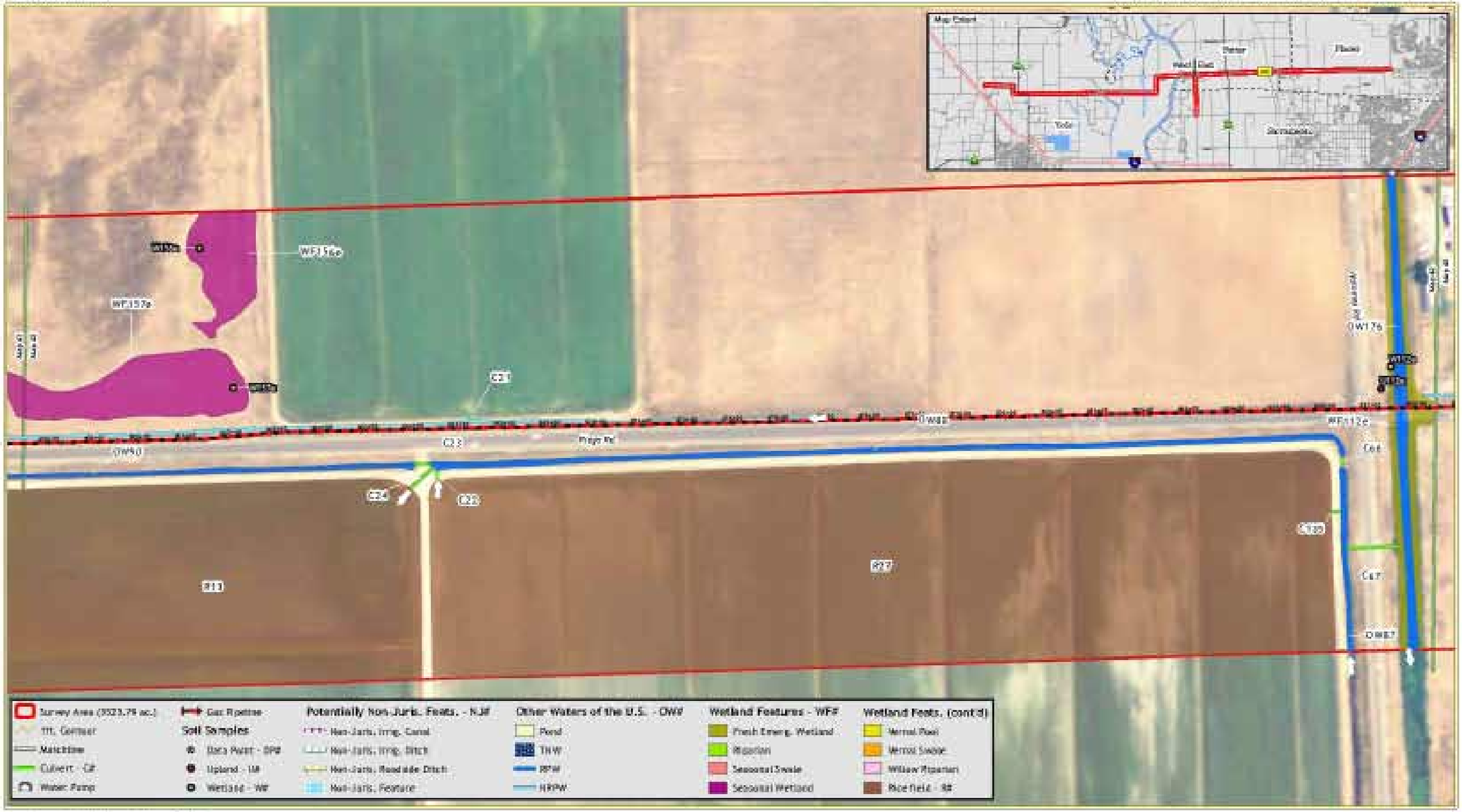
Survey Area (3523.79 ac.)
Gas Pipeline
Potentially Non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
Soil Samples
Data Point - DPB
Upland - UP
Wetland - WE
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Pond
THW
RPW
NRPW
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Culvert - CU
Water Pump
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

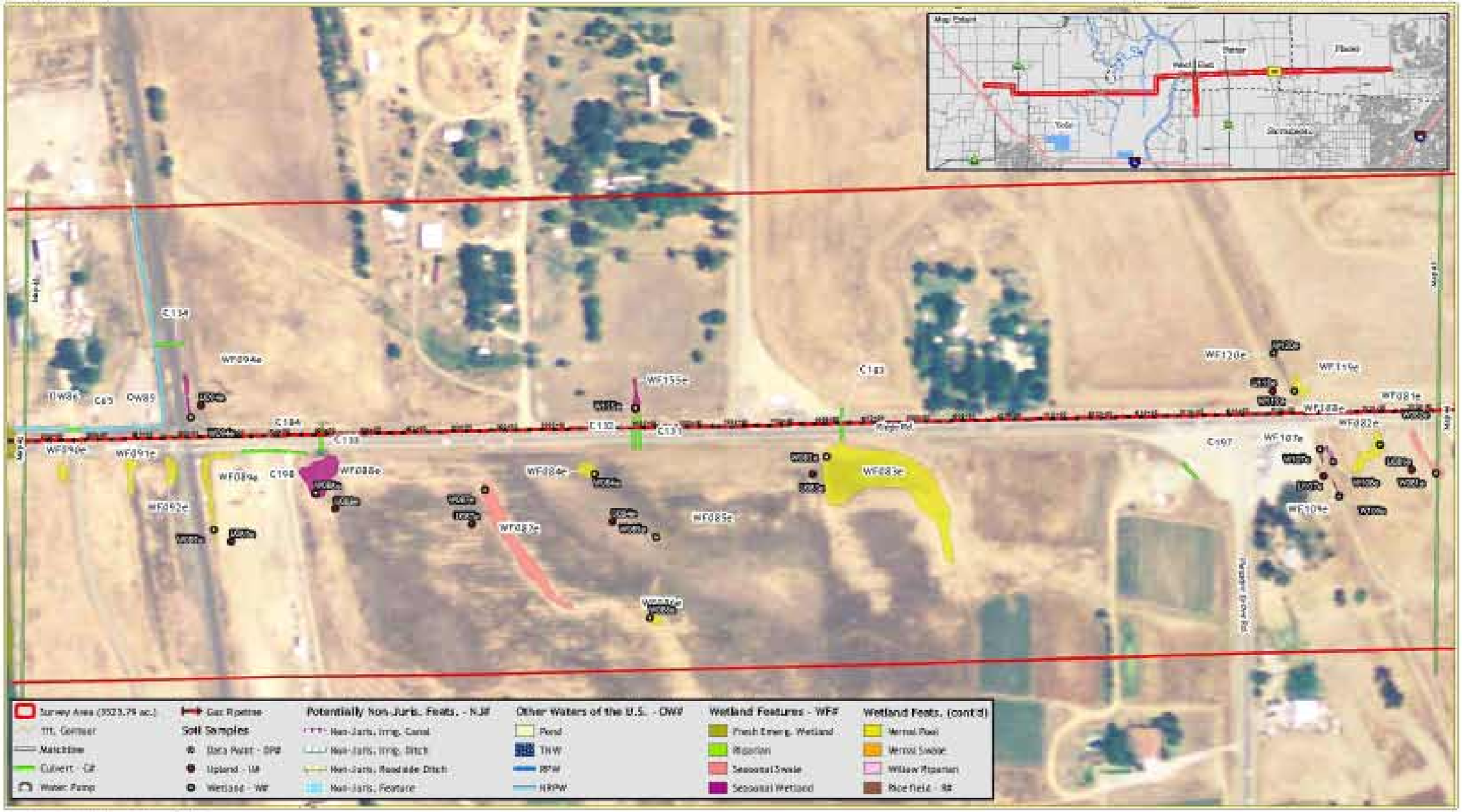
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CP
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WPF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

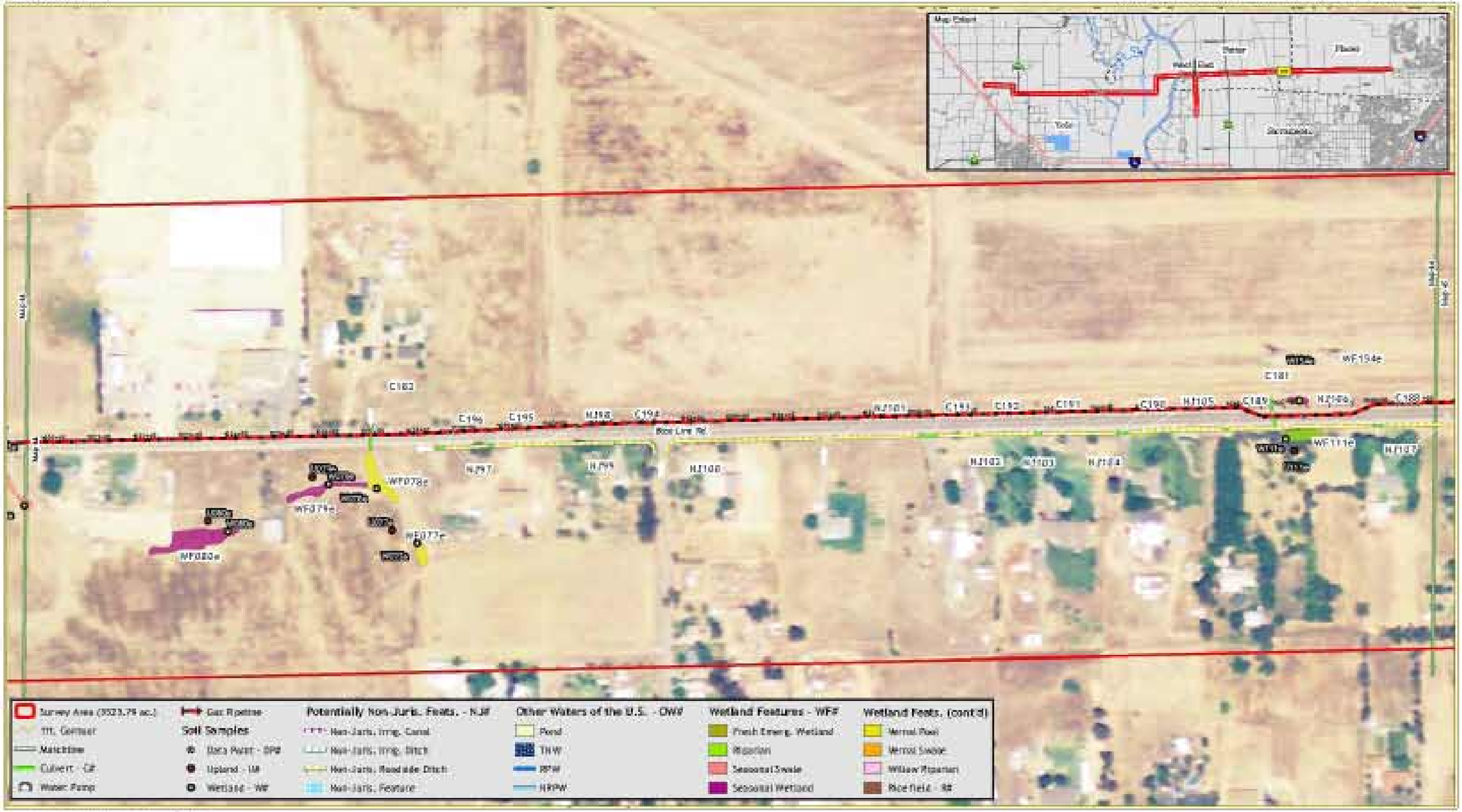
Survey Area (3523.79 ac.)
Gas Pipeline
Potentially Non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
Soil Samples
Data Point - DPF
Upland - UP
Wetland - WF
Culvert - CF
Water Pump
Pond
THW
BPW
HWPW
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

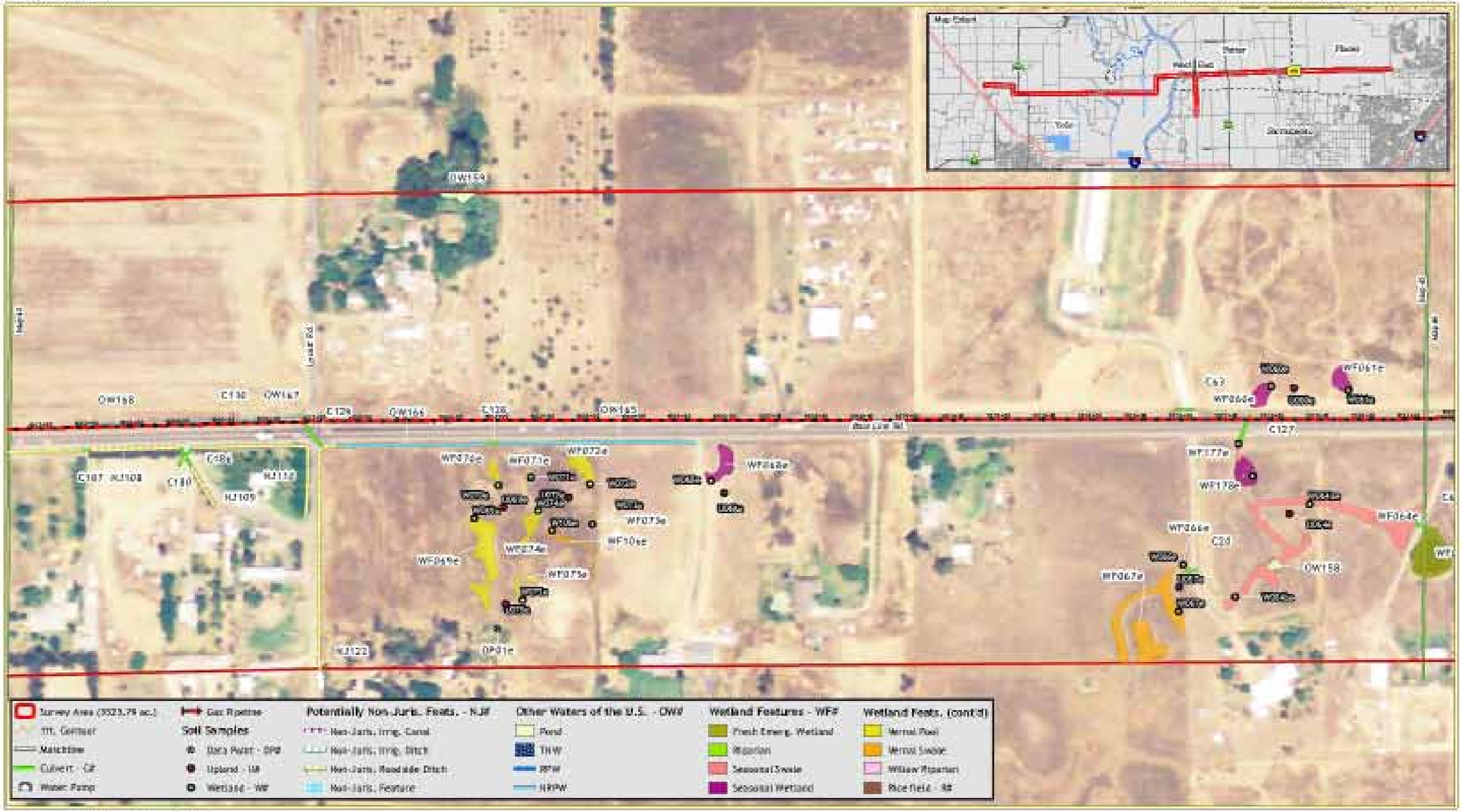

Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WPF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0 100 200
GALLAWAY
CONSULTING, INC.

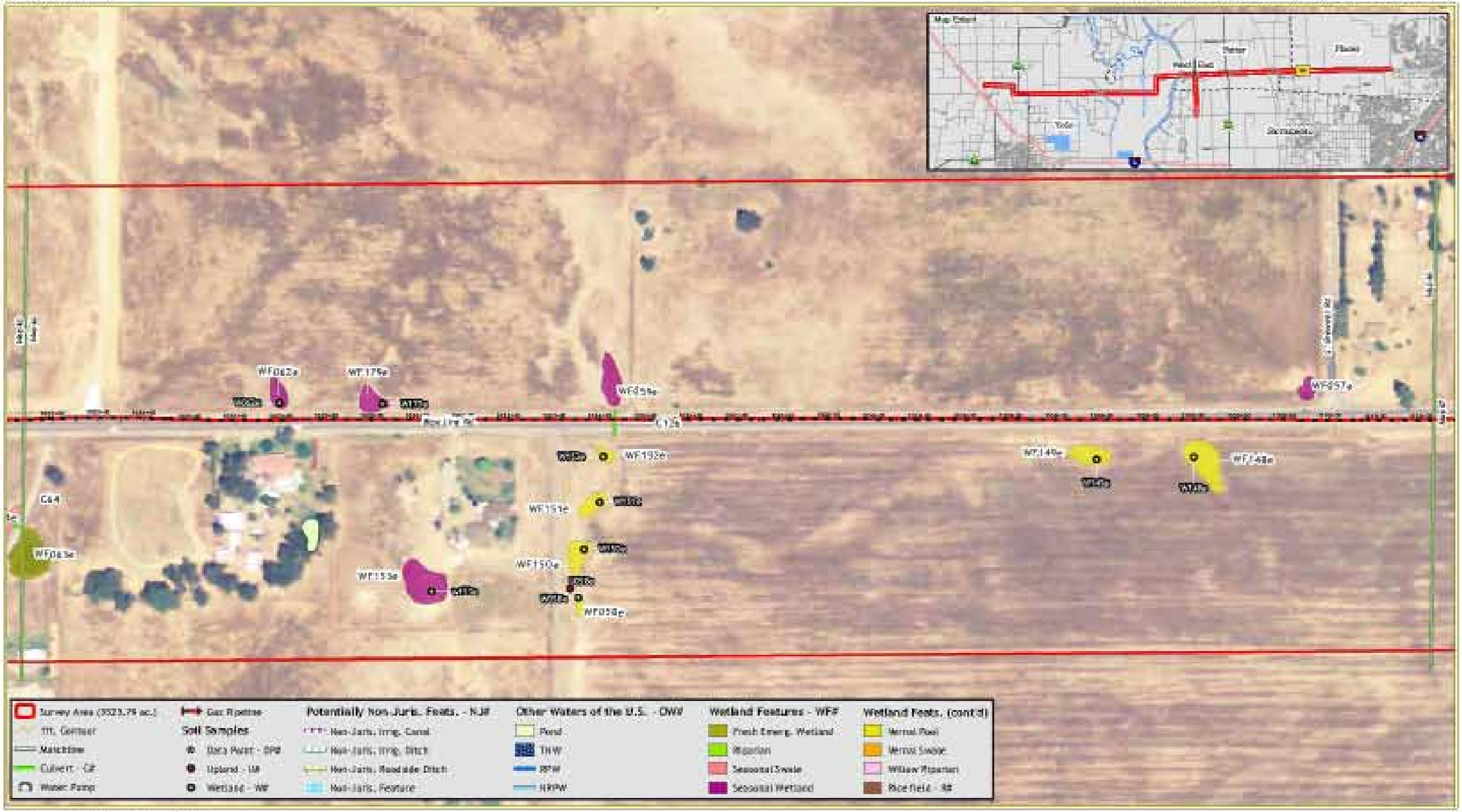
Survey Area (3523.79 ac.)
Gas Pipeline
Potentially Non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
Soil Samples
Data Point - DPF
Upland - UP
Wetland - WF
Culvert - CF
Water Pump
Pond
THW
RPW
NRPW
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

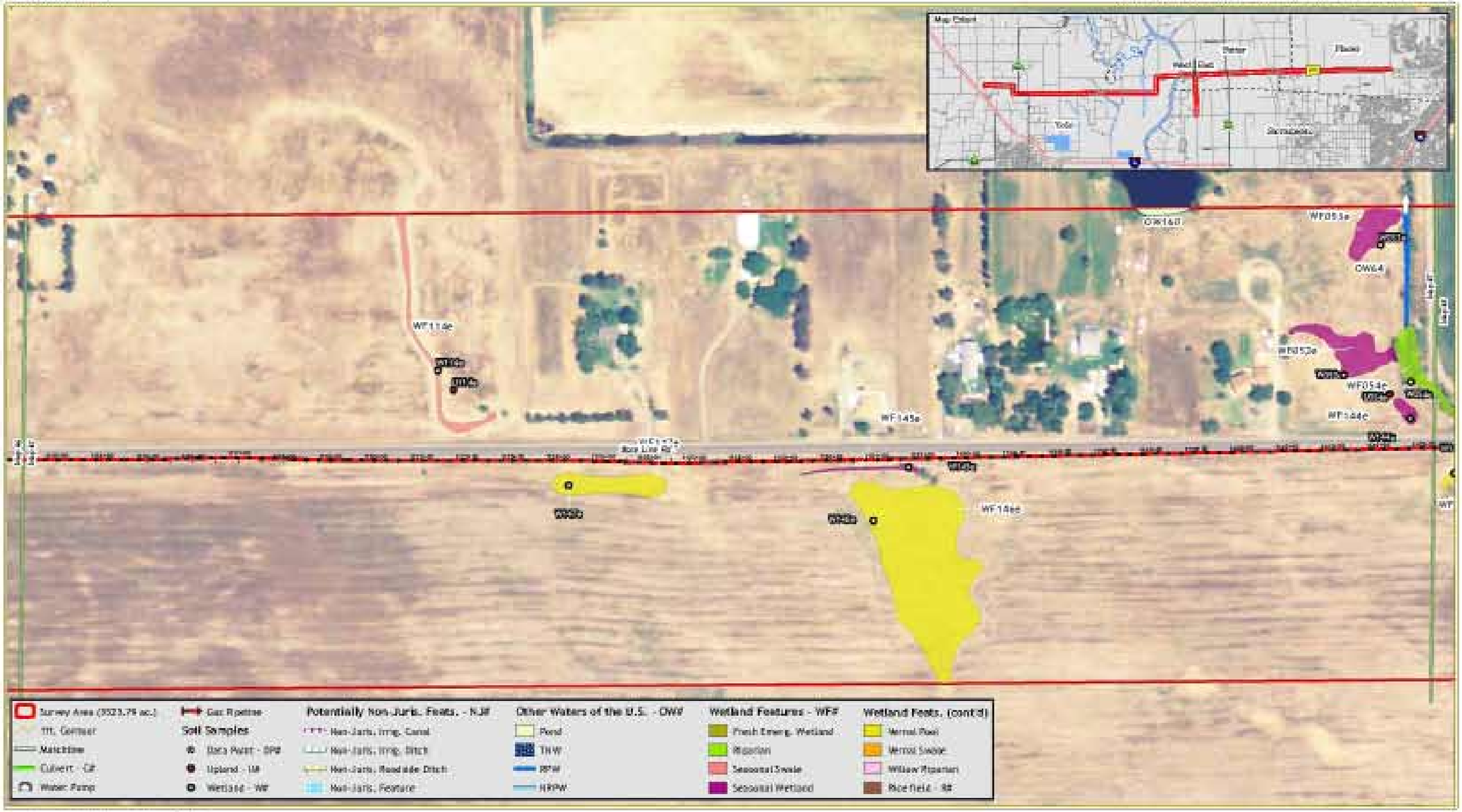

WF156
WF157a
C3
OW176
WF122
OW80
C23
Pogo Rd
C24
C25
C26
C27
OW87
313
Survey Area (3523.79 ac.)
TTL Centerline
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

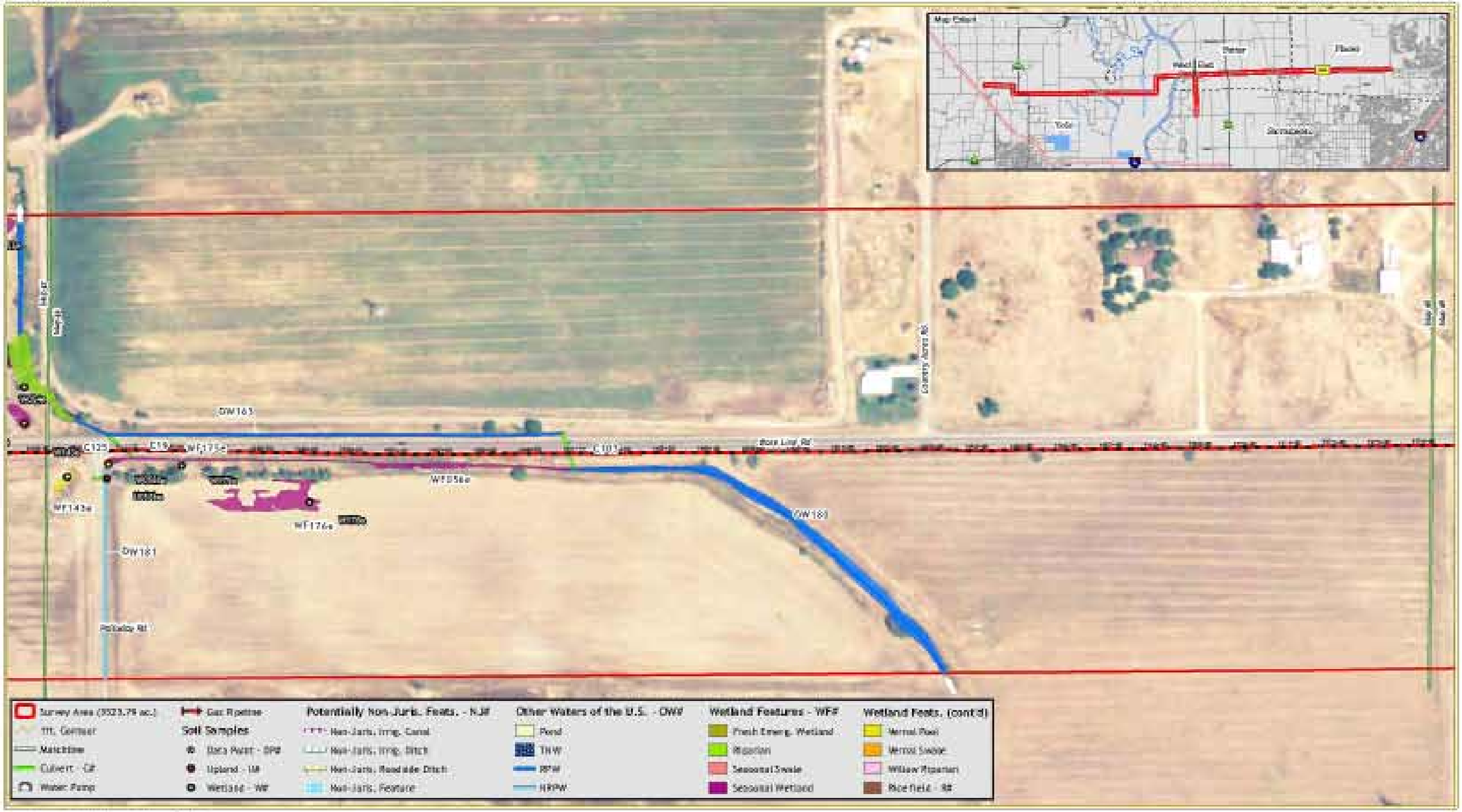

Survey Area (3523.79 ac.)
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - UP
Wetland - WF
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice field - RF
Culvert - CUL
Water Pump
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

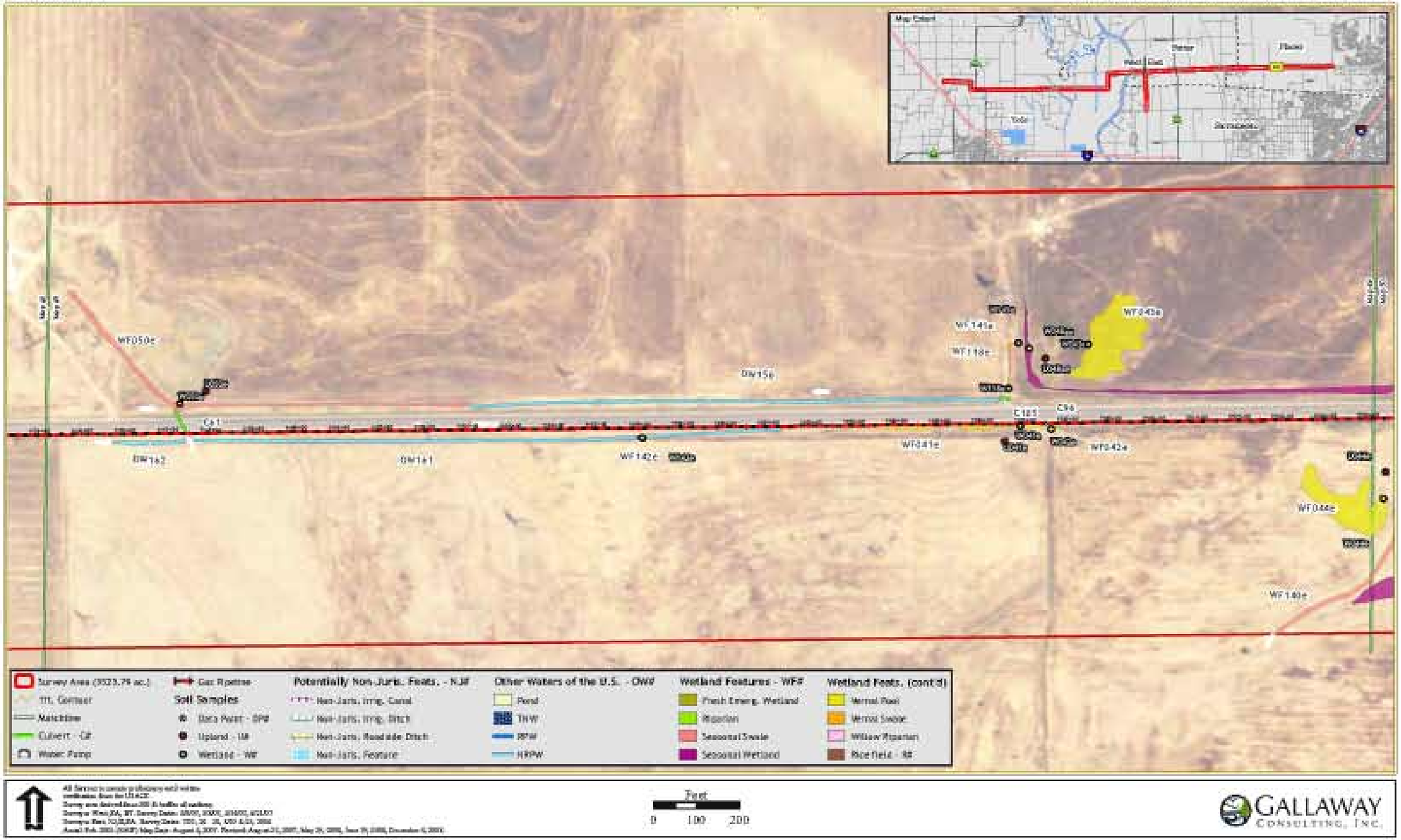

Map 44
Map 45
C182
C196
C195
H198
C194
H197
H199
H100
Rice Line Rd
H101
C191
C190
H105
C189
H106
C188
H103
C193
H104
WF194e
C187
WF111e
H107
WF078e
WF079e
WF077e
WF080e
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPW
Upland - UP
Wetland - WF
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

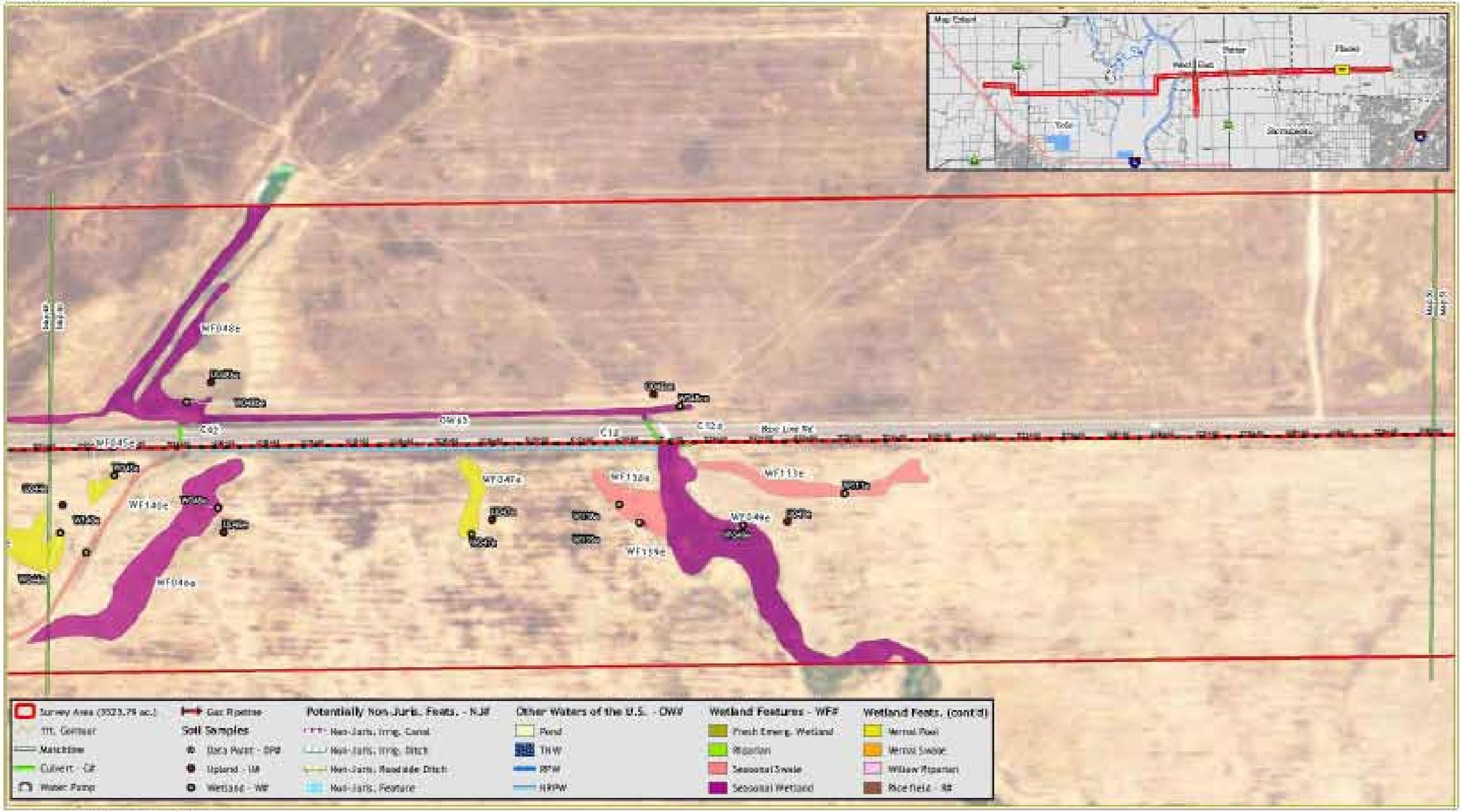

Survey Area (3523.79 ac.)
Gas Pipeline
Potentially Non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
Soil Samples
Data Point - DPF
Upland - UF
Wetland - WF
Culvert - CF
Water Pump
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Pond
TNW
RPW
NRPW
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

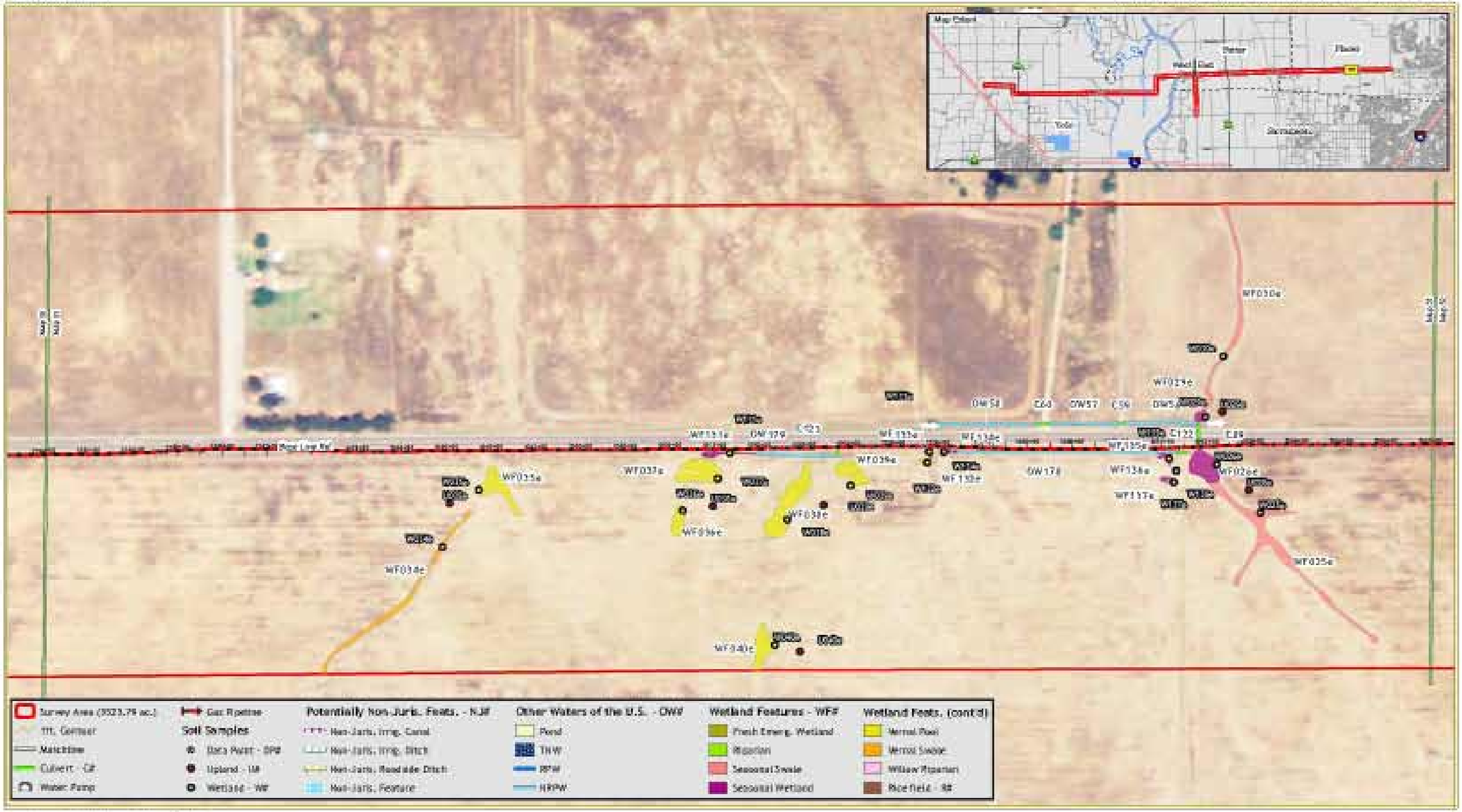

WF062e
WF179e
WF056e
WF057e
WF193e
WF149e
WF148e
WF151e
WF150e
WF153e
WF058e
WF063e
C64
Survey Area (3523.79 ac.)
Gas Pipeline
Potentially non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Pond
TNW
RPW
NRPW
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

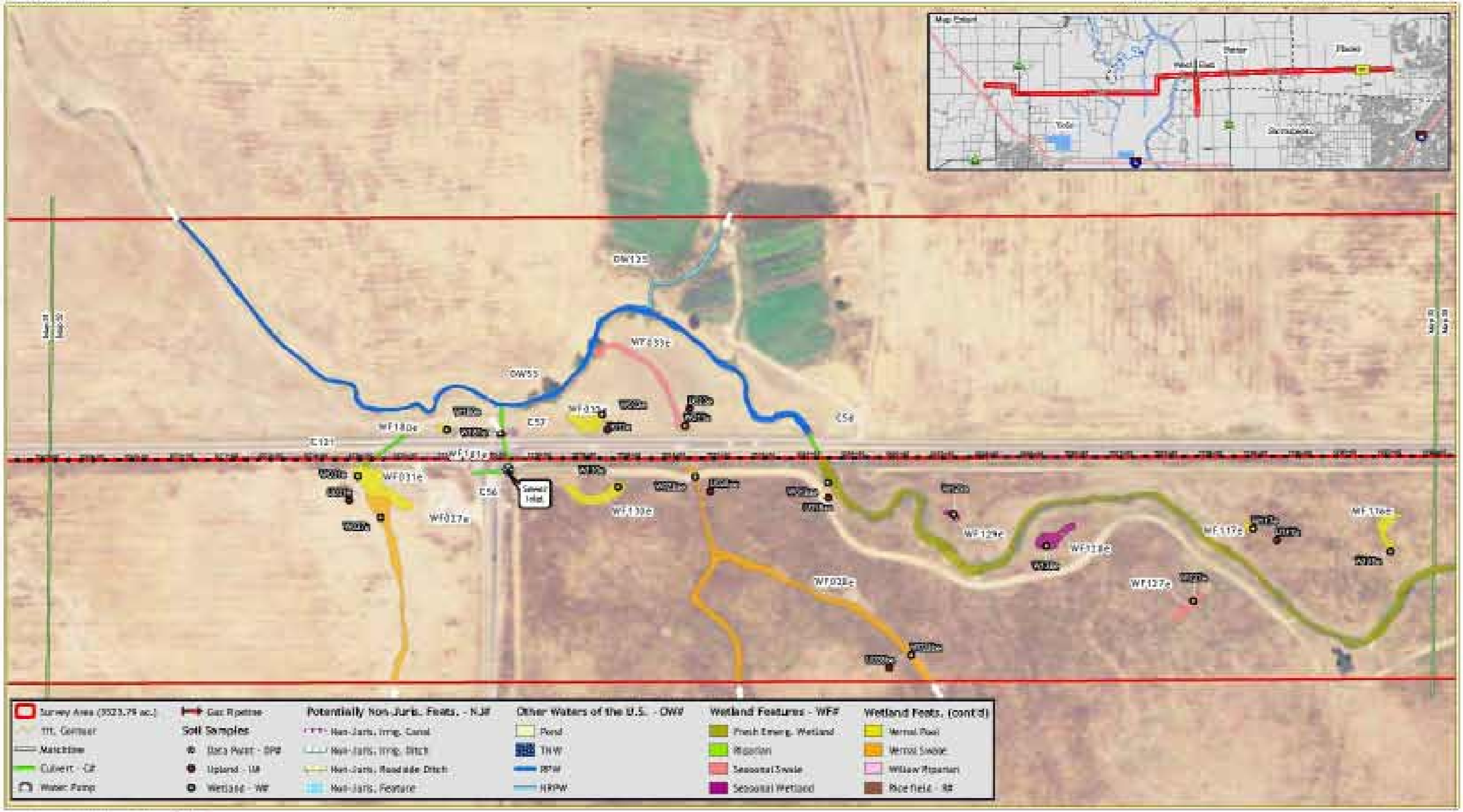

OW160
WF053e
OW64
WF114e
WF052e
WF054e
WF144e
WF145e
WF146e
Survey Area (3523.79 ac.)
TTL Centerline
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - UP
Wetland - WF
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OW#
Pond
THW
RPW
NRPW
Wetland Features - WF#
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

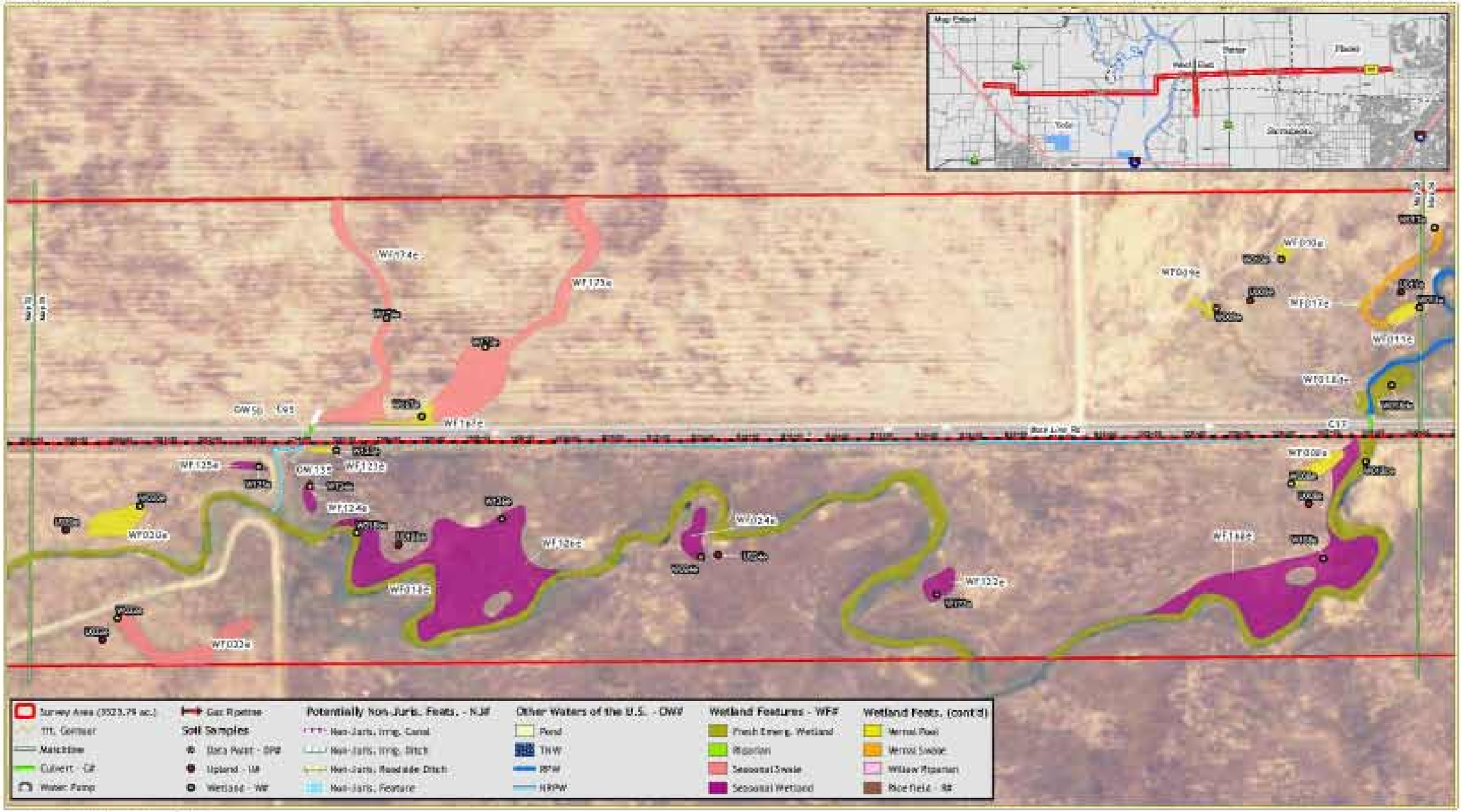

Map Detail
Dunnigan
Yolo
Sacramento
County Farm Rd
Rice Line Rd
Pelleday Rd
DW183
DW181
C125
C19
WF176e
C101
WF056e
WF143e
WF176e
Survey Area (3523.79 ac.)
Gas Pipeline
Potentially Non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
TTL Contour
Soil Samples
Non-Juris. Irrig. Canal
Pond
Fresh Emerg. Wetland
Vernal Pool
Matchline
Data Point - DPF
Non-Juris. Irrig. Ditch
THW
Riparian
Vernal Swale
Culvert - CIF
Upland - UP
Non-Juris. Roadside Ditch
RPW
Seasonal Swale
Willow Riparian
Water Pump
Wetland - WF
Non-Juris. Feature
NRPW
Seasonal Wetland
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

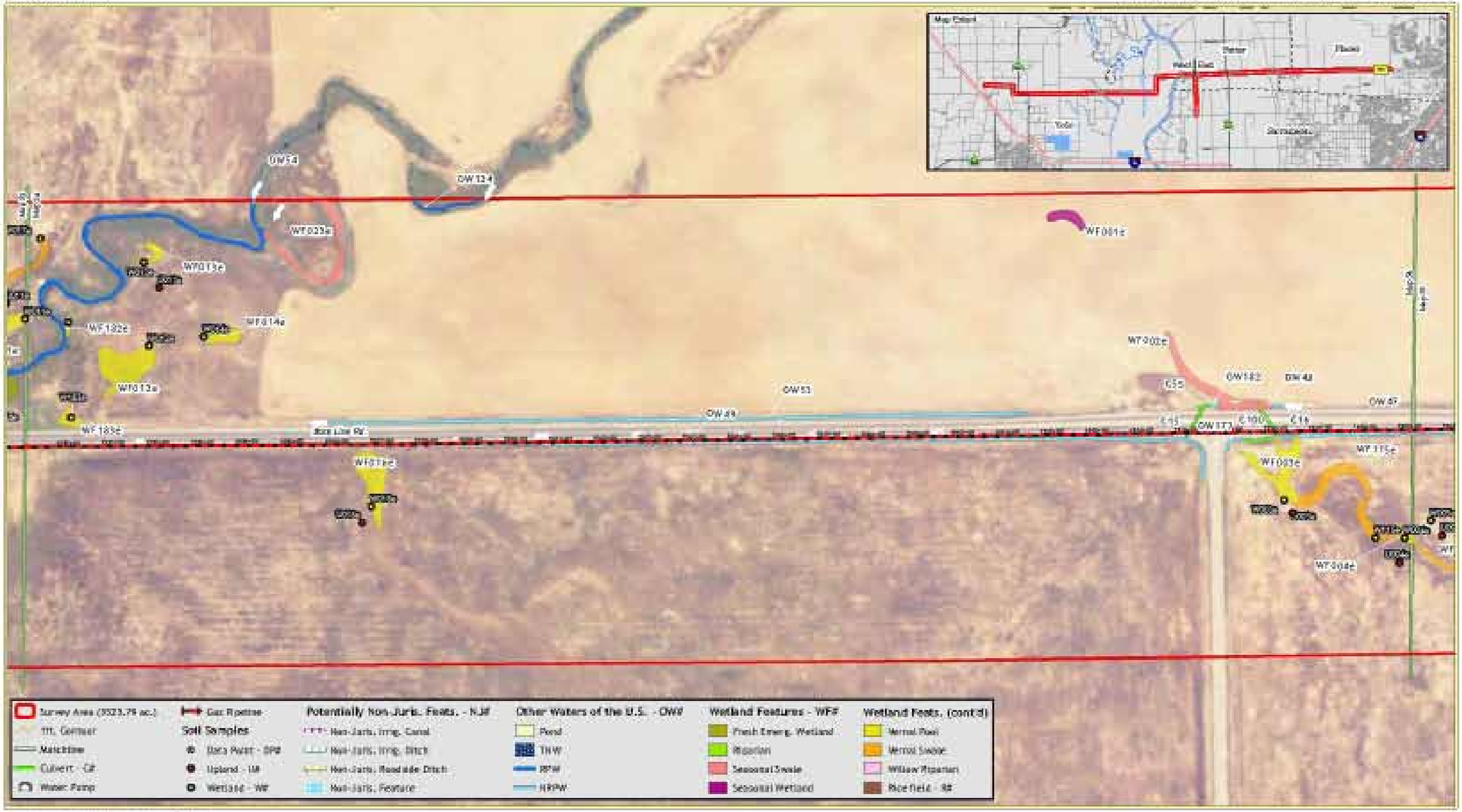

WF050c
DW156
WF141e
WF118e
WF243e
C121
C96
C1
DW162
DW161
WF142e
WF241e
WF242e
WF044e
WF140e
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CP
Water Pump
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CP
Water Pump
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WF#
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CP
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
TNW
RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Map Extent
Yolo
Sacramento
Placer
OW125
OW55
WF133e
WF180e
WF181e
WF031e
WF017e
WF130e
WF128e
WF118e
WF117e
WF116e
WF127e
WF028e
C121
C57
C56
C54
Survey Area (3523.79 ac.)
TTL Contour
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WP
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
RPW
NRPW
Wetland Features - WPF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0
100
200
GALLAWAY
CONSULTING, INC.


Survey Area (3523.79 ac.)
TTL Centerline
Matchline
Culvert - CU
Water Pump
Gas Pipeline
Soil Samples
Data Point - DPW
Upland - UP
Wetland - WF
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
THW
PFW
HRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
0 100 200
GALLAWAY
CONSULTING, INC.


OW 124
WF 023e
WF 013e
WF 132e
WF 814e
WF 013a
WF 185e
OW 49
OW 55
WF 001e
WF 200e
OW 182
OW 48
OW 47
OW 173
WF 115e
WF 003e
WF 004e
Survey Area (3523.79 ac.)
Gas Pipeline
Potentially Non-Juris. Feats. - NJF
Other Waters of the U.S. - OWF
Wetland Features - WFF
Wetland Feats. (cont'd)
Soil Samples
Data Point - DPF
Upland - UP
Wetland - WF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Pond
THW
RPW
NRPW
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Culvert - CU
Water Pump
Feet
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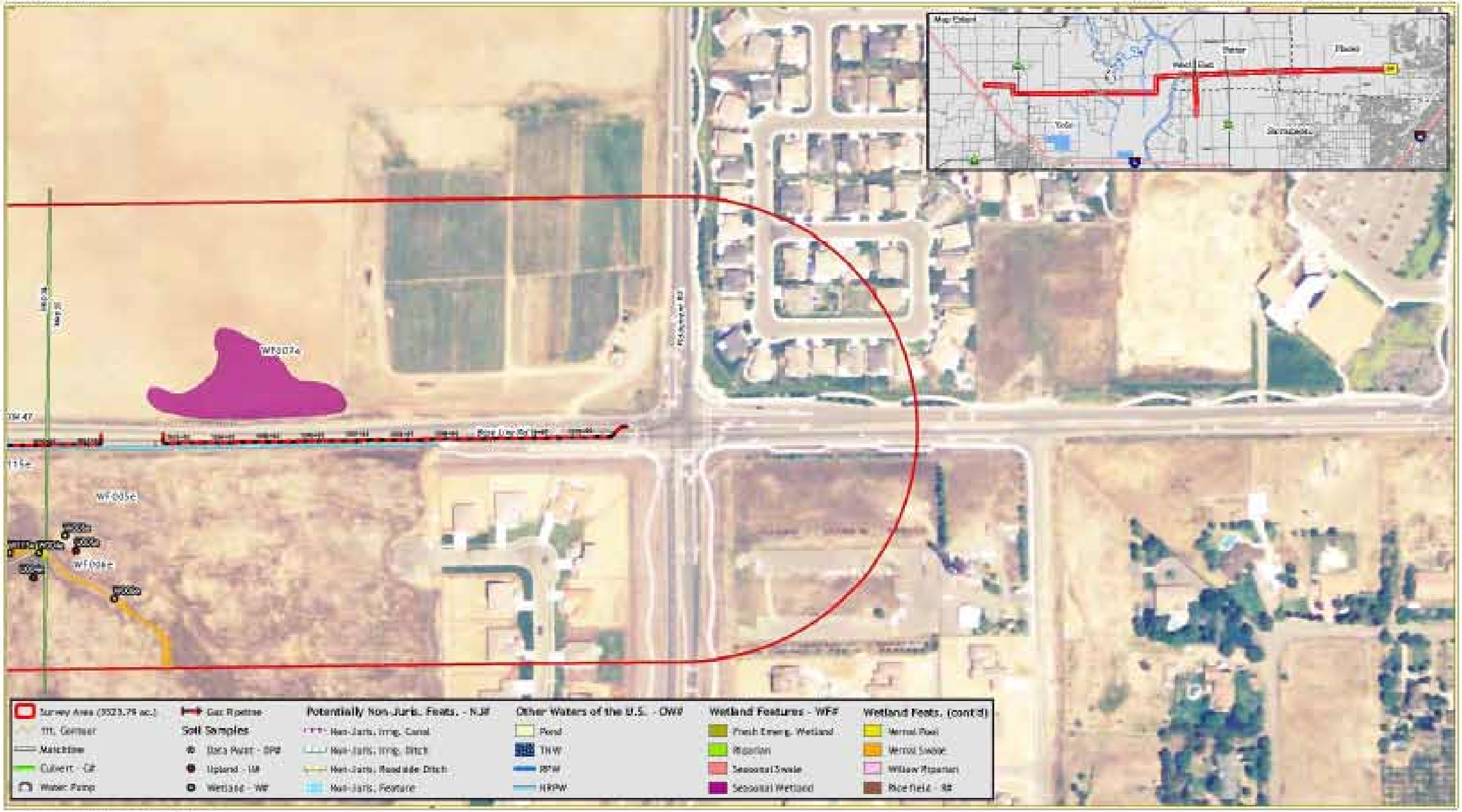
GALLAWAY
CONSULTING, INC.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TTL Centerline
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Water Pump
Gas Pipeline
Soil Samples
Data Point - DPP
Upland - UP
Wetland - WF
Potentially Non-Juris. Feats. - NJF
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OWF
Pond
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RPW
NRPW
Wetland Features - WFF
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice Field - RF
Feet
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E-2: Line 406 Rare Plant Survey

Rare Plant Survey, PG&E Line 406 Project in Yolo County, California

PREPARED FOR: Marjorie Eisert/CH2M HILL

PREPARED BY: Tim Armstrong/CH2M HILL
Andy Mieske/Garcia and Associates

DATE: June 27, 2007

Introduction

This project is one of several new local gas transmission pipeline projects forecasted in PG&E's long-range investment plans for the local gas transmission system. Connection of PG&E's Line 400/401, located at the base of the Capay Hills in Yolo County to Line 172A in the town of Yolo, will increase the capacity of their local gas transmission system (Figure 1). PG&E's ten-year investment plan for the local transmission system includes the construction of a new pipeline from Line 172A in the town of Yolo east to Line 123 in Roseville some time after 2010.

The proposed project (Line 406) consists of approximately 14 miles of a 30-inch diameter gas transmission pipeline. In addition to the main pipeline, additional support structures for the pipeline will be required. Main line and bridle valves and blow-off stacks will be installed at Line 400/401 and an above ground and fenced pressure limiting and metering station at Line 172A will be constructed. Other pipeline appurtenances include above ground line-markers, electrolysis test stations (ETS), and possibly a mainline valve with an above ground handwheel operator. The proposed in-service date is September 1, 2009 with the start of construction projected to be May 1, 2008.

Line 400/401 is located at the base of the Capay Hills approximately 1.7 miles north of the town of Capay near County Road 85 and runs in a north to south direction along the eastern edge of the Hills. Line 172A is located east of 400/401 and travels northwest to southeast nearly parallel and adjacent with the east side of Interstate 5. The proposed pipeline would travel in an east to west direction connecting the two lines. Starting approximately 1.7 miles north of the town of Capay, the pipeline would tie in to Line 400/401, and cross close to 0.6 miles of orchards, 8 miles of agriculture land, and 5.5 miles of open rangeland in the Dunnigan Hills, before connecting to Line 172A. Construction of the pipeline would temporarily disturb an approximate 40-foot-wide path along the 14-mile stretch of the alignment.

This memorandum provides the results of a special-status plant species survey conducted in spring of 2007 along the proposed route and including a 500 foot buffer, between line 400/401 and line 172A. Survey methods employed and results of the surveys are presented in the following sections.

Survey Methods

Rare plant surveys of the project area were conducted by Andy Mieske of Garcia and Associates and Tim Armstrong of CH2M HILL on May 31, 2007 and June 1, 2007. The objective of these surveys was to determine if any special-status plant species occur in the project area. The rare plant surveys were floristic in nature (each plant encountered onsite was identified to the level necessary to ascertain if it was a special-status species). Surveys followed California Department of Fish and Game (CDFG), California Native Plant Society (CNPS), and U.S. Fish and Wildlife Service (USFWS) rare plant survey guidelines (CDFG, 2000; CNPS, 2006; USFWS, 1996).

Prior to field surveys, a target species list was prepared by searching the California Natural Diversity Data Base (CNDDB), the CNPS Electronic Inventory, and the USFWS Species Lists to identify the special-status plants that occur within the project vicinity (CDFG, 2007; CNPS 2007, USFWS, 2007). The following USGS 7.5′ Quadrangle maps were searched for records of special-status plants: Madison, Zamora, Eldorado Bend, Esparto, Monticello Dam, Bird Valley, Woodland, Winters, and Merritt. Federal and state species listed as Threatened, Endangered, or Candidate species were not reported to occur in the 9-quad search. Six species listed by the CNPS as "1B – Rare, Threatened, or Endangered in California and Elsewhere" are known to occur in the 9 quads. One species, woolly-headed lessingia (*Lessingia hololeuca*), is a "List 3 – A Review List Species." The results of the literature and data base searches are found in Appendix A. Special-status plant species, federal and state status, and bloom period are listed in Table 1.

TABLE 1. SPECIAL-STATUS PLANT SPECIES
PG&E Line 406 Project, Yolo County, California

Species	Federal Status	State Status	CNPS Status	Bloom Period
Atriplex cordulata heartscale	None	None	1B	April –October
Erodium macrophyllum *round-leaved filaree*	None	None	1B	March - May
Fritillaria pluriflora adobe lily	None	None	1B	February - April
Hesperolinon breweri Brewer's western flax	None	None	1B	May - July
Lepidium latipes var. *heckardii* Heckard's pepper grass	None	None	1B	March - May
Lessingia hololeuca *woolly-headed lessingia*	None	None	List 3	June - October
Navarretia leucocephala ssp. *Bakeri* Baker's navarretia	None	None	1B	April - July

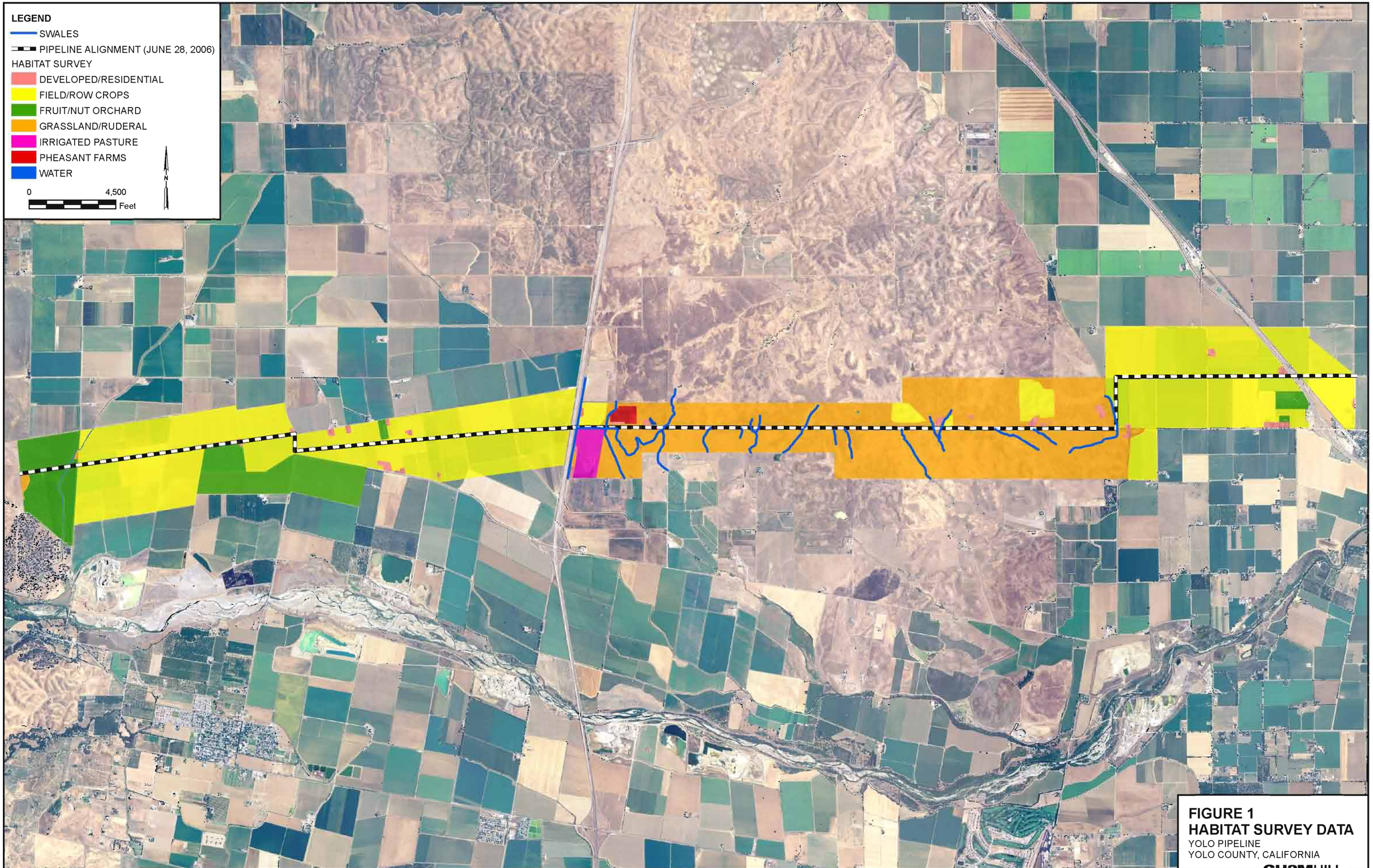

FIGURE 1
HABITAT SURVEY DATA
YOLO PIPELINE
YOLO COUNTY, CALIFORNIA

CH2MHILL

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Documented occurrences for each species were reviewed from the CNDDB, and field identification was aided by different phenological stages in photographs from CalPhotos: Plants (CalPhotos: Plants, 2007). Developed agricultural fields account for approximately 8.5 miles of the proposed alignment. Consistent with the USFWS *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS, 1996), developed agricultural fields were not surveyed on foot. "Windshield surveys" were utilized in agriculture areas to ensure potential habitat or natural vegetation communities were no longer present. The 5.5-mile stretch of alignment bound by County Road 17, County Road 95A, and a 500-foot buffer was surveyed on foot by walking parallel and perpendicular transects to the alignment; to ensure that the species in the area of any possible indirect impacts would be inventoried as well. Approximately two days or 32 man-hours were taken to complete the inventory of plants occurring within the 5.5 mile stretch.

An inventory of plants observed during the rare plant survey is provided in Table A-1 (Appendix B). The habitat types within the proposed alignment and vicinity were classified and are described in the results section, below. Taxonomy follows the Jepson Manual (Hickman, 1993).

Results

The proposed pipeline alignment includes approximately 8.5 miles of agricultural land that is currently cultivated in row crops, barley, and orchards. The vegetation along the margins of the agricultural fields and orchards is dominated by ruderal (weedy) non-native grassland habitat.

Orchard

Orchards are located in two areas within the vicinity of the pipeline alignment. The first orchard is at the tie-in location to Line 400/401. The connecting pipeline will be located within an existing agriculture road between two plum orchards that extend approximately 0.6 mile to Hungry Hollow Slough. A small portion of orchards will be removed for the construction of the pipeline on the east side of the slough. Additionally, an almond orchard is located near County Road 87 and adjacent to the proposed alignment. The orchard communities are intensively managed and generally have an open understory vegetation to facilitate harvesting, though cover crops consisting of annual grasses and forbs are typically planted to reduce erosion and evaporation. Tree species are between 15-30 feet in height and uniformly spaced. As the Central Valley has a rich history in agriculture, orchards are prevalent throughout. The orchard community does not correspond with a natural vegetation classification identified in Sawyer/Keeler-Wolf (1995).

Irrigated Crops

Irrigated row crops are a dominant community within the Central Valley and are planted on the most fertile soils in the valley (CDFG, 2005). Alfalfa, tomatoes, and dry wheat are the predominant species grown along the length of the proposed pipeline. They are low-growing annual and perennial crops irrigated from adjacent canals and waterways (i.e., Hungry Hollow Slough, West Adams/Adams Canal, and the Sacramento River). As with

orchards, irrigated row crops are an anthropogenic community resulting from the demands of an increasing population and do not correspond to a natural vegetation classification.

California Annual Grassland

The proposed pipeline segment (along County Road 17) bisects the southern end of the Dunnigan Hills, from Interstate 505 to County Road 95A. The community type along this segment, approximately 5.5 miles, is primarily rolling hills with California Annual Grassland (Sawyer/Keeler-Wolf, 1995). Annual grassland is comprised largely of annual species of grasses and forbs that germinate with fall rains, grow slowly in the winter months, and remain low in stature until spring when increasing temperatures stimulate rapid growth. Characteristic grass species found in the community include wild oats (*Avena* spp.), soft chess (*Bromus hordeaceus*), vulpia (*Vulpia* spp.), and ryegrass (*Lolium* spp.). Annual forbs observed include lupine (*Lupinus bicolor*), filaree (*Erodium* spp.), blow-wives (*Achyrachaena mollis*), popcornflower (*Plagiobothrys nothofulvus*), fiddleneck (*Amsinckia menziesii* var. *intermedia*), and vetch (*Vicia* spp.).

Ecological and Rare Plant Information

Brewer's western flax (*Hesperolinon breweri*) and woolly-headed lessingia are found primarily on serpentine soils in a variety of communities, ranging from chaparral, woodlands, valley and foothill grasslands, broadleaf upland forests, coastal scrub, and coniferous forests. Although the survey area is a valley and foothill grassland community, serpentine soils are not present. The nearest reported occurrence of Brewer's western flax is near Monticello Dam in Napa County, approximately 15 miles southwest of the proposed pipeline and there are no documented occurrences for woolly-headed lessingia in the CNDDB. Heckard's pepper grass (*Lepidium latipes* var. *heckardii*) is found primarily on alkaline flats which are absent from the project area. The nearest reported occurrence for this species is four miles north, in the town of Zamora from the year 1902. Baker's navarretia is a vernal pool species. Two seasonal wetlands were observed within the 500 foot survey area. Both areas lacked vernal pool endemic species and were dominated by ruderal species: Italian ryegrass (*Lolium multiflorum*), mannagrass (*Glyceria declinata*), and barley (*Hordeum marinum* ssp. *gussoneanum*). One of the seasonal wetlands is adjacent to an irrigation canal and has formed from the result of leaking. The final seasonal wetland is adjacent to County Road 17, in the same vicinity, and is dominated by barley and popcornflower. *Navarretia* species were not identified within the wetland and not found within the proposed alignment and 500-foot buffer. Round-leaved filaree (*Erodium macrophyllum*) inhabits clay soils of valley and foothill grasslands. Two *Erodium* species were observed in the alignment and buffer area: filaree (*Erodium botrys*), and red-stem filaree (*Erodium cicutarium*). Both species are considered ruderal and were found primarily along County Road 17. Round-leaved filaree was not observed. Adobe lily is primarily found on adobe soils in chaparral, woodlands, and valley and foothill grasslands. The proposed alignment and buffer do not provide habitat for the adobe lily (*Fritillaria pluriflora*).

Summary

No federal, state, or CNPS-listed plants were found during the surveys. The project area contains a host of non-native species and a few native species, but does not provide adequate habitat for any of the potential rare plants in the area. As surveys were conducted during an appropriate blooming period for all potential rare plants and none were found, further surveys will not be necessary to prove species absence in the project area.

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Appendix A

Special Status Plant Lists: CNDDB and CNPS

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name
Special-Status Species for the 7.5' USGW quad Madison and the contiguous nine quads: Bird Valley, Zamora, Eldorado Bend, Esparto, Woodland, Monticello Dam, Winters, and Merritt.

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	***Agelaius tricolor*** tricolored blackbird	ABPBXB0020			G2G3	S2	SC
2	***Ambystoma californiense*** California tiger salamander	AAAAA01180	Threatened		G2G3	S2S3	SC
3	***Andrena blennospermatis*** A vernal pool andrenid bee	IIHYM35030			G2	S2	
4	***Antrozous pallidus*** pallid bat	AMACC10010			G5	S3	SC
5	***Athene cunicularia*** burrowing owl	ABNSB10010			G4	S2	SC
6	***Atriplex cordulata*** heartscale	PDCHE040B0			G2?	S2.2?	1B.2
7	***Branchinecta lynchi*** vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
8	***Buteo swainsoni*** Swainson's hawk	ABNKC19070		Threatened	G5	S2	
9	***California macrophyllum*** round-leaved filaree	PDGER01070			G3	S3.1	1B.1
10	***Charadrius montanus*** mountain plover	ABNNB03100			G2	S2?	SC
11	***Cicindela hirticollis abrupta*** Sacramento Valley tiger beetle	IICOL02106			G5TH	SH	
12	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	IICOL48011	Threatened		G3T2	S2	
13	***Elanus leucurus*** white-tailed kite	ABNKC06010			G5	S3	
14	***Emys (=Clemmys) marmorata marmorata*** northwestern pond turtle	ARAAD02031			G3G4T3	S3	SC
15	***Falco peregrinus anatum*** American peregrine falcon	ABNKD06071	Delisted	Endangered	G4T3	S2	
16	***Great Valley Mixed Riparian Forest***	CTT61420CA			G2	S2.2	
17	***Hesperolinon breweri*** Brewer's western flax	PDLIN01030			G2	S2.2	1B.2
18	***Lepidium latipes var. heckardii*** Heckard's pepper-grass	PDBRA1M0K1			G4T1	S1.2	1B.2
19	***Lepidurus packardi*** vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
20	***Myrmosula pacifica*** Antioch multilid wasp	IIHYM15010			GH	SH	
21	***Navarretia leucocephala ssp. bakeri*** Baker's navarretia	PDPLM0C0E1			G4T2	S2.1	1B.1
22	***Nycticorax nycticorax*** black-crowned night heron	ABNGA11010			G5	S3	
23	***Pogonichthys macrolepidotus*** Sacramento splittail	AFCJB34020			G2	S2	SC

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	***Rana boylii*** foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
25	***Riparia riparia*** bank swallow	ABPAU08010		Threatened	G5	S2S3	
26	***Taxidea taxus*** American badger	AMAJF04010			G5	S4	SC
27	***Thamnophis gigas*** giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
28	***Valley Oak Woodland***	CTT71130CA			G3	S2.1	

Appendix B

List of Plant Species Observed During May and June 2007 Survey of the PG&E Line 406 Project Site

Table A-1. List of Plant Species Observed During May and June 2007

Family	*Scientific Name*	Common Name
Aceraceae		
	Acer negundo var. *californicum*	box elder
Agavaceae		
	Agave americana	agave
Amaranthaceae		
	Amaranthus albus	tumble pigweed
	Amaranthus blitoides	prostrate pigweed
	Amaranthus palmeri	Palmer amaranth
Anacardiaceae		
	Toxicodendron diversilobum	poison oak
Apiaceae		
	Achillea millefolium	yarrow
	Daucus carrota	wild carrot
	Foeniculum vulgare	fennel
Apocynaceae		
	Nerium oleander	oleander
Asclepiadaceae		
	Asclepias fascicularis	Mexican whorled milkweed
	Asclepias speciosa	showy milkweed
Asteraceae		
	Anthemis cotula	stinking chamomile
	Carduus pycnocephalus	Italian thistle
	Centaurea solstitialis	yellow star thistle
	Chamomilla suaveolens	pineapple weed
	Cichorium intybus	chicory
	Cirsium vulgare	bull thistle
	Conyza canadensis	fleebane
	Filago gallica	narrowleaf cottonrose
	Gnaphalium luteo-album	cudweed
	Helianthus annuus	sunflower
	Hemizonia congesta var. *luzulifolia*	hayfield tarweed
	Hemizonia fitchii	Fitch's tarweed
	Heterotheca grandiflora	telegraph weed
	Hypochaeris radicata	hairy cat's ear
	Lactuca serriola	prickly lettuce
	Lactuca saligna	willowleaf lettuce
	Picris echioides	bristly ox-tongue
	Psilocarphus tenellus	woolly marbles
	Silybum marianum	milk thistle
	Sonchus asper	prickly sow thistle
	Sonchus oleraceus	common sow thistle
	Taraxacum officinale	dandelion
	Tragopogon porrifolius	salsify
	Xanthium strumarium	cocklebur
Boraginaceae		
	Amsinckia menziesii var. *intermedia*	fiddleneck

Table A-1. List of Plant Species Observed During May and June 2007

Family	*Scientific Name*	Common Name
	Plagiobothrys stipitatus	popcornflower
Brassicaceae		
	Brassica nigra	black mustard
	Capsella bursa-pastoris	Shepherd's purse
	Hirschfeldia incana	Mediterranean mustard
	Raphanus sativus	wild radish
Cactaceae		
	Opuntia basilaris var. *basilaris*	beavertail cactus
Caprifoliaceae		
	Sambucus mexicana	blue elderberry
Caryophyllaceae		
	Silene gallica	windmill pink
	Spergula arvensis ssp. *arvensis*	corn spurry
Casuarinaceae		
	Casuarina stricta	beefwood
Chenopodiaceae		
	Chenopodium berlandieri	netseed lambsquarters
	Salsola tragus	Russianthistle
Convovulaceae		
	Convolvulus arvensis	field bindweed
Cupressaceae		
	x Cupressocyparis leylandii	Leyland cypress
Cyperaceae		
	Cyperus eragrostis	tall flatsedge
Euphorbiaceae		
	Chamaesyce maculata	spotted spurge
	Eremocarpus setigerus	turkey mullein
Fabaceae		
	Caesalpinia sp.	caesalpinia
	Lotus humistratus	hill lotus
	Medicago polymorpha	bur-clover
	Medicago sativa	alfalfa
	Melilotus indica	sourclover
	Trifolium repens	white clover
	Trifolium hirtum	rose clover
	Vicia villosa	hairy vetch
Fagaceae		
	Quercus lobata	valley oak
Geraniaceae		
	Erodium botrys	filaree
	Erodium cicutarium	red-stemmed filaree
	Geranium dissectum	cranesbill
Juglandaceae		
	Juglans californica var. *hindsii*	northern California black walnut
Lamiaceae		
	Marrubium vulgare	horehound
	Trichostema lanceolatum	vinegarweed

Table A-1. List of Plant Species Observed During May and June 2007

Family	*Scientific Name*	Common Name
Liliaceae		
	Brodiaea elegans ssp. *elegans*	elegant brodiaea
	Dichelostemma capitatum	blue dicks
	Triteleia hyacinthinia	white brodiaea
Malvaceae		
	Malva neglecta	common mallow
	Malvella leprosa	alkali mallow
Martyniaceae		
	Proboscidea louisianica	Devil's claw
Meliaceae		
	Melia azedarach	Chinaberry
Moraceae		
	Ficus carica	edible fig
	Morus alba	white mulberry
Myrtaceae		
	Eucalyptus camaldulensis	red gum
	Eucalyptus globulus	blue gum
Onagraceae		
	Epilobium brachycarpum	willow herb
Papaveraceae		
	Eschscholzia californica	California poppy
Pinaceae		
	Cedrus deodara	deodar cedar
Plantaginaceae		
	Plantago lanceolata	English plantain
Poaceae		
	Arundo donax	giant reed
	Avena barbata	slender wild oat
	Avena fatua	wild oat
	Bromus alopecuros	weedy brome
	Bromus diandrus	ripgut brome
	Bromus hordeaceus	soft chess brome
	Bromus madritensis	brome
	Cynodon dactylon	Bermuda grass
	Distichlis spicata	saltgrass
	Dactylis glomerata	orchard grass
	Gastridium ventricosum	nit grass
	Hordeum marinum	Mediterranean barley
	Hordeum murinum ssp. *leporinum*	foxtail barley
	Lolium multiflorum	Italian ryegrass
	Nassella pulchra	purple needlegrass
	Paspalum dilatatum	dallis grass
	Phalaris minor	canarygrass
	Polypogon maritimus	Mediterranean beard grass
	Sorghum halepense	Johnsongrass
	Taeniatherum caput-medusae	medusa head
	Triticum aestivum	wheat

Table A-1. List of Plant Species Observed During May and June 2007

Family	*Scientific Name*	Common Name
	Vulpia bromoides	fescue
Polygonaceae		
	Polygonum arenastrum	common knotweed
	Rumex crispus	curly dock
	Rumex pulcher	fiddle dock
Portulacaceae		
	Portulaca oleracea	common purslane
Rosaceae		
	Prunus dulcis	almond
	Prunus persica	peach
	Rubus discolor	Himalayan blackberry
Rubiaceae		
	Galium aparine	common bedstraw
Salicaceae		
	Populus fremontii	Fremont cottonwood
	Populus nigra 'Italica'	lombardy poplar
	Salix babylonica	weeping willow
	Salix exigua	sandbar willow
	Salix gooddingii	Goodding's willow
	Salix laevigata	red willow
Scrophulariaceae		
	Bellardia trixago	Mediterranean lineseed
	Veronica americana	American speedwell
Simaroubaceae		
	Ailanthus altissima	tree of heaven
Solanaceae		
	Lycopersicon esculentum	tomato
	Pysocarpus ixocarpa	tomatillo
Taxodiaceae		
	Sequoia sempervirens	redwood
Typhaceae		
	Typha angustifolia	narrowleaf cattail
Vitaceae		
	Vitis vinifera	European grape
Zygophyllaceae		
	Tribulus terrestris	puncture vine

E-3: Line 407 East Plant Report

Special Status and Listed Plant Report
PG&E Line 407 East Natural Gas Transmission Pipeline

Sacramento, Placer and Sutter Counties, California

August 2006

Prepared for:

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Special Status and Listed Plant Report
PG&E Line 407 East Natural Gas Transmission Pipeline
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Special Status and Listed Plant Report
PG&E Line 407 East Natural Gas Transmission Pipeline
Sacramento, Placer and Sutter Counties, California

Introduction

As requested by TRC, Gallaway Consulting Inc. performed rare plant surveys and a floristic inventory within the PG&E Line 407 East Natural Gas Transmission Pipeline (Project) study area. Surveys were conducted on May 5, and 12, and July 21, 24 and 26, 2006 to determine the presence of special-status botanical resources and to establish whether or not these resources would be impacted by the proposed project.

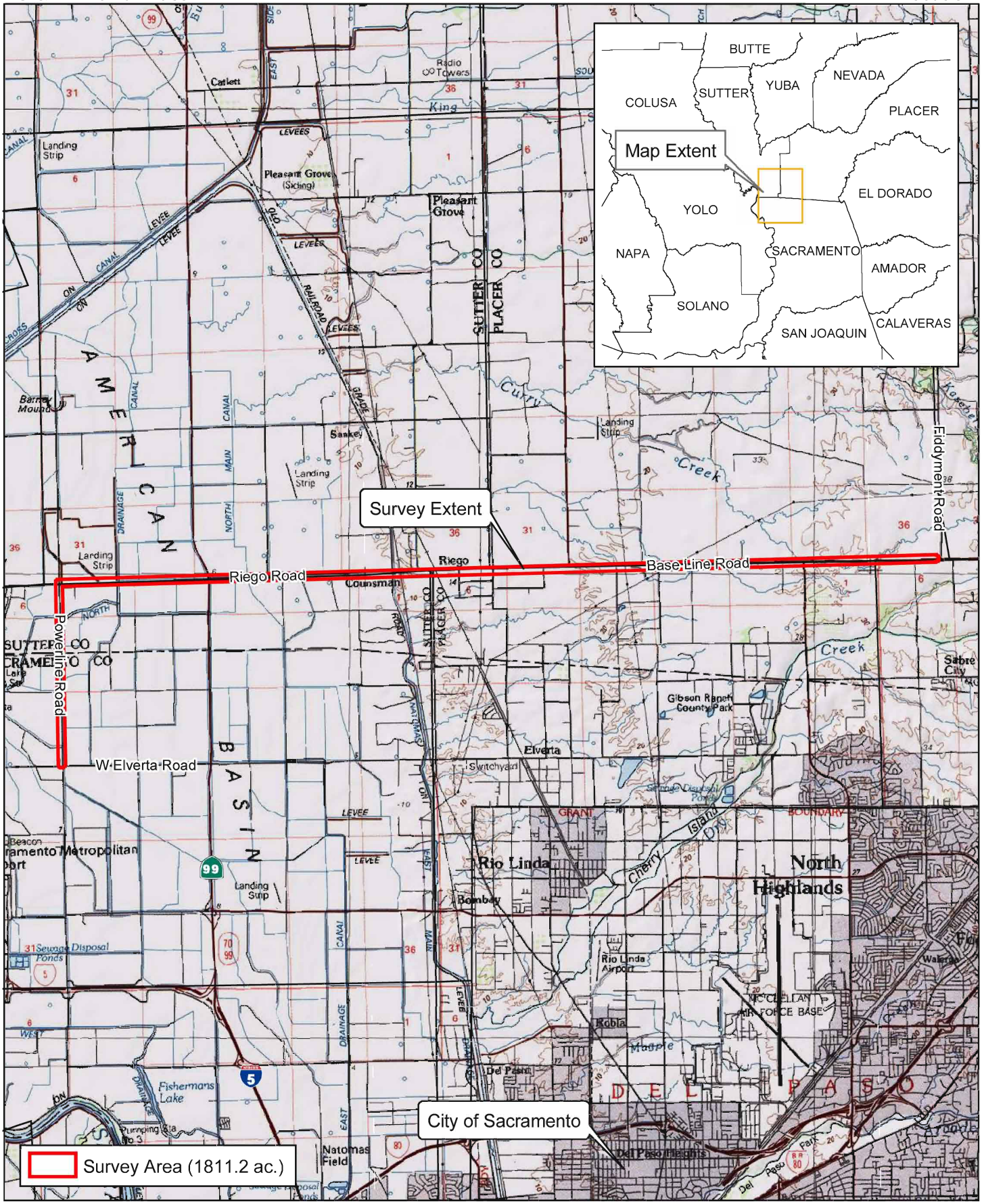
Project Description

The survey area for the Project encompasses an approximately 1811.2-acre corridor of rural, urban, and developed land in portions of Verona, Rio Linda, Roseville, Citrus Heights, Taylor Monument, and Pleasant Grove USGS 7.5' quadrangles. Urban, commercial, and agricultural structures, as well as agricultural fields and open space, occupy the extent of the survey area. The survey area is located just west of the City of Roseville and north of Sacramento (**Figure 1**). Topography is flat to gently undulate with Project elevation ranging from 15 to 125 feet above sea level. The portion of the Survey area east of the Natomas East Main Drainage is largely comprised of gently sloping grasslands with low-density residential and commercial development and was the focus of the study. The Survey area west of the Natomas East Main Drainage is almost entirely active, irrigated agricultural land used for rice production.

Existing Conditions

Topography within the survey area is flat to gently undulate with elevation ranging from 15-125 feet above sea level. Urban, commercial, and agricultural structures, as well as agricultural fields and open space, occupy the extent of the study area. The following soils series' and complexes occur within the study area:

- Alamo-Fiddyment Complex on 0-5percent slopes
- Capay Clay on 0-2percent slopes
- Clear Lake Clay on 0-2percent slopes
- Cometa Loam on 0-2percent slopes
- Cometa Sandy Loam on 1-5percent slopes
- Cometa-Fiddyment Complex on 1-5percent slopes
- Cometa-Ramona Sandy Loam on 1-5percent slopes
- Fiddyment Loam on 1-8percent slopes
- Galt Clay on 0-2percent slopes



USGS 7.5' Quad.
Map Date: July 5, 2006.

0 1 2 Miles

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Figure 1.

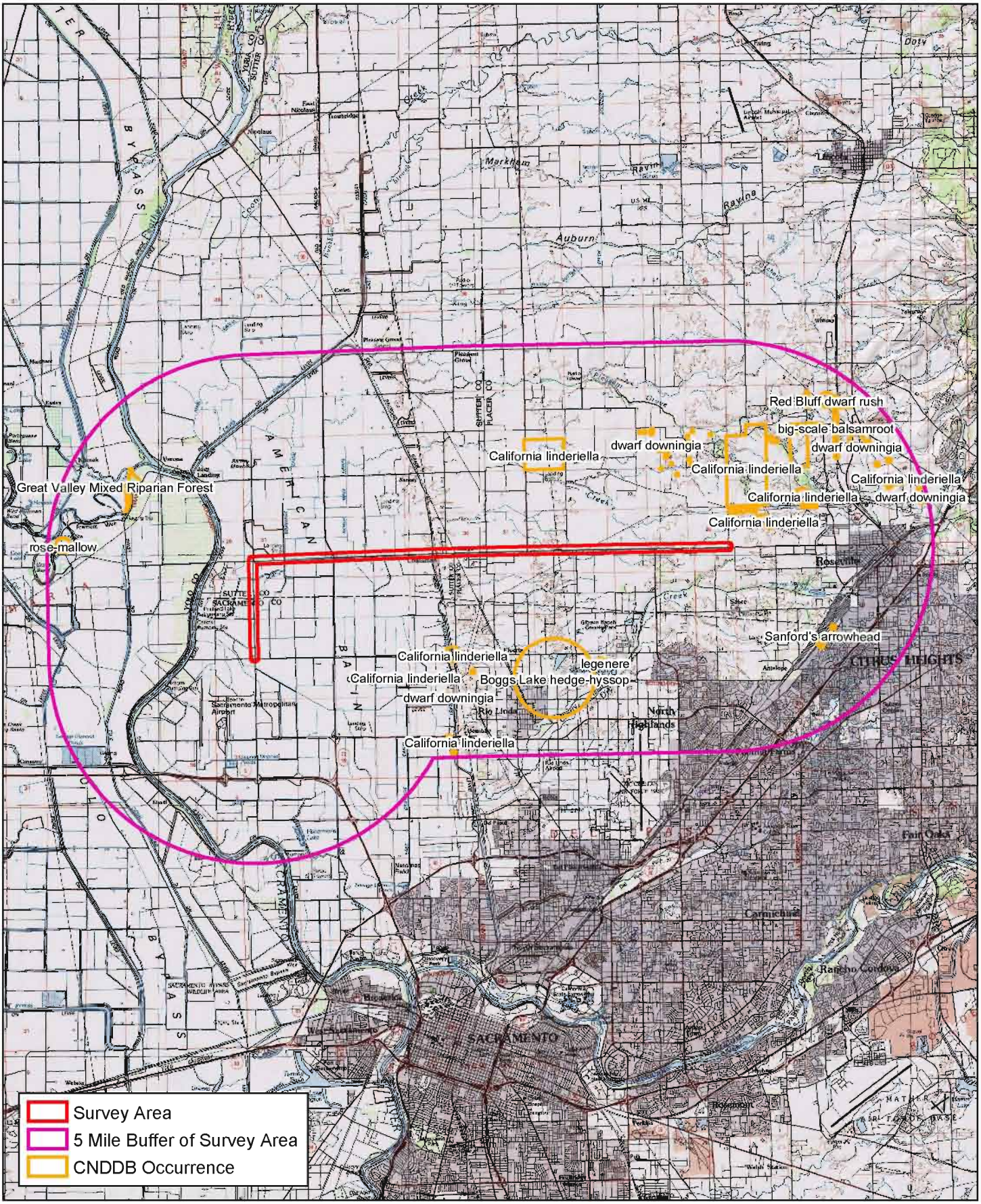
- Jacktone Clay on 0-2percent slopes
- Marcum Clay Loam on 0-1percent slopes
- Ramona Sandy Loam on 2-9percent slopes
- San Joaquin Sandy Loam on 0-5percent slopes
- San Joaquin Silt Loam on 0-1 slopes
- San Joaquin –Xerarents on 0-1 percent slopes
- San Joaquin-Arents-Durochrepts Comples on 0-1percent slopes
- San Joaquin-Cometa Sandy Loam on 1-5 percent slopes
- San Joaquin-Durixeralfs Complex on 0-1 percent slopes
- San Joaquin-Galt Complex on 0-1 percent slopes
- Xerarents-San Joaquin Complex on 0-1 percent slopes
- Xerofluvents, frequently flooded
- Xerofluvents, hardpan substrate

The average annual temperature for the study area ranges from 49-70°F, with the hottest temperatures occurring in July and August. The average annual rainfall for the area is 0.07 inches, with the wettest months receiving up to 0.14 inches of rain (The Weather Underground, Inc. 2006).

Study Methods

Prior to conducting the onsite survey, we created a list of potentially occurring special-status plant species occurring within the study area by accessing all pertinent databases, and contacting appropriate state and federal agencies. Topographic maps and aerial photos of the site were reviewed and areas of potential impact noted. We then reviewed and edited the lists taking into account existing conditions present within the study area. The California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) and U.S. Fish and Wildlife Service (USFWS) species lists are presented in **Appendix A**. A 5-mile radius CNDDB search identified several documented special-status plant species occurrences in the surrounding area (**Figure 2**). The CNDDB provides natural history and location information on rare, threatened, endangered, and special-status species and natural communities within California. The CNDDB only documents known occurrences and is used as a preliminary tool, in addition to the USFWS species lists, to determine potential species occurrences within the study area. Surveys were conducted for all the plant species included on these lists because they each had varying degrees of potential to occur within the study area. For the purposes of this survey, special-status species are those that fall into one of the following categories:

- Designated as rare, threatened, or endangered by state or federal governments (ESA, 50 CFR 17.12 for listed plants and various notices in the Federal Register, California Endangered Species Act (CESA), 14 CCR 670.5);



CNDDB Occurrence provided
by CDFG (Feb. 7, 2006).
CNDDB occurrences inlcude plants only.
Map Date: July 27, 2006.

0 1 2 4 Miles

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Figure 2.

- Designated as Species of Concern and/or Special Concern by state or federal governments;
- Proposed for rare, threatened, or endangered designation by state and federal governments;
- Included on the CNPS List as 1A, 1B, and 2 (Skinner and Pavlik, 2001);
- Plants that meet the definitions of rare or endangered species under the California Environment Quality Act (CEQA) (State CEQA Guidelines, Section 15380).

On April 10, 11, and 27, May 23, and July 21, 24 and 28, 2006, a pedestrian survey of the site was undertaken. All accessible portions of the survey area were examined using transects and spot-checks of high quality habitat. Inaccessible property with the potential to support target species are identified in **Table 1.** Shirley Innecken and Elena Alfieri, botanists, conducted botanical surveys during the appropriate flowering window of the target species (See **Appendix B** for Botanist Qualifications). Surveys were floristic in nature and conducted in accordance with the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (January 2000) (**Appendix C**). Federal and state listed species identification was confirmed by monitoring a known reference population for each target species (**Table 2**). The entire project site was traversed using parallel transects spaced no more than 15 feet apart. Transects were stratified according to plant community types and all suitable habitat was closely inspected (See **Appendix D** for a list of all plant species observed during surveys). A Trimble GeoXT was on hand to record special-status plant species occurrences.

Table 1. Inaccessible Property with Potential for Target Species.

Property Identification	Property Owner	Target Species with Potential of Occurrence
APN 023-150-023-000, 9777 Baseline Road, Elverta, 95626	Willliard Lee and Kathleen M. Harless	*Hibiscus lasiocarpus, Sagittaria sanfordii, Downingia pusilla*

Table 2. Locations of Reference Populations for Species with Potential to Occur in the Study Area Based on USFWS and CNDDB Species Lists

Species	Location of Reference Population
Plants	
Astragalus tener var. ferrisiae	On the south side of Evans-Reimer Road, about 1 mile east of Pennington Road, Gray Lodge Waterfowl Management Area
Atriplex cordulata	Gray Lodge Wildlife Area, 2 miles southeast of the headquarters building. Just south of Rutherford Road, west of Levee Road
Atriplex depressa	Delevan National Wildlife Refuge. One mile east of Excelsior Road in Cell 12 of the Refuge
Atriplex joaquiniana	About 3 miles southeast of woodland, north of Willow Slough, north and south of Road 25 and west of road 103
Balsamorhiza marcolepis var. macrolepis	On the south side of Evans-Reimer Road, about 1 mile east of Pennington Road, Gray Lodge Waterfowl Management Area
Cordylanthus mollis ssp. hispidus	City of Woodland site, near junction of Road 103 and Road 25
Cordylanthus palmatus	City of Woodland site, near junction of Road 103 and Road 25
Downingia pusilla	About 8 miles southeast of Corning, North Fork Hall Creek
Gratiola heterosepala	Archgate Reservoir, just west of the Shasta-Lassen county border, south of Pittville, west of Pittville Road
Hibiscus lasiocarpus	Upper Butte Sink Wildlife Area - Howard Slough
Juncus leiospermus var. ahartii	Along Powerline Road corridor between Fruitland Road and South Honcut Creek, west of Loma Rica
Juncus leiospermus var. leiospermus	Palermo, southeast of Daly Road
Legenere limosa	Stillwater Plains Mitigation Bank, Palermo
Lepidium latipes var. heckardii	West of Sacramento Northern Railroad
Navarretia myersii ssp. myersii	2 miles east of Sacramento-Amador Countyline, Howard Ranch
Orcuttia viscida	Grant Line Road about 2.9 miles north of Hwy 16
Sagittaria sandfordii	Along and between Beacon Creek and Elder Creek, east of Power Inn Road, Elk Grove

Results

Plant species determined to have the potential to occur within the study area are discussed in **Table 3**.

Table 3. Species with Potential to Occur in the Study Area Based on USFWS and CNDDB Species Lists

Species		Listing Status[1]	Habitat Association	Blooming Period	Potential to Occur[2]
SCIENTIFIC NAME	COMMON NAME				
Astragalus tener var. ferrisiae	Allkali Milk Vetch	CNPS 1B	vernally mesic meadows and seeps, valley and foothill grassland	April-May	No potential of occurring. Was not found during protocol-level surveys.
Atriplex cordulata	Heartscale	CNPS 1B	chenopod scrub/meadows and seeps/valley and foothill grassland/saline or alkaline soils	April-October	No potential of occurring. Was not found during protocol-level surveys.
Atriplex depressa	Brittlescale	CNPS 1B	chenopod scrub/meadows and seeps/valley and foothill grassland/ saline or alkaline soils/vernal pools/ playas/alkaline soils	May-October	No potential of occurring. Was not found during protocol-level surveys.
Atriplex joaquiniana	San Joaquin Spearscale	CNPS 1B	chenopod scrub/meadows and seeps/valley and foothill grassland/saline or alkaline soils/ playas/alkaline clay soils	April-October	No potential of occurring. Was not found during protocol-level surveys.
Balsamorhiza marcolepis var. macrolepis	Big-scale Balsamroot	CNPS 1B	chaparral/cismontane woodland/valley and foothill grassland/sometimes serpentine	March-June	No potential of occurring. Was not found during protocol-level surveys.
Cordylanthus mollis ssp. hispidus	Hispid Bird's-beak	CNPS 1B	meadows and seeps/playas/valley and foothill grassland/alkaline soils	June-September	No potential of occurring. Was not found during protocol-level surveys.
Cordylanthus palmatus	Palmate-bracted Bird's-beak	FE, SE, CNPS 1B	chenopod scrub/valley and foothill grassland/alkaline soils	May-October	No potential of occurring. Was not found during protocol-level surveys.

Species		Listing Status[1]	Habitat Association	Blooming Period	Potential to Occur[2]
Downingia pusilla	Dwarf Downingia	CNPS 2	valley and foothill grassland/vernal pools	March-May	**Occurs within the study area.**
Gratiola heterosepala	Boggs Lake Hedge-hyssop	SE, CNPS 1B	marshes and swamps/vernal pools/clay	April-August	None, was not found during protocol-level surveys
Hibiscus lasiocarpus	Rose-mallow	CNPS 2	marshes and swamps	June-September	None, was not found during protocol-level surveys
Juncus leiospermus var. ahartii	Ahart's Dwarf Rush	CNPS 1B	valley and foothill grassland	March-May	No potential of occurring. Was not found during protocol-level surveys.
Juncus leiospermus var. leiospermus	Red Bluff Dwarf Rush	CNPS 1B	chaparral/cismontane woodland/valley and foothill grassland/meadows and seeps/vernal pools	March-May	No potential of occurring. Was not found during protocol-level surveys.
Legenere limosa	Legenere	CNPS 1B	vernal pools	April-June	No potential of occurring. Was not found during protocol-level surveys.
Lepidium latipes var. heckardii	Heckard's Pepper-grass	CNPS 1B	valley and foothill grassland (alkaline flats)	March-May	No potential of occurring. Was not found during protocol-level surveys.
Navarretia myersii ssp. myersii	Pincushion Navarretia	CNPS 1B	vernal pools	May	No potential of occurring. Was not found during protocol-level surveys.
Orcuttia viscida	Sacramento Orcutt Grass	FE, SE, CNPS 1B	vernal pools	April-June	No potential of occurring. Was not found during protocol-level surveys.
Sagittaria sandfordii	Sanford's Arrowhead	CNPS 1B	marshes and swamps (assorted shallow freshwater)	May-October	No potential of occurring. Was not found during protocol-level surveys.

[1] Listing Status		
Federal Listing Codes FE Federally endangered California State Listing Codes SE State endangered	California Native Plant Society's Listing Codes 1B Rare or endangered in California 2 Rare, threatened, or endangered in California, but more common elsewhere.	

[2] Potential to Occur determinations were made following habitat assessments and floristic surveys.

Habitat Characterization

The survey area includes six habitat characterizations based on the California Department of Fish and Game California Wildlife Habitat Relationship System (CWHR), and an additional category used to describe irrigation canals supporting fresh emergent wetland (**Attachment A).** The CWHR classification system was developed through a multi-agency effort to provide resource managers and scientists with a standardized habitat and wildlife management tool. The CWHR system is commonly used to discuss habitats in terms of wetland delineations, wildlife management plans and biological resource assessments. Habitat characterizations are divided by vegetative assemblage (i.e., tree dominated, shrub dominated, herbaceous dominated) then subdivided by location and unique vegetation. Habitats are first assessed from aerial photographs, then followed by ground truthing. The following habitats occur within the project boundaries:

Annual Grassland. There are approximately 617 acres of annual grassland within the survey boundary. According to Mayer and Laudenslayer (1988), annual grassland is an open vegetative community composed primarily of annual plant species. Wildlife species that utilize annual grassland include the western fence lizard (*Sceloporus occidentalis*), western meadowlark (*Sturnella neglecta*), northern harrier (*Circus cyaneus*), and American kestrel (*Falco sparverius*). Plant species inhabiting the annual grassland within the study area include silver European hairgrass (*Aira caryophyllea*), annual oatgrass (*Avena* sp.), star-thistle (*Centaurea solstitialis)*, bindweed (*Convovulus arvensis*), nit grass (*Gastridium ventricosum*), gumplant (*Grindelia* sp.), Fitch's tarweed (*Hemizonia fitchii*), annual rygrass (*Lolium multiflorum*), Medusae-head grass (*Taeniatherum caput-medusae*) and vinegar weed (*Trichostema lanceolatum*). Much of the grassland has been disked, plowed, and/or graded for various agricultural uses, or has been disturbed as a consequence of urbanization.

Vernal pools occur within annual grasslands, yet support a community distinct from the surrounding grassland community. They provide unique habitats for several endemic California plants and invertebrates, as well as amphibians. Plant species inhabiting vernal pools within the study area include annual hairgrass (*Deschampsia danthanoides*), dwarf downingia (*Downingia pusilla*), dove weed (*Eremocarpus setigerus*), coyote thistle (*Eryngium castrense*), bractless hedge hyssop (*Gratiola ebracteata*), toad rush (*Juncus bufonius*), tidy tips (*Layia* sp.),

white-flowered navarretia (*Navarretia leucocephala*), American pillwort (*Pilularia americana*), stalked popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), Sacramento Valley pogogyne (*Pogogyne zizyphoroides*) and common knotweed (*Polygonum arenastrum*).

Rice. A majority of the study area, approximately 667 acres, is rice fields. Some of the rice fields are currently fallow, or undergoing a seasonal dehydration period. Although a type of fresh emergent wetland, rice fields are subject to human-induced water regimes and function as an agricultural crop rather than a naturally occurring wetland. However, in the Sacramento Valley they do support many of the same species that naturally occurring fresh emergent wetlands do, including numerous waterfowl, egrets and northern harriers.

Dryland Grain Crops. Dryland grain crops include annual seed producing grasses, cereal rye (*Secale cereale*), oats (*Avena sativa*), and wheat (*Triticum aestivum*). They are usually planted in drilled rows in the fall and then harvested in the spring. They may also be rotated with other irrigated crops after the fall harvest of a previous crop, dry farmed, and then harvested in the late spring. Volunteer native or naturalized herbaceous species may colonize fallowed dryland grain fields. The dryland grain crop fields within the study area had been harvested at the time of the surveys. Many of the fields seemed fallow. In inhabited fields, specific crop species were indistinguishable. Many of the fields were inhabited by non-native annual grasses and forbs.

Irrigated Row and Field Crops. Most irrigated row and field crops are annuals, such as asparagus (*Asparagus officinalis*) and strawberries (*Fragaria ananassa*), and a few are perennials. The annuals are usually planted in the spring and harvested in the summer or fall. They may also be rotated with other irrigated crops after the fall harvest of a previous crop, dry farmed, and then harvested in the late spring. Small plots of strawberries were the only distinguishable irrigated row and field crop at the time of surveys.

Canal/Fresh Emergent Wetland. Irrigation canals associated with rice fields occur throughout the study area. Many of these canals support fresh emergent vegetation along their edges which include species such as cattails (*Typha* sp.), vervain (*Verbena* sp.), yellow nutsedge (*Cyperus esculentus*), tall cyperus (*Cyperus eragrostis*) and floating primrose willow (*Ludwigia peploides*).

Water/Riverine. The riverine classification include rivers, were water flows continually, as well as intermittently flowing creeks. Curry Creek, as well as a small unnamed intermittent channel, flows through portions of the study area. Riverine habitats tend to occur with contiguous wetlands and upland habitats.

Urban. Approximately 273 acres of the project site is characterized as urban, which includes commercial and residential development and associated infrastructure. As stated by Mayer and Laudenslayer, most units of the urban vegetation are relatively static in species composition due to maintenance. Species commonly associated with the urban environment include scrub jays (*Aphelocoma californica*), raccoons (*Procyon lotor*), European starlings (*Sturnus vulgaris*), mockingbirds (*Mimus polyglottos*), house finches (*Carpodacus mexicanus*), striped skunks (*Mephitis mephitis*), opossum (*Didelphis virginiana*), and rock doves (*Columba livia*).

Special-status Plant Species Known to Occur Within the Study Area

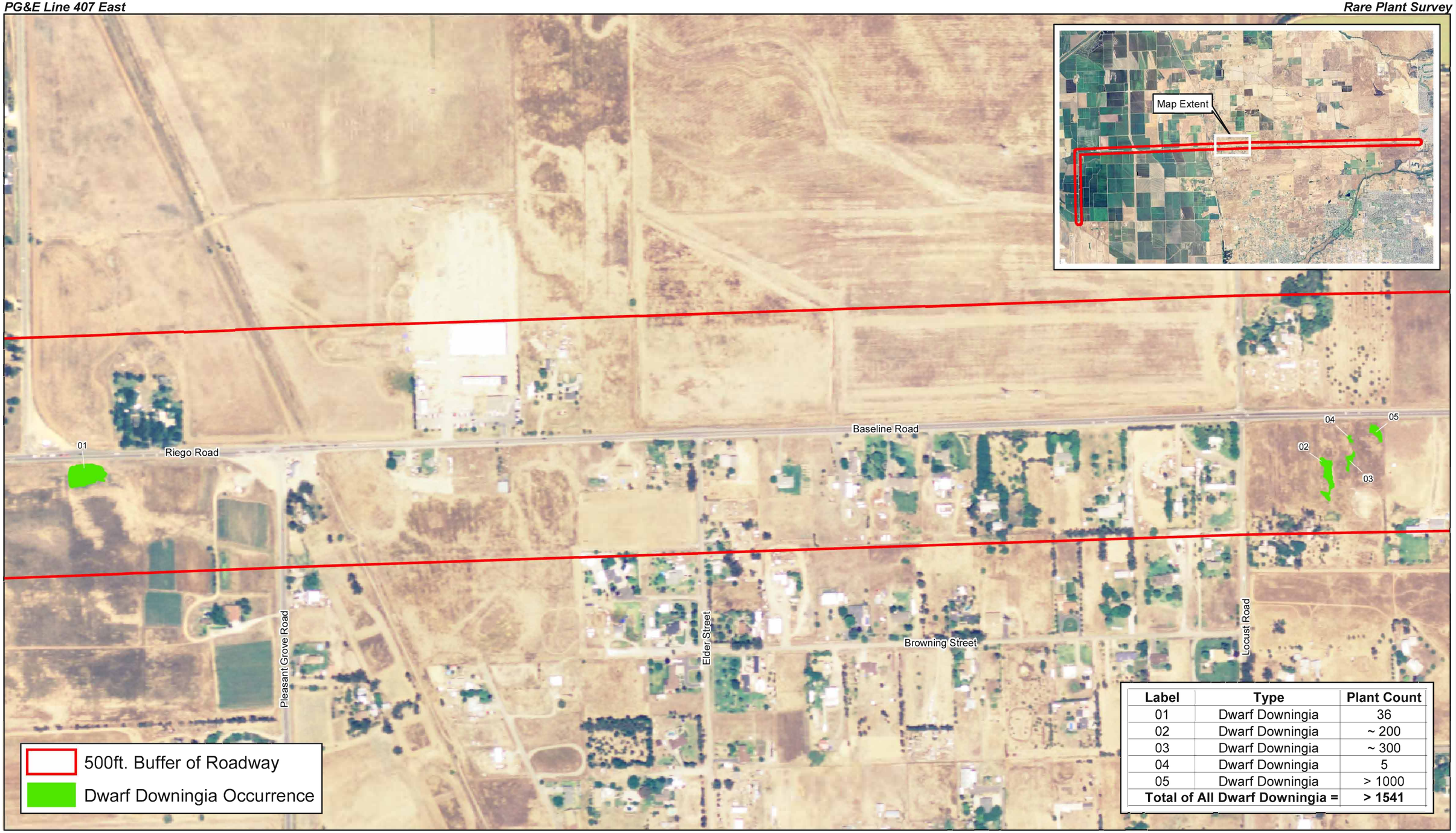
Dwarf Downingia. The dwarf downingia (*Downingia pusilla*) is a diminutive annual herb of the family Campanulaceae, the Bellflower family. This CNPS 2 plant species is found in mesic valley and foothill grassland within vernal pools. It generally prefers the muddy, open banks of small to large pools where competition with other vernal pool species is minimal. Dwarf downingia is found from Merced and Mariposa counties in the south to Tehama County in the north (CNPS 2003). Five occurrences of dwarf downingia were located and mapped within the study area (**Figure 3**). A total of approximately 1,541 individual plants were counted.

Potential Effects

Direct and indirect effects to CNPS List 2 species:

The project has the potential to directly and indirectly effect dwarf downingia. Direct effects include any permanent impacts to the watershed which provides hydrology to the vernal pools in which the dwarf downingia inhabits. Direct impacts may be caused by the staging, construction, road-rerouting, and/or placement of the pipeline. Direct impacts to dwarf downingia would also occur in the case of disturbance to the topography of the habitat as well. Any soil displacement, including the fill of wetlands or contamination, may have permanent impacts to the dwarf downingia populations. Indirect impacts may include watershed pollution due to construction-related run-off and/or impacts to the plants themselves should the habitat be traversed. Indirect impacts are likely to be temporary.

There are 121 reported occurrences of dwarf downingia populations documented in the CNDDB, 15 of which occur within the Roseville, Rio Linda or Pleasant Grove 7.5-minute quadrangle. California Native Plant Society List 2 species' are considered rare, threatened, or endangered in California, but more common elsewhere. The loss of all five of the populations located within the study area would be significant, but not detrimental because 15 other occurrences have been documented in close proximity. Hence, there is potential for the species to successfully propagate and establish new populations in the study area. However, if a negative population and habitat trend



Label	Type	Plant Count
01	Dwarf Downingia	36
02	Dwarf Downingia	~ 200
03	Dwarf Downingia	~ 300
04	Dwarf Downingia	5
05	Dwarf Downingia	> 1000
Total of All Dwarf Downingia =		**> 1541**

Project site derived from 500 ft. buffer of road centerline.
Survey Dates: May 5, 2006/Surveyors: CK,SI,EA.
Date of Aerial: Feb. 2005 (NAIP).
Map Date: July 27, 2006/Revisions:

0 200 400 Feet

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Figure 3.

continues near the study area, the species may become eligible for a more stringent special-status including a state or federal listing. The loss of habitat for dwarf downingia would be even more significant considering that destruction of vernal pool habitat due to urbanization is what has made this species, and other California vernal pools species, vulnerable to extinction. Furthermore, the quality of the vernal pools, a designated federal critical habitat, inhabited by the dwarf downingia is stable and may provide habitat for federal and state listed invertebrates as well. Therefore, loss of this habitat would result in the loss of a healthy vernal pool community, a resource that is rapidly disappearing in California.

Impact Avoidance and Minimization Recommendations

The following avoidance and minimization recommendations are taken from the CNPS Policy on Mitigation Guidelines Regarding Impacts to Rare, Threatened, and Endangered Plants (February 1991, revised April 1998) and have been adjusted to suit the target species in respect to the project. California Native Plant Society List 2 plants meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act) or Section 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA. List 2 plants may require mitigation; these mitigation options are listed below (CEQA, Section 15370):

1) Avoiding the impacts altogether by not taking a certain action.
2) Minimizing impacts by limiting the degree or magnitude of the action.
3) Rectifying the impacts by repairing, rehabilitating, or restoring the impacted environment.
4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project.
5) Compensating for the impacts by replacing or providing substitute resources or environments.

The location of all dwarf downingia occurrences will not be submitted to the CDFG for inclusion into the CNDDB without client consent. Because seed dispersal relies on rainwater, new populations can spread throughout wetland complexes. In areas where these resources may be impacted by the project, additional surveys should be conducted to locate any new populations. The requirement for compensatory mitigation is at the discretion of the CEQA lead agency. Mitigation may consist of transplanting individuals, on-site mitigation, and purchasing off-site mitigation.

Conclusions and Determinations

If the recommended avoidances and minimizations (mitigations) are implemented, overall project impacts to dwarf downingia and its habitat should be temporary, and should not result in a net loss of dwarf downingia populations.

The following determination has been made regarding impacts to dwarf downingia populations within the study area: **No affect with appropriate avoidance, minimization, and mitigation implementation.**

References

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Personal Observation

Shirley Innecken, Gallaway Consulting, Inc. 2006.
Elena Alfieri, Gallaway Consulting, Inc. 2006

Appendix A: California Natural Diversity Database, California Native Plant Society and US Fish and Wildlife Service Species Lists

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:05 b

{QUADS_123} =~ m/513A|529C|529D|512B|512C|528C|513B|513(Search

Tip: Words meant to be searched as a unit should be wrapped in quotes, e.g., "coastal dunes". [all tips and help.][search history]

Your Quad Selection: Taylor Monument (513A) 3812165, Knights Landing (529C) 3812176, Verona (529D) 3812175, Rio Linda (512B) 3812164, Sacramento East (512C) 3812154, Pleasant Grove (528C) 3812174, Grays Bend (513B) 3812166, Davis (513C) 3812156, Sacramento West (513D) 3812155

Hits 1 to 12 of 12

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex cordulata	heartscale	Chenopodiaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	Carex lenticularis var. limnophila	lakeshore sedge	Cyperaceae	List 2.2
		1	Cordylanthus palmatus	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	Downingia pusilla	dwarf downingia	Campanulaceae	List 2.2
		1	Gratiola heterosepala	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	Hibiscus lasiocarpus	rose-mallow	Malvaceae	List 2.2
		1	Legenere limosa	legenere	Campanulaceae	List 1B.1
		1	Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	List 1B.2
		1	Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

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{QUADS_123} =~ m/528D|512A|512B|527B|527C|511B|528A|528E Search

Tip: Words meant to be searched as a unit should be wrapped in quotes, e.g., "coastal dunes". [all tips and help.][search history]

Your Quad Selection: Roseville (528D) 3812173, Citrus Heights (512A) 3812163, Rio Linda (512B) 3812164, Gold Hill (527B) 3812182, Rocklin (527C) 3812172, Folsom (511B) 3812162, Lincoln (528A) 3812183, Sheridan (528B) 3812184, Pleasant Grove (528C) 3812174

Hits 1 to 11 of 11

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Clarkia biloba ssp. brandegeeae**	Brandegee's clarkia	Onagraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Navarretia myersii ssp. myersii**	pincushion navarretia	Polemoniaceae	List 1B.1
		1	**Orcuttia viscida**	Sacramento Orcutt grass	Poaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:01 b

{QUADS_123} =~ m/512B|528C|528D|513A|513D|529D|512A|512(Search

Tip: Having trouble with a multi-word search? Try a single word, e.g. ginger or cobra.
[all tips and help.][search history]

Your Quad Selection: Rio Linda (512B) 3812164, Pleasant Grove (528C) 3812174, Roseville (528D) 3812173, Taylor Monument (513A) 3812165, Sacramento West (513D) 3812155, Verona (529D) 3812175, Citrus Heights (512A) 3812163, Sacramento East (512C) 3812154, Carmichael (512D) 3812153

Hits 1 to 9 of 9

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Hibiscus lasiocarpus**	rose-mallow	Malvaceae	List 2.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

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Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:06 b

{QUADS_123} =~ m/528C|512A|512B|529D|529A|513A|528D|528A Search

Tip: Word fragments must be completed with a wildcard, e.g., `esch* hyp*` for Eschscholzia hypecoides.[all tips and help.][search history]

Your Quad Selection: Pleasant Grove (528C) 3812174, Citrus Heights (512A) 3812163, Rio Linda (512B) 3812164, Verona (529D) 3812175, Nicolaus (529A) 3812185, Taylor Monument (513A) 3812165, Roseville (528D) 3812173, Lincoln (528A) 3812183, Sheridan (528B) 3812184

Hits 1 to 9 of 9

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Navarretia myersii ssp. myersii**	pincushion navarretia	Polemoniaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

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Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:03 b

{QUADS_123} =~ m/512A|528C|528D|511B|511C|527C|512B|512(Search

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[all tips and help.] [search history]

Your Quad Selection: Citrus Heights (512A) 3812163, Pleasant Grove (528C) 3812174, Roseville (528D) 3812173, Folsom (511B) 3812162, Buffalo Creek (511C) 3812152, Rocklin (527C) 3812172, Rio Linda (512B) 3812164, Sacramento East (512C) 3812154, Carmichael (512D) 3812153

Hits 1 to 12 of 12

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Clarkia biloba ssp. brandegeeae**	Brandegee's clarkia	Onagraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Navarretia myersii ssp. myersii**	pincushion navarretia	Polemoniaceae	List 1B.1
		1	**Orcuttia tenuis**	slender Orcutt grass	Poaceae	List 1B.1
		1	**Orcuttia viscida**	Sacramento Orcutt grass	Poaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:00 b

{QUADS_123} =~ m/529D|513A|513B|528B|528C|512B|529A|529E Search

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[all tips and help.] [search history]

Your Quad Selection: Verona (529D) 3812175, Taylor Monument (513A) 3812165, Grays Bend (513B) 3812166, Sheridan (528B) 3812184, Pleasant Grove (528C) 3812174, Rio Linda (512B) 3812164, Nicolaus (529A) 3812185, Sutter Causeway (529B) 3812186, Knights Landing (529C) 3812176

Hits 1 to 10 of 10

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Atriplex depressa**	brittlescale	Chenopodiaceae	List 1B.2
		1	**Atriplex joaquiniana**	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	**Carex lenticularis var. limnophila**	lakeshore sedge	Cyperaceae	List 2.2
		1	**Cordylanthus palmatus**	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Hibiscus lasiocarpus**	rose-mallow	Malvaceae	List 2.2
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Lepidium latipes var. heckardii**	Heckard's pepper-grass	Brassicaceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

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Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
TAYLOR MONUMENT (513A)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: April 11, 2006

Document Number: 060428034013

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (X)

Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander, central pppulation (T)

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Key:

- (E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
- (T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
- (P) *Proposed* - Officially proposed (in the Federal Register) for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
- *Critical Habitat* - Area essential to the conservation of a species.
- (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- (C) *Candidate* - Candidate to become a proposed species.
- (X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compen-sates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by

section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 27, 2006.

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Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
ROSEVILLE (528D)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: April 11, 2006

Document Number: 060428034150

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Key:

- (E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
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- *Critical Habitat* - Area essential to the conservation of a species.

- (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- (C) *Candidate* - Candidate to become a proposed species.
- (X) *Critical Habitat* designated for this species

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Plants

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Surveying

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Critical Habitat

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Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we

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Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the RIO LINDA (512B) U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: August 10, 2006

Document Number: 060821025821

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation became final on May 15, 2006. See our map index.

Listed Species

Invertebrates

Branchinecta lynchi

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

Lepidurus packardi

vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)

Key:

- (E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
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If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be November 19, 2006.

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Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
PLEASANT GROVE (528C)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: April 11, 2006

Document Number: 060428034129

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Key:

- (E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
- (T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
- (P) *Proposed* - Officially proposed (in the Federal Register) for listing as endangered or threatened.

- (NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
- *Critical Habitat* - Area essential to the conservation of a species.
- (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- (C) *Candidate* - Candidate to become a proposed species.
- (X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of

two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compen-sates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

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Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 27, 2006.

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Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the CITRUS HEIGHTS (512A) U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: August 10, 2006

Document Number: 060821025711

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation became final on May 15, 2006. See our map index.

Listed Species

Invertebrates

Branchinecta lynchi

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

Lepidurus packardi

vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)

Key:

- (E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
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- *Critical Habitat* - Area essential to the conservation of a species.
- (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- (C) *Candidate* - Candidate to become a proposed species.
- (X) *Critical Habitat* designated for this species

Important Information About Your Species List

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- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

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Candidate Species

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Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

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Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
VERONA (529D)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: April 11, 2006

Document Number: 060428034046

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (X)

Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander, central pppulation (T)

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Key:

- (E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
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Candidate Species

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Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by

section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 27, 2006.

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
2	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
3	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S3	
4	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S2	SC
5	giant garter snake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2G3	S2S3	
6	great egret *Ardea alba*	ABNGA04040			G5	S4	
7	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
8	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S2	SC
9	valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened		G3T2	S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	A vernal pool andrenid bee *Andrena subapasta*	IIHYM35050			G1G3	S1S3	
2	Alkali Meadow	CTT45310CA			G3	S2.1	
3	Alkali Seep	CTT45320CA			G3	S2.1	
4	Boggs Lake hedge-hyssop *Gratiola heterosepala*	PDSCR0R060		Endangered	G3	S3.1	1B.2
5	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
6	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
7	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA			G1	S1.1	
8	Red Bluff dwarf rush *Juncus leiospermus var. leiospermus*	PMJUN011L2			G2T2	S2.2	1B.1
9	Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010			G1G2	S1S2	
10	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
11	big-scale balsamroot *Balsamorhiza macrolepis var. macrolepis*	PDAST11061			G3G4T2	S2.2	1B.2
12	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S2	SC
13	dwarf downingia *Downingia pusilla*	PDCAM060C0			G3	S3.1	2.2
14	grasshopper sparrow *Ammodramus savannarum*	ABPBXA0020			G5	S2	
15	hispid bird's-beak *Cordylanthus mollis ssp. hispidus*	PDSCR0J0D1			G2T2	S2.1	1B.1
16	legenere *Legenere limosa*	PDCAM0C010			G2	S2.2	1B.1
17	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S2	SC
18	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S2S3	
19	vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered		G3	S2S3	
20	western spadefoot *Spea hammondii*	AAABF02020			G3	S3	SC
21	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Boggs Lake hedge-hyssop *Gratiola heterosepala*	PDSCR0R060		Endangered	G3	S3.1	1B.2
2	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
3	Northern Claypan Vernal Pool	CTT44120CA			G1	S1.1	
4	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
5	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
6	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S2	SC
7	dwarf downingia *Downingia pusilla*	PDCAM060C0			G3	S3.1	2.2
8	giant garter snake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2G3	S2S3	
9	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
10	great egret *Ardea alba*	ABNGA04040			G5	S4	
11	legenere *Legenere limosa*	PDCAM0C010			G2	S2.2	1B.1
12	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
13	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S2	SC
14	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S2S3	
15	vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered		G3	S2S3	
16	western pond turtle *Actinemys marmorata*	ARAAD02030			G3G4	S3	SC
17	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	A vernal pool andrenid bee *Andrena subapasta*	IIHYM35050			G1G3	S1S3	
2	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
3	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA			G1	S1.1	
4	Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0			G3	S3.2	1B.2
5	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
6	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
7	valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened		G3T2	S2	
8	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
2	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
3	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S2	SC
4	dwarf downingia *Downingia pusilla*	PDCAM060C0			G3	S3.1	2.2
5	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S2S3	
6	vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered		G3	S2S3	
7	western spadefoot *Spea hammondii*	AAABF02020			G3	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
2	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
3	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
4	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S3	
5	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S2	SC
6	giant garter snake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2G3	S2S3	
7	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S2	SC
8	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S2S3	
9	vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered		G3	S2S3	

Appendix B: Botanist Qualifications

Shirley Innecken, Botanist. Shirley Innecken has over 6 years of experience conducting wetland delineations ranging from 5 to 2,400 acres, performs valley elderberry longhorn beetle surveys (VELB), rare plant surveys, and habitat classification and mapping for the California Department of Water Resources in Northern California. Ms. Innecken has also participated in the Camp Tehama science education segment of the camp annual elementary school retreat. For four consecutive years she co-taught a unit introducing students to the field of plant ecology. Her areas of expertise include wetland delineation, general botanical surveys, rare plant surveys, habitat characterization, and VELB surveys. Her work experience includes providing botanical support for the Oroville Dam Hydroelectric Relicensing Project (Federal Energy Regulatory Commission) and the Sites Reservoir Feasibility Project. In addition, Ms. Innecken was the project coordinator and botanist for the *Big Chico Creek Stream Condition Inventory* and co-wrote the final document for the Big Chico Creek Watershed Alliance. Ms. Innecken was also employed by the CSUC Research Foundation as the Environmental Projects Coordinator for the Bidwell Environmental Institute. Her more recent work experience includes conducting protocol-level rare plant surveys and a wetland inventory for a 2,400 acre Butte County meadowfoam (BCM) preserve in the northern Sierra Nevada foothills, and conducting a wetland inventory for the 1,700 acre Wildlands-Daley Ranch Mitigation Bank project in Palermo, CA. Ms. Innecken was instrumental in preparing the innovative Greenway Management Plan for the New Urban Builders Meriam Park project, Chico, CA.

EDUCATION

BACHELOR OF SCIENCE in ETHNOBOTANICAL ECOLOGY – *Interdisciplinary Degree*
Department of Biological Sciences and Anthropology, California State University, Chico
Awarded in May 1999

EXPERIENCE

BOTANIST
Gallaway Consulting, Inc.
115 Meyers Street, Suite 120, Chico, CA 95928
Starting and ending dates: May 2004 – present

Conduct and manage rare plant surveys using standardized US Fish (USFWS) and Wildlife, Department of Fish and Game (CDFG) and California Native Plant Society protocols. Supervise, manage, and conduct wetland delineations using the U.S. Army Corp of Engineers (COE) 1987 protocol. Conduct Valley Elderberry Longhorn Beetle Surveys consistent with the USFWS 1999 Guidelines. Gather and organize baseline data for various environmental projects. Prepare Biological Resource Assessments, Preliminary Wetland Evaluations and Wetland Delineations. Assist in the preparation of CEQA/NEPA documents. Participate in interviewing and selecting field personnel. Facilitate client compliance with COE Section 404, Regional Water Quality Control Board Section 401 and DFG 1600 Streambed Alteration Agreement requirements. Utilize various habitat characterization guides to create habitat maps, restoration plans, Preserve Plans, and Vegetation Management Plans. Develop proposals in response to project solicitations. Organize and manage multiple projects and administrative responsibilities.

ENVIRONMENTAL PROJECTS COORDINATOR
The University Research Foundation – Bidwell Environmental Institute
California State University, Chico, Chico, CA 95928
Starting and ending dates: May 2004 – October 2004

Managed the budgets and performed the administrative responsibilities for multiple environmental projects. Coordinated all projects for the local DFG Aquatic Bioassessment Lab (ABL). Developed and maintained working relationships with various non-profits, private consultants and state, and federal government agencies. Developed Scopes of Work and contracts below $5,000 for the ABL. Worked cooperatively with Research Foundation Proposal Development Specialists and Fiscal Analysts.

WILDLIFE SURVEYOR
Gallaway Consulting, Inc.
7 Sierra Nevada Court, Chico, CA 95928
Starting and ending dates: 2001 Field Season

Participated in northern goshawk surveys in the Plumas National Forest using GIS and orienteering skills. Surveyed portions of the extensive Poison/Last Chance survey area.

EXPEDITION PARTICIPANT
Geo Explorers
Western Sumatra, Indonesia

Participated in an expedition to the Gunung Nalu region of western Sumatra, Indonesia. Assisted in collecting data supportive of efforts in establishing a forest reserve area in collaboration with the Indonesian government. Contributed to filming a documentary about western Sumatran rainforest resources and the need for conservation.

BOTANIST/PROJECT COORDINATOR
Streamminders
PO Box 68, Forest Ranch, CA 95942
Starting and ending dates: Fall 2000

Organized and conducted a Streams Conditions Inventory for a stretch of Big Chico Creek in lower Bidwell Park. Data was used to create a restoration plan for the site. Assisted in the production of the final document.

SCIENTIFIC AID
Department of Water Resources – Northern District
2440 Main Street, Red Bluff, CA 96080
Starting and ending dates: May 1999 – May 2004

Conducted rare plant surveys using standardized US Fish (USFWS) and Wildlife, Department of Fish and Game (CDFG) and California Native Plant Society protocols. Conducted wetland delineations using the U.S. Army Corp of Engineers (COE) 1987 protocol. Conducted Valley Elderberry Longhorn Beetle Surveys consistent with the USFWS 1999 Guidelines. Gathered and organized baseline data for various environmental projects. Maintained restoration sites. Conducted botanical and habitat assessment surveys for the Federal Energy Regulatory Committee (FERC) Feather River Project.

SCIENTIFIC AID
Department of Water Resources – Northern District
2440 Main Street, Red Bluff, CA 96080
Starting and ending dates: Fall 1998 – May 1999

Assisted in monitoring efforts for emigrating juvenile Chinook salmon and other native fishes on the Sacramento River from Los Molinos to Cottonwood, CA. Efforts included carcass surveys and juvenile collection and tagging.

RESTORATION ASSISTANT (Seasonal Position)
Kok'ee State Park, Kauai, HI
Starting and ending dates: Summer 1997

Participated in the eradication of invasive species in Kauai's mesic forests. Incorporated various eradication methods including manual and chemical elimination techniques and replanting of native species.

KNOWLEDGE AND ABILITIES

Knowledge of:

- Sacramento Valley flora including portions of the Sierra Nevada, Coast, and Cascade Ranges
- Wetland regulation and mitigation
- Incorporation of COE Section 404, Regional Water Quality Control Board Section 401 and DFG 1600 Streambed Alteration Agreement requirements in project planning
- Listed wildlife and plant species within and surrounding the Sacramento Valley
- Sacramento Valley area habitats
- Biological assessment and environmental impacts analysis

Ability to:

- Organize and manage multiple projects simultaneously
- Develop and maintain productive working relationships with a diverse community including private land-owners, agency and non-profit personnel
- Proficiently and effectively train and supervise field personnel
- Utilize contemporary Geographic Information System (GIS) technology

Elena Alfieri, Botanist. Elena Alfieri has over 1 year of experience conducting botanical/rare plant surveys, wetland delineations, and valley elderberry longhorn beetle surveys (VELB) in project sites ranging from 1 to 2,000 acres, and habitat classification and mapping for the U.S. Department of Agriculture Forest Service. Ms. Alfieri has also acquired extensive knowledge of greenhouse management and exotic and native plant maintenance and identification through her many years working for the U.C. Davis Botanical Conservatory. Course work for Ms. Alfieri during her attendance at U.C. Davis included multiple plant taxonomy, plant biology and paleobotany classes. Her areas of expertise include general botanical surveys and plant identification, rare plant surveys, and wetland delineations.

EDUCATION

BACHELOR OF SCIENCE in EVIRONMENTAL BIOLOGY AND MANAGEMENT –
Interdisciplinary Degree
Department of Biological Sciences, University of California, Davis
Awarded in December 2004

EXPERIENCE

BOTANIST
Gallaway Consulting, Inc.
115 Meyers Street, Suite 120, Chico, CA 95928
Starting and ending dates: May 2006 – present

Conduct rare plant surveys using standardized US Fish (USFWS) and Wildlife, Department of Fish and Game (CDFG) and California Native Plant Society protocols. Conduct wetland delineations using the U.S. Army Corp of Engineers (COE) 1987 protocol. Conduct Valley Elderberry Longhorn Beetle Surveys consistent with the USFWS 1999 Guidelines. Gather and organize baseline data for various environmental projects. Prepare Biological Resource Assessments, Preliminary Wetland Evaluations and Wetland Delineations. Utilize various habitat characterization guides to create habitat maps.

BIOLOGICAL SCIENCE TECHNICIAN (PLANTS) – (seasonal position)
U.S.D.A. Forest Service, Truckee Ranger District
9646 Donner Pass Road, Truckee, CA 96161
Starting and ending dates: June-September 2004, May-October 2005

Participated in botanical field surveys in the Truckee and Sierraville Ranger districts located within the Tahoe National Forest and identified sensitive plant species and noxious weeds. Used the Jepson Manual and other plant keys to identify plants, and GPS units, compasses, and topographical maps to record point data. Assessed the health of aspen stands using Forest Service protocol. Participated in noxious weed eradication.

FIELD BOTANIST – (seasonal position)
Jones and Stokes
2600 V Street, Sacramento, CA 95818
Starting and ending dates: March 2005 – May 2005

Conducted vegetation surveys at various project sites with an emphasis on rare and special-status plant species. Keyed out wetland/vernal pool-specific plant species using the Jepson Manual.

NURSERY TECHNICIAN
Department of Biological Sciences, Botanical Conservatory
University of California at Davis, Davis, CA 95616
Starting and ending dates: December 2004 – March 2005

Monitored and maintained specimen plants in the Botanical Conservatory and university research greenhouses.

ASSISTANT III
Department of Biological Sciences, Botanical Conservatory
University of California at Davis, Davis, CA 95616
Starting and ending dates: June 2002 – December 2004

Planted, propagated, pruned, and groomed collection specimens and research plants. Trained and supervised student staff, interns, and volunteers. Set up displays for special events and led conservatory tours.

KNOWLEDGE AND ABILITIES

Knowledge of:

- Sacramento Valley flora including the Sierra Nevada foothills, and eastern Sierra Nevada mountain range
- Wetland, including fen, delineation requirements
- Listed plant species within and surrounding the Sacramento Valley
- Sacramento Valley and Sierra Nevada area habitats
- Biological resource assessment protocol

Ability to:

- Organize and produce multiple projects/reports simultaneously
- Utilize contemporary Geographic Information System (GIS) technology
- Read topographical and aerial maps
- Perform field surveys

Appendix C: U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories or Federally Listed, Proposed and Candidate Plants

Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants

January, 2000

These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed. or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire study area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.

2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations(s) is not available, investigators should study specimens from local herbaria.

3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.

4. Report results of botanical field inventories that include:

a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species

b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name

c. survey dates and survey methodology(ies)

d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made

e. a comprehensive list of all vascular plants occurring on the project site for each habitat type

f. current and historic land uses of the habitat(s) and degree of site alteration

g. presence of target species off-site on adjacent parcels, if known

h. an assessment of the biological significance or ecological quality of the project site in a local and regional context

5. If target species is(are) found, report results that additionally include: a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors. c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit

area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports. d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.

6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base maintained by the Natural Heritage Division of the California Department of Fish & Game. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.

7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than 3 years from the current date of project proposal submission will likely need additional survey.

8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.

Appendix D: List of All Plant Species Observed on May 5, and 12, and July 21, 24 and 26, 2006 (Boldface type indicates a special-status species).

Scientific Name	**Common Name**
Aira caryophyllea	Silver European Hairgrass
Alisma lanceolatum	Water Plantain
Avena sp.	Annual Oatgrass
Centaurea solstitialis	Star-thistle
Convovulus arvensis	Bindweed
Cynodon dactylon	Bermuda Grass
Cyperus eragrostis	Tall Cyperus
Cyperus esculentus	Yellow Nutsedge
Deschampsia danthanoides	Annual Hairgrass
Deschampsia sp.	Hairgrass
Digitaria sanguinalis	Crab Grass
Downingia pusilla	**Dwarf Downingia**
Eleocharis macrostachya	Pale Spike-rush
Eremocarpus setigerus	Dove Weed
Eryngium castrense	Coyote Thistle
Eucalyptus sideroxylon	Pink Ironbark
Gastridium ventricosum	Nit Grass
Gratiola ebracteata	Bractless Hedge Hyssop
Grindelia sp.	Gumplant
Hemizonia fitchii	Fitch's Tarweed
Heteranthera limosa	Mud Plantain
Juncus bufonius	Toad Rush
Lactuca serriola	Prickly Lettuce
Lasthenia fremontii	Fremont's Goldfields
Layia sp.	Tidy Tips
Lolium multiflorum	Annual Ryegrass
Ludwigia peploides	Floating Primrose-willow
Lythrum hyssopifolium	Hyssop Loosestrife
Lythrum sp.	Loosestrife
Madia sp.	Tarweed
Navarretia leucocephala	White-flowered navarretia
Paspalum distichum	Knotgrass
Phalaris sp.	Canary Grass
Pilularia americana	American Pillwort
Plagiobothrys stipitatus var. micranthus	Stalked Popcorn Flower
Pogogyne zizyphoroides	Sacramento Valley Pogogyne
Polygonum arenastrum	Common Knotweed
Polypogon sp.	Beardgrass
Populus fremontii	Fremont's Cottonwood
Psilocarphus brevissimus	Wooly Marbles
Ranunculus bonariensis	Carter's Buttercup
Rumex crispus	Curly Dock
Sagittaria latifolia	Tule Potato
Salix sp.	Willow
Scirpus acutus	Hard-stemmed Bulrush

Scientific Name	**Common Name**
Silybum marianum	Milk Thistle
Taeniatherum caput-medusae	Medusae-head Grass
Trichostema lanceolatum	Vingegar Weed
Trifolium variegatum	White-tipped Clover
Typha sp.	Cattail
Verbena sp.	Vervain
Vulpia sp.	Vulpia
Xanthium strumarium	Cocklebur

* Species shown in bold are special-status plants

Attachment A: Habitat Characterization

PG&E Line 407 **Habitat Types**

Habitat Types	Area (ft.^{2})	Acres
Annual Grassland Total =	27254574.750	625.679
Dry Land Grain Crops Total =	11291416.641	259.215
Disturbed Area - Urban Area Total =	11898876.995	273.161
Forested Upland Total =	579161.871	13.296
Irrigated Row and Field Crops Total =	50831672.521	1166.935
Rice Total =	29683985.645	681.451
Orchard Total =	6306506.553	144.777
Valley Foothill Riparian Total =	799542.009	18.355
Water Total =	2609879.765	59.915
Total Habitat =	141255616.749	3242.783

Survey area derived from 500 ft. buffer of roadway
Surveyor West: EA, BT Survey Dates 5/3/07, 5/8/07, 5/14/07, 6/21/07)
Surveyor East: JG,SI,EA Survey Dates July 21, 24 - 28, Aug 10 & 25 2006
Aerial Feb 2005 (NAIP) Map Date August 6, 2007

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Attachment A.1

Habitat Types	Area (ft.^{2})	Acres
Annual Grassland Total =	27254574 750	625 679
Dry Land Grain Crops Total =	11291416 641	259 215
Disturbed Area - Urban Area Total =	11898876 995	273 161
Forested Upland Total =	579161 871	13 296
Irrigated Row and Field Crops Total =	50831672 521	1166 935
Rice Total =	29683985 645	681 451
Orchard Total =	6306506 553	144 777
Valley Foothill Riparian Total =	799542 009	18 355
Water Total =	2609879 765	59 915
Total Habitat =	141255616 749	3242 783

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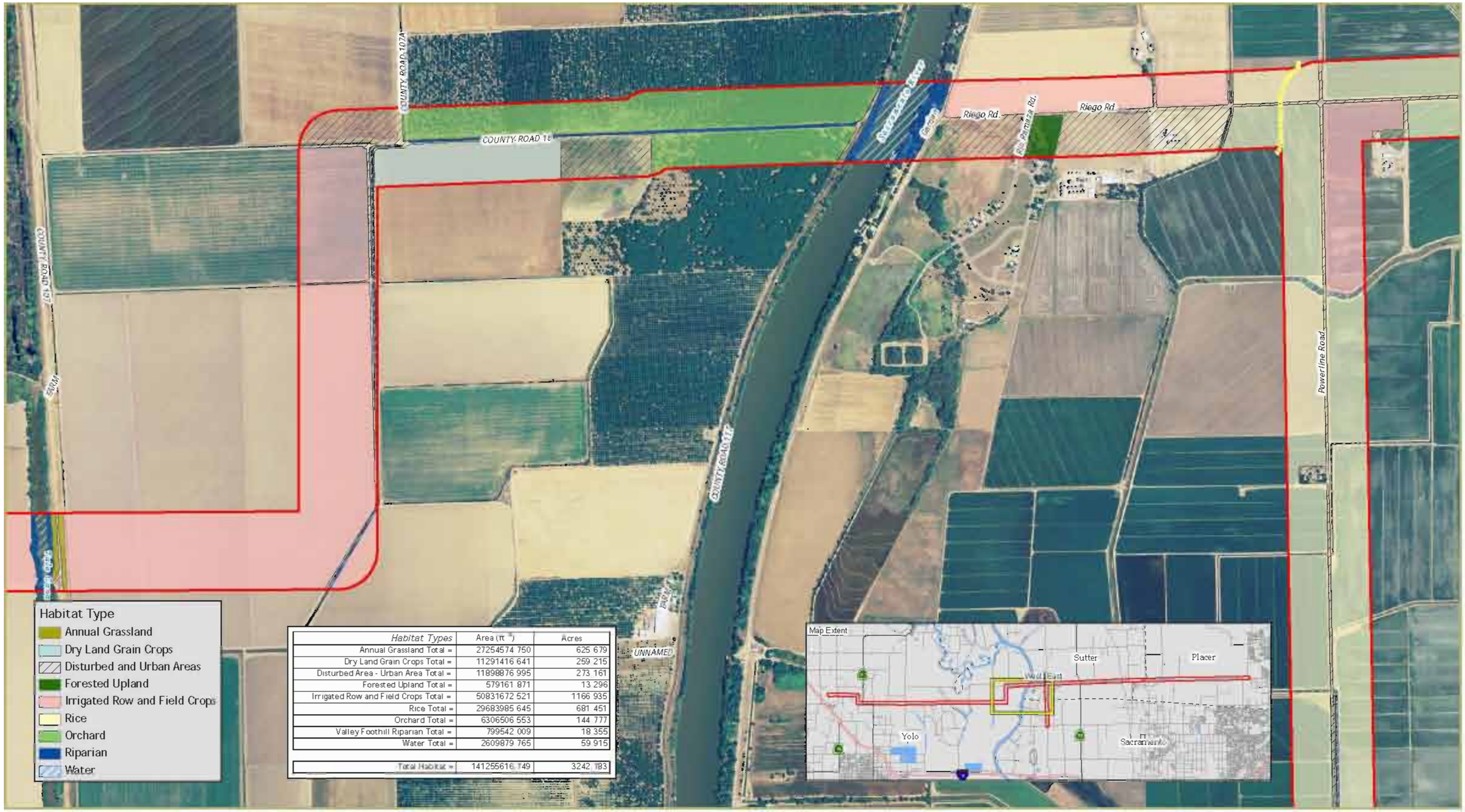
GALLAWAY CONSULTING, INC.



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Aerial Feb 2005 (NAIP) Map Date August 6, 2007

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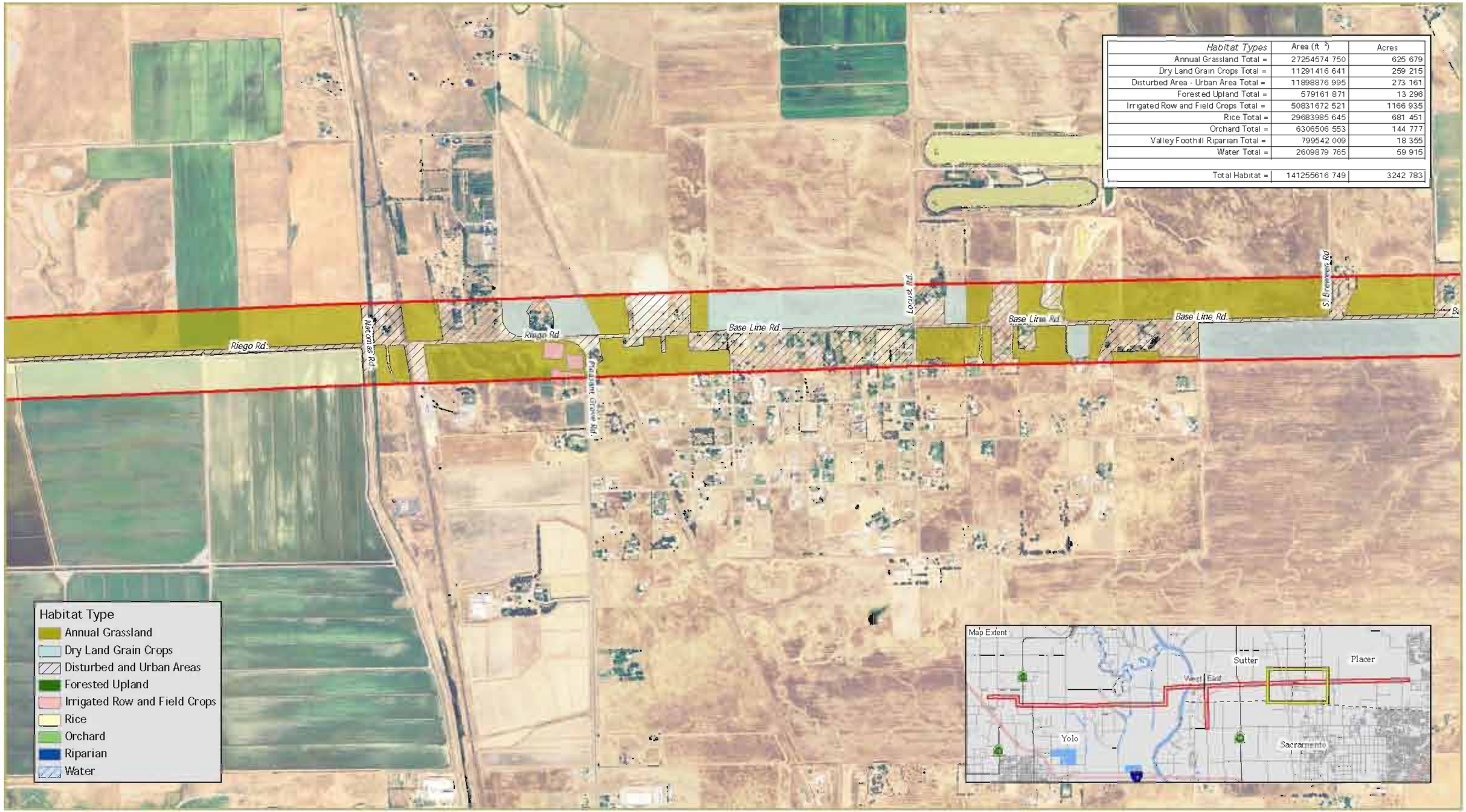
Habitat Types



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Aerial Feb 2005 (NAIP) Map Date August 6, 2007

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Attachment A.7

PG&E Line 407 **Habitat Types**

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GALLAWAY CONSULTING, INC.

Attachment A.8

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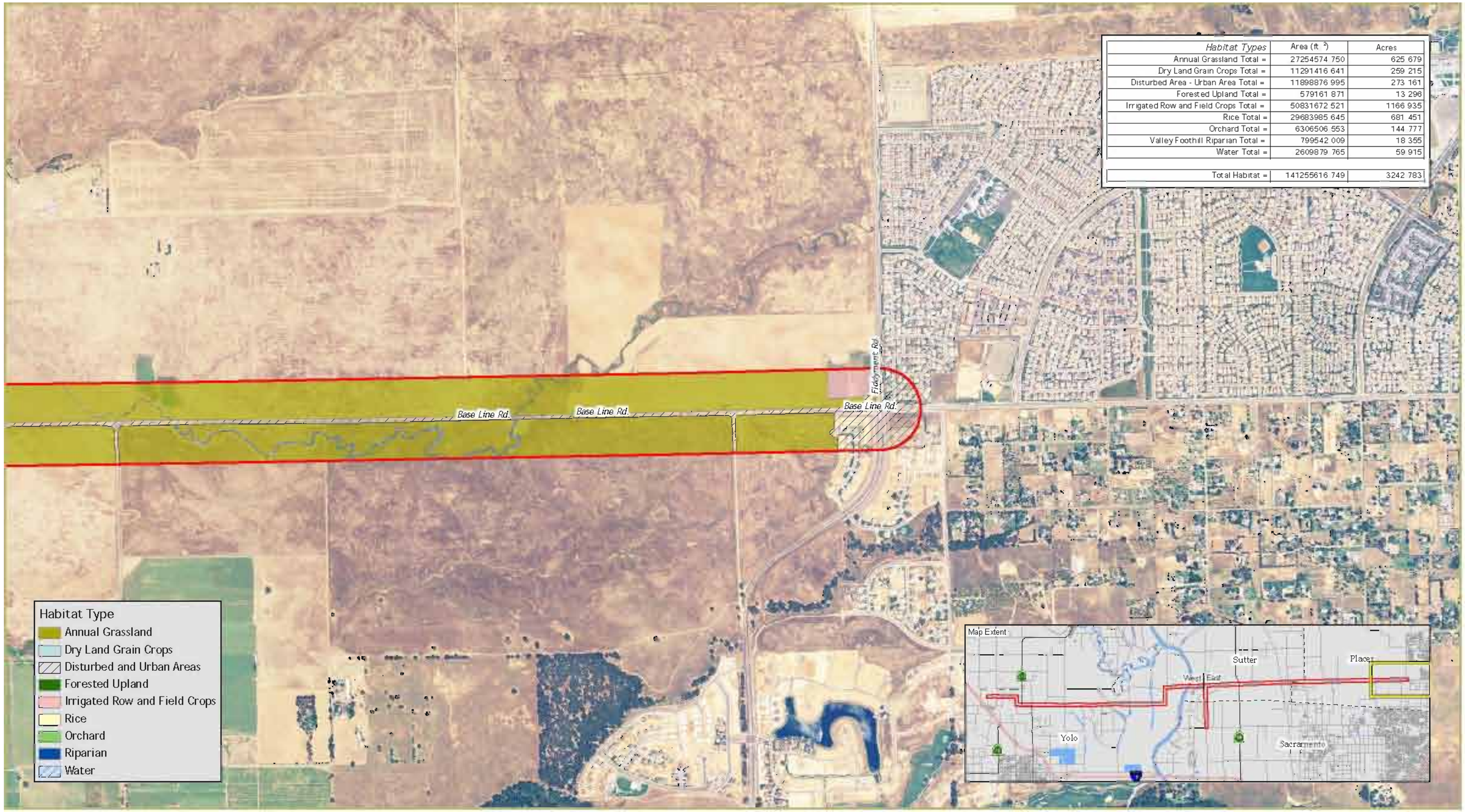
Habitat Types



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Miles

0 0.5 1

GALLAWAY CONSULTING, INC.

Attachment A.9

E-4: Line 407 East Additional Rare Plant Survey

GALLAWAY
CONSULTING, INC.

August 6, 2007

Attn: Benjamin Hart
TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Re: PG&E Line 407 East Additional Rare Plant Survey (GCI Project # 2006-043)

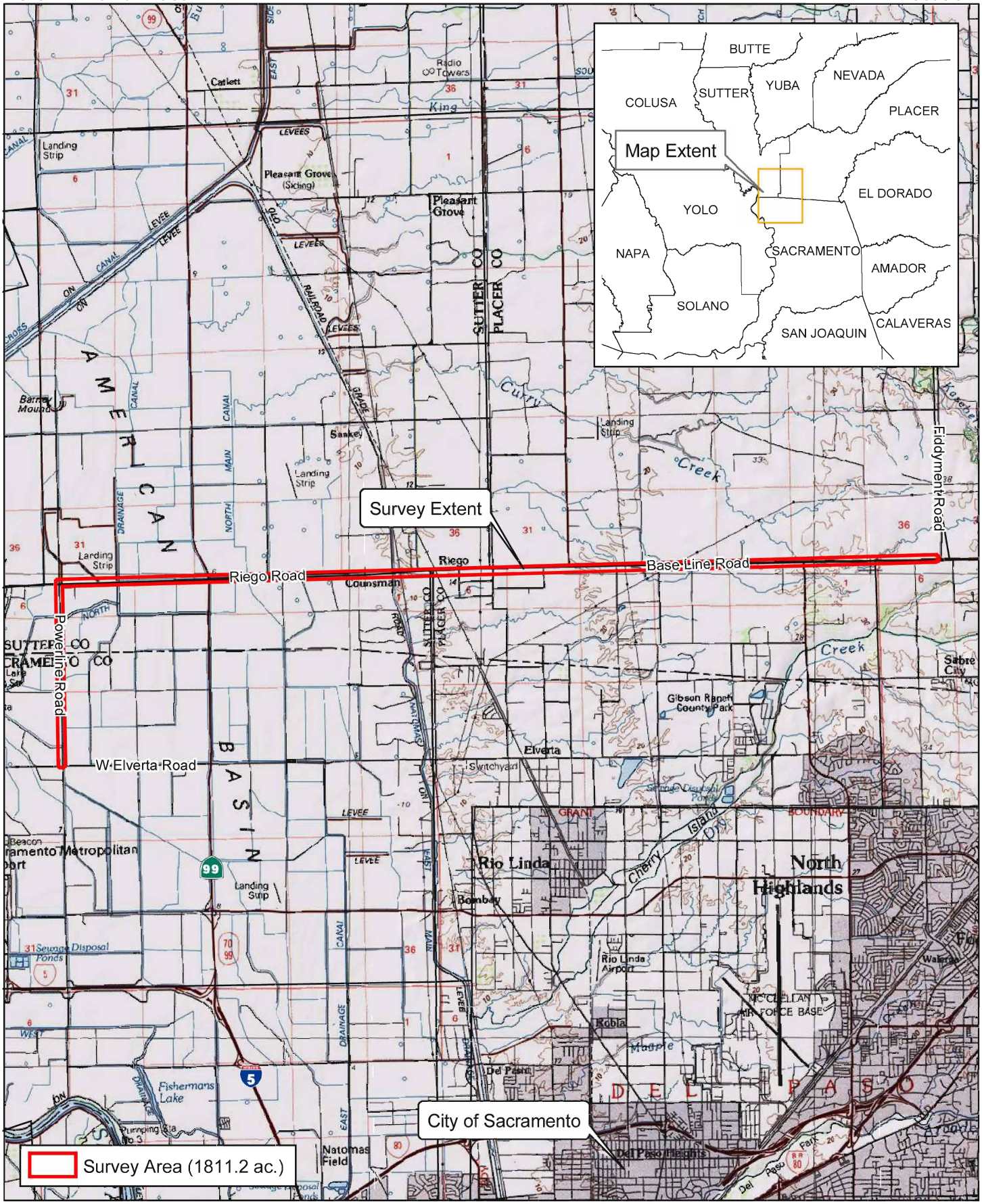
Dear Mr. Hart,

As requested, Gallaway Consulting, Inc. (GCI) conducted a protocol-level botanical survey for the PG&E Line 407 East project (project) in Placer, Sacramento, and Sutter Counties, California on May 14, 2007 in portions of the survey area that were previously inaccessible (GCI, August 2006). The California Native Plant Society (CNPS) database was utilized to compile a list of special-status plant species with a potential to occur within a 1000-foot survey corridor centered on the proposed natural gas pipeline alignment (**Attachment A**).

Biological Setting

The study area encompasses a 1811.2 acre corridor of rural, urban, and developed land in portions of Verona, Rio Linda, Roseville, Citrus Heights, Taylor Monument, and Pleasant Grove U. S. Geological Survey (USGS) quadrangles (**Figure 1**).

The Property is composed of flat to gently sloping annual grassland in the Sacramento Central Valley in the northern California Floristic Province. Habitat types occurring within the project include rice fields, annual grassland, urban/residential, fresh emergent wetland, riverine, and irrigated row crop fields. Additionally, multiple vernal pools occur within the survey area. Due to below average rainfall and the unseasonably long dry period during the 2006-2007 winter, the amount of plant seed germination was reduced from previous years. Additionally, the considerable dry period created an early spring growing season and plants which normally bloom in late spring to early summer were already in bloom during the time of this plant survey. The survey area does, however, contain potentially suitable habitat for the sixteen special-status plant species on the CNPS list compiled and California Natural Diversity Database (CNDDB) occurrences for three CNPS list 1B plant species were found within 5-miles of the project (**Figure 2**).

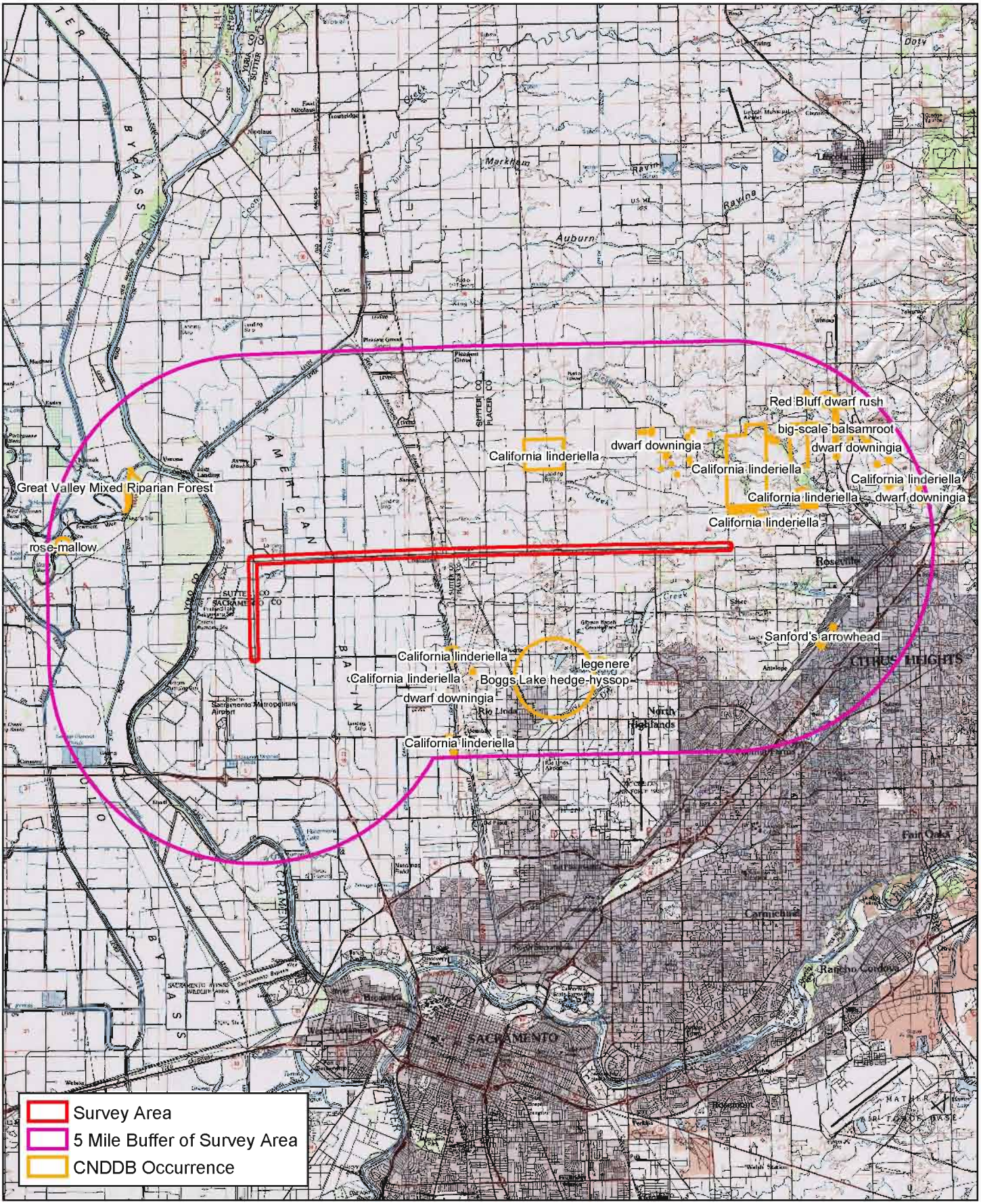


USGS 7.5' Quad.
Map Date: July 5, 2006.

0 1 2 Miles

GALLAWAY CONSULTING, INC.

Figure 1.



CNDDB Occurrence provided
by CDFG (Feb. 7, 2006).
CNDDB occurrences inlcude plants only.
Map Date: July 27, 2006.

0 1 2 4 Miles

GALLAWAY CONSULTING, INC.

Figure 2.

Methodology

A list of special-status plant species with the potential to occur within the survey area was compiled using the CNPS and CNDDB databases located online. The list of plant species surveyed for onsite is presented in **Table 1**.

The protocol-level plant survey was conducted on May 14, 2007, during the appropriate flowering window of the target species identified in the records search, by GCI botanist Elena Alfieri and assisted by biologist Breanna Owens (see **Attachment B** for Botanist Qualifications). Surveys were conducted in accordance with the U.S. Fish and Wildlife Service (USFWS) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (January 2000) and the California Department of Fish and Game (CDFG) *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, Endangered Plants and Natural Communities* (May 2000) (**Attachment C**). The portions of the project that were inaccessible during the original survey in 2006 were surveyed on foot and all suitable habitat was closely inspected for special-status plant species.

If target species were located during the survey, a Trimble GeoXT would be used to record population occurrences as vegetation 'areas' or 'points'. Vegetation *areas* typically consist of populations where plants occur consistently with no more than 15-20 ft. between groupings; whereas *points* are isolated spot locations that do not exceed 10 individual plants. Population sizes would be estimated by one of the following methods:

1. Hand counting of each plant, particularly where population sizes are small.
2. Using estimated head/flower counts to tally plants in densely populated areas.
3. Using plant density estimation through an arbitrary number of meter tape counts which would be conducted in representative populations. Plant counts would then ultimately be estimated by multiplying the average plant/m^2 by total vegetation area (m^2).

Results

No special-status plant species were observed in the survey area during the field survey on May 14, 2007. Though two occurrences of dwarf downingia were found nearby by GCI botanists in the project area surveyed in May of 2006, this plant species was not observed during the May 14, 2007 protocol-level plant survey conducted in the previously inaccessible portions of the project (**Figure 3**). In addition, CNDDB occurrences for Bogg's Lake hedge-hyssop, Sanford's arrowhead, legenere, big-scale balsamroot, Redbluff dwarf rush, and rose mallow were also found within 5-miles of the project, however, these species were also not observed during the 2007 protocol-level plant survey (**Figure 2**).

Table 1. Special-status Plant Species that Occur, or May Occur within the PG&E Line 407 East Project Area, Placer, Sutter and Sacramento Counties, CA.

Common Name (*Scientific Name*)	**Status** Fed/State/ CNPS	**Associated Habitats**	**Potential for Occurrence***
Ahart's Dwarf Rush (*Juncus leiospermus var. ahartii*)	__/__/1B	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools / vernally mesic areas. (Mar-May)	None. Not detected during protocol-level surveys.
Big-scale Balsam Root (*Balsamorhiza macrolepis* var. *macrolepis*)	__/__/1B	Cismontane woodlands and chaparral. Valley and Foothill grasslands. Sometimes serpentinite. (Mar-June)	None. Not detected during protocol-level surveys.
Bogg's Lake Hedge-Hyssop (*Gratiola heterosepala*)	__/SE/1B	Marshes and swamps. Vernal pools. (Apr-Aug)	None. Not detected during protocol-level surveys.
Brittlescale (*Atriplex depressa)*	__/__/1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools (alkaline, clay). (May-Oct)	None. Not detected during protocol-level surveys.
Dwarf Downingia (*Downingia pusilla*)	__/__/2	Valley and foothill grasslands. Vernal pools. (Mar-May)	None. Not detected during protocol-level surveys.
Legenere (*Legenere limosa*)	__/__/1B	Vernal pools, 1-880 meters. (Apr-Jun)	None. Not detected during protocol-level surveys.
Ferris's Milk-vetch (*Astralagus tener* var. *ferrisiae*)	__/__/1B	Meadows and seeps, valley and foothill grassland. (Apr-May)	None. Not detected during protocol-level surveys.
Heartscale (*Atriplex cordulata)*	__/__/1B	Chenopod scrub, meadows and seeps, valley and foothill grassland (saline or alkaline). (Apr-Oct)	None. Not detected during protocol-level surveys.
Heckard's Peppergrass (*Lepidium latipes* var. *heckardii*)	__/__/1B	Valley and foothill grassland (alkaline flats). (Mar-May)	None. Not detected during protocol-level surveys.
Hispid Bird's-beak (*Cordylanthus mollis ssp. hispidus*)	__/__/1B	Meadows and seeps, playas, and alkaline valley and foothill grassland. (Jun-Sep)	None. Not detected during protocol-level surveys.
Palmate-bracted Bird's-beak (*Cordylanthus palmatus*)	FE/SE/1B	Seasonally-flooded, saline-alkali soils in lowland plains along the edges of channels and drainages. (May-Oct)	None. Not detected during protocol-level surveys.
Pincusion Navarretia (*Navarretia myersii* ssp. *myersii)*	__/__/1B	Vernal pools. (May)	None. Not detected during protocol-level surveys.
Red Bluff Dwarf Rush *(Juncus leiospermus* var. *leiospermus)*	__/__/1B	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland and vernal pools and habitats. (Mar-May)	None. Not detected during protocol-level surveys.
Rose-mallow (*Hibiscus lasiocarpus*)	__/__/2	Marshes and swamps (freshwater). (Jun-Sep)	None. Not detected during protocol-level surveys.
Sacramento Orcutt Grass (*Orcuttia viscida*)	FE/SE/1B	Vernal pools. (Apr-Jul)	None. Not detected during protocol-level surveys.
Sanford's Arrowhead (*Sagittaria sanfordii*)	__/__/1B	Marshes and swamps, assorted shallow freshwater. (May-Oct)	None. Not detected during protocol-level surveys.

San Joaquin Spearscale (*Atriplex joaquiniana*)	__/__/1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland (alkaline). (Apr-Oct)	None. Not detected during protocol-level surveys.

CODE DESIGNATIONS

FE = Federally-listed Endangered **FT** = Federally-listed Threatened **FC** = Federal Candidate Species **SE** = State-listed Endangered **ST** = State-listed Threatened	**CNPS 1B** = Rare or Endangered in California or elsewhere **CNPS 2** = rare or Endangered in California, more common elsewhere **CNPS 3** = More information is needed **CNPS 4** = Plants with limited distribution

***Potential for occurrence:** for plants it is considered the potential to occur during the survey period. The categories for the potential for occurrence include:
None: The species is known not to occur, and has no potential to occur onsite based on sufficient surveys, the lack of suitable habitat, and/or the site is well outside of the known distribution of the species.
Low: Potential habitat onsite is sub-marginal and the species is not known to occur in the vicinity of the property. Protocol-level surveys are not recommended.
Moderate: Suitable habitat is present onsite and the species is known to occur in the vicinity of the property.
High: Habitat onsite is highly suitable for the species and there are reliable records close to the site, but the species was not observed.
Known: Species was detected onsite or a recent reliable record exists for the property.

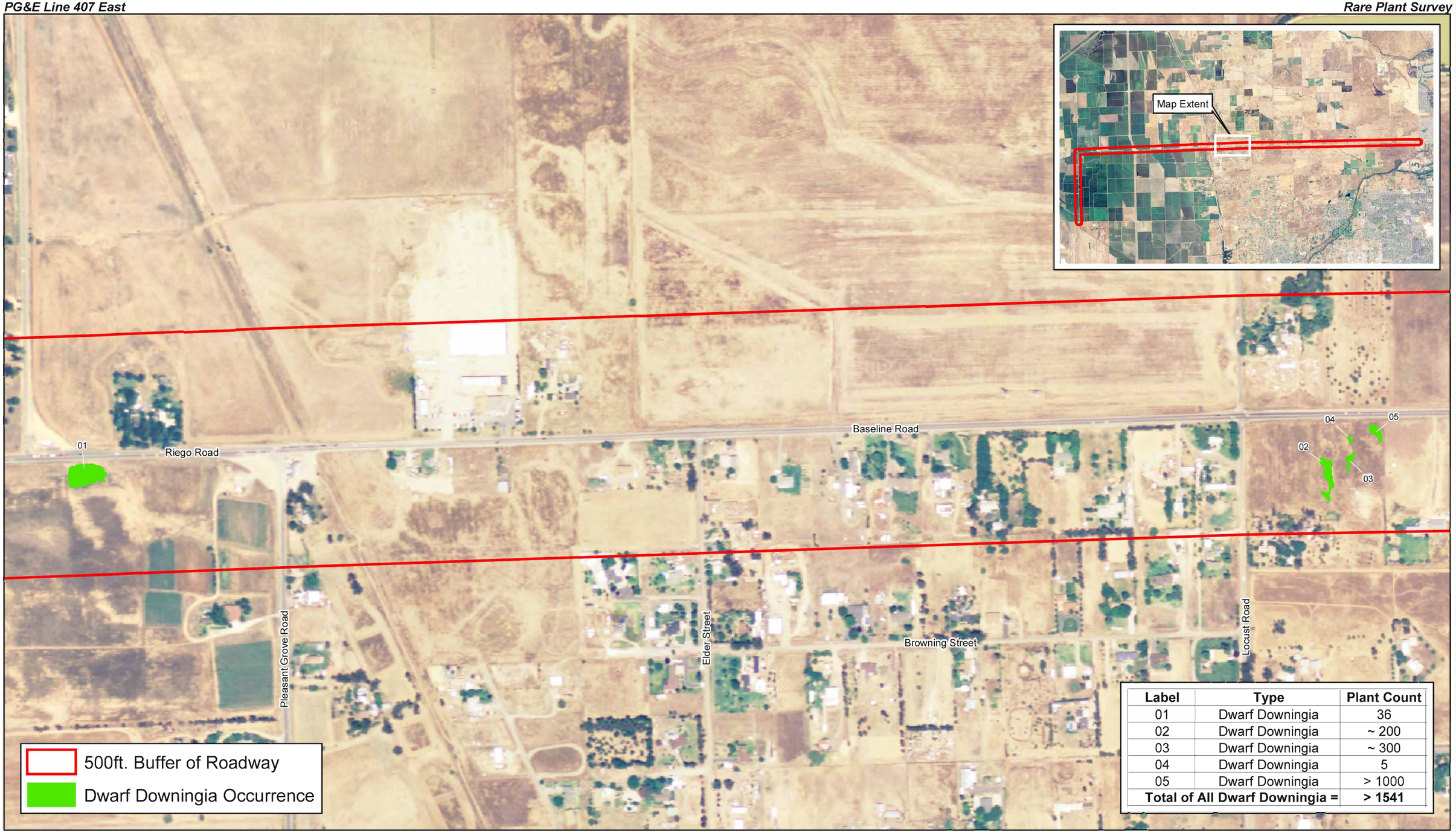
If you have any further questions or concerns, please feel free to call me at (530) 343-8327.

Sincerely,

_____

Elena Alfieri
Botanist, Gallaway Consulting, Inc.

Encl: **Attachments A, B, & C**



Label	Type	Plant Count
01	Dwarf Downingia	36
02	Dwarf Downingia	~ 200
03	Dwarf Downingia	~ 300
04	Dwarf Downingia	5
05	Dwarf Downingia	> 1000
Total of All Dwarf Downingia =		**> 1541**

Project site derived from 500 ft. buffer of road centerline.
Survey Dates: May 5, 2006/Surveyors: CK,SI,EA.
Date of Aerial: Feb. 2005 (NAIP).
Map Date: July 27, 2006/Revisions:

0 200 400 Feet

GALLAWAY CONSULTING, INC.

Figure 3.

References

California Department of Fish and Game. 2006. Natural Diversity Data Base records search of the USGS Quadrangles within and adjacent to the Meadowview Drive Property. Sacramento, CA.

California Department of Fish and Game. 1983 (Revised May 2000). Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities. Sacramento, CA.

California Native Plant Society (CNPS). 2006. Inventory of Rare and Endangered Plants (online edition, v7-06a). California Native Plant Society. Sacramento, CA. Accessed on May 9, 2007 from http://www.cnps.org/inventory

Gallaway Consulting, Inc. August 2006. *Special Status and Listed Plant Report: PG&E Line 123 Extension/Line 407 (Phase 1)/Metro Air Park Distribution Feeder Main*. Chico, CA.

Hickman, James C., editor. 1993. *The Jepson Manual Higher Plants of California*. University of California Press, Berkeley.

Mayer, K.E. and W.F. Laudenslayer. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection. Sacramento, CA.

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, CA.

Skinner, M. and B. Pavlik. 2001. Inventory of rare and endangered vascular plants of California, 5th edition. California Native Plant Society. Sacramento, CA.

USFWS. 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants. Sacramento, CA.

ATTACHMENT A

CNPS 9 QUADRANGLE PLANT LIST

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:05 b

{QUADS_123} =~ m/513A|529C|529D|512B|512C|528C|513B|513(Search

Tip: Words meant to be searched as a unit should be wrapped in quotes, e.g., "coastal dunes". [all tips and help.][search history]

Your Quad Selection: Taylor Monument (513A) 3812165, Knights Landing (529C) 3812176, Verona (529D) 3812175, Rio Linda (512B) 3812164, Sacramento East (512C) 3812154, Pleasant Grove (528C) 3812174, Grays Bend (513B) 3812166, Davis (513C) 3812156, Sacramento West (513D) 3812155

Hits 1 to 12 of 12

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex cordulata	heartscale	Chenopodiaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	Carex lenticularis var. limnophila	lakeshore sedge	Cyperaceae	List 2.2
		1	Cordylanthus palmatus	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	Downingia pusilla	dwarf downingia	Campanulaceae	List 2.2
		1	Gratiola heterosepala	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	Hibiscus lasiocarpus	rose-mallow	Malvaceae	List 2.2
		1	Legenere limosa	legenere	Campanulaceae	List 1B.1
		1	Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	List 1B.2
		1	Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:02 b

{QUADS_123} =~ m/528D|512A|512B|527B|527C|511B|528A|528E Search

Tip: Words meant to be searched as a unit should be wrapped in quotes, e.g., "coastal dunes". [all tips and help.][search history]

Your Quad Selection: Roseville (528D) 3812173, Citrus Heights (512A) 3812163, Rio Linda (512B) 3812164, Gold Hill (527B) 3812182, Rocklin (527C) 3812172, Folsom (511B) 3812162, Lincoln (528A) 3812183, Sheridan (528B) 3812184, Pleasant Grove (528C) 3812174

Hits 1 to 11 of 11

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Balsamorhiza macrolepis var. macrolepis	big-scale balsamroot	Asteraceae	List 1B.2
		1	Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Onagraceae	List 1B.2
		1	Cordylanthus mollis ssp. hispidus	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	Downingia pusilla	dwarf downingia	Campanulaceae	List 2.2
		1	Gratiola heterosepala	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	Legenere limosa	legenere	Campanulaceae	List 1B.1
		1	Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	List 1B.1
		1	Orcuttia viscida	Sacramento Orcutt grass	Poaceae	List 1B.1
		1	Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:01 b

{QUADS_123} =~ m/512B|528C|528D|513A|513D|529D|512A|512(Search

Tip: Having trouble with a multi-word search? Try a single word, e.g. ginger or cobra.
[all tips and help.][search history]

Your Quad Selection: Rio Linda (512B) 3812164, Pleasant Grove (528C) 3812174, Roseville (528D) 3812173, Taylor Monument (513A) 3812165, Sacramento West (513D) 3812155, Verona (529D) 3812175, Citrus Heights (512A) 3812163, Sacramento East (512C) 3812154, Carmichael (512D) 3812153

Hits 1 to 9 of 9

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Hibiscus lasiocarpus**	rose-mallow	Malvaceae	List 2.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

powered by WODA

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:06 b

{QUADS_123} =~ m/528C|512A|512B|529D|529A|513A|528D|528A Search

Tip: Word fragments must be completed with a wildcard, e.g., `esch* hyp*` for Eschscholzia hypecoides.[all tips and help.][search history]

Your Quad Selection: Pleasant Grove (528C) 3812174, Citrus Heights (512A) 3812163, Rio Linda (512B) 3812164, Verona (529D) 3812175, Nicolaus (529A) 3812185, Taylor Monument (513A) 3812165, Roseville (528D) 3812173, Lincoln (528A) 3812183, Sheridan (528B) 3812184

Hits 1 to 9 of 9

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Navarretia myersii ssp. myersii**	pincushion navarretia	Polemoniaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

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Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:03 b

{QUADS_123} =~ m/512A|528C|528D|511B|511C|527C|512B|512(Search

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[all tips and help.] [search history]

Your Quad Selection: Citrus Heights (512A) 3812163, Pleasant Grove (528C) 3812174, Roseville (528D) 3812173, Folsom (511B) 3812162, Buffalo Creek (511C) 3812152, Rocklin (527C) 3812172, Rio Linda (512B) 3812164, Sacramento East (512C) 3812154, Carmichael (512D) 3812153

Hits 1 to 12 of 12

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Clarkia biloba ssp. brandegeeae**	Brandegee's clarkia	Onagraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Navarretia myersii ssp. myersii**	pincushion navarretia	Polemoniaceae	List 1B.1
		1	**Orcuttia tenuis**	slender Orcutt grass	Poaceae	List 1B.1
		1	**Orcuttia viscida**	Sacramento Orcutt grass	Poaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:00 b

{QUADS_123} =~ m/529D|513A|513B|528B|528C|512B|529A|529E Search

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[all tips and help.] [search history]

Your Quad Selection: Verona (529D) 3812175, Taylor Monument (513A) 3812165, Grays Bend (513B) 3812166, Sheridan (528B) 3812184, Pleasant Grove (528C) 3812174, Rio Linda (512B) 3812164, Nicolaus (529A) 3812185, Sutter Causeway (529B) 3812186, Knights Landing (529C) 3812176

Hits 1 to 10 of 10

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Atriplex depressa**	brittlescale	Chenopodiaceae	List 1B.2
		1	**Atriplex joaquiniana**	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	**Carex lenticularis var. limnophila**	lakeshore sedge	Cyperaceae	List 2.2
		1	**Cordylanthus palmatus**	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Hibiscus lasiocarpus**	rose-mallow	Malvaceae	List 2.2
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Lepidium latipes var. heckardii**	Heckard's pepper-grass	Brassicaceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

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ATTACHMENT B

BOTANIST QUALIFICATIONS

Elena Alfieri

BOTANIST

Gallaway Consulting, Inc.

117 Meyers Street, Suite 110, Chico, CA 95928

Starting and ending dates: May 2006 – present

EDUCATION

BACHELOR OF SCIENCE in EVIRONMENTAL BIOLOGY AND MANAGEMENT, BOTANICAL EMPHASIS – *Interdisciplinary Degree*
Department of Biological Sciences, University of California, Davis
Awarded in December 2004

EXPERIENCE

Elena Alfieri has over 2 years of experience conducting botanical/rare plant surveys, wetland delineations, and valley elderberry longhorn beetle surveys (VELB) in project sites ranging from 1 to 2,000 acres, and habitat classification and mapping for the U.S. Department of Agriculture Forest Service. Ms. Alfieri has also acquired extensive knowledge of greenhouse management and exotic and native plant maintenance and identification through her many years working for the U.C. Davis Botanical Conservatory. Course work for Ms. Alfieri during her attendance at U.C. Davis included multiple plant taxonomy, plant biology and paleobotany classes. During her time at Gallaway Consulting, Inc. Ms. Alfieri has gained experience in assisting with protocol-level wet season vernal pool invertebrate surveys. Her areas of expertise include general botanical surveys and plant identification, rare plant surveys, and wetland delineations. Her recent work includes conducting protocol-level Butte County meadowfoam surveys for the Byrne Habitat Conservation Bank in Chico, California.

ATTACHMENT C

USFWS AND CDFG SURVEY PROTOCOL

Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants

January, 2000

These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed. or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire project area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.

2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations(s) is not available, investigators should study specimens from local herbaria.

3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.

4. Report results of botanical field inventories that include:

a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species

b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name

c. survey dates and survey methodology(ies)

d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made

e. a comprehensive list of all vascular plants occurring on the project site for each habitat type

f. current and historic land uses of the habitat(s) and degree of site alteration

g. presence of target species off-site on adjacent parcels, if known

h. an assessment of the biological significance or ecological quality of the project site in a local and regional context

5. If target species is(are) found, report results that additionally include: a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors. c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports. d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.

6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base maintained by the Natural Heritage Division of the California Department of Fish & Game. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.

7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than 3 years from the current date of project proposal submission will likely need additional survey.

8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.

Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities

State of California
THE RESOURCES AGENCY
Department of Fish and Game
December 9, 1983
Revised May 8, 2000

The following recommendations are intended to help those who prepare and review environmental documents determine **when** a botanical survey is needed, **who** should be considered qualified to conduct such surveys, **how** field surveys should be conducted, and **what** information should be contained in the survey report. The Department may recommend that lead agencies not accept the results of surveys that are not conducted according to these guidelines.

1. Botanical surveys are conducted in order to determine the environmental effects of proposed projects on all rare, threatened, and endangered plants and plant communities. Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare, threatened, and/or endangered under the following definitions:

A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

Rare natural communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities may be used as a guide to the names and status of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or to the extent that, rare, threatened, or endangered plants will be affected by a proposed project when:

a. Natural vegetation occurs on the site, it is unknown if rare, threatened, or endangered plants or habitats occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking.

3. Botanical consultants should possess the following qualifications:

a. Experience conducting floristic field surveys;
b. Knowledge of plant taxonomy and plant community ecology;
c. Familiarity with the plants of the area, including rare, threatened, and endangered species;
d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
e. Experience with analyzing impacts of development on native plant species and communities.

4. Field surveys should be conducted in a manner that will locate any rare, threatened, or endangered species that may be present. Specifically, rare, threatened, or endangered plant surveys should be:

a. Conducted in the field at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Usually, this is when the plants are flowering.

When rare, threatened, or endangered plants are known to occur in the type(s) of habitat present in the project

area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey.

b. Floristic in nature. A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. In addition, a sufficient number of visits spaced throughout the growing season are necessary to accurately determine what plants exist on the site. In order to properly characterize the site and document the completeness of the survey, a complete list of plants observed on the site should be included in every botanical survey report.

c. Conducted in a manner that is consistent with conservation ethics. Collections (voucher specimens) of rare, threatened, or endangered species, or suspected rare, threatened, or endangered species should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit requirements. A collecting permit from the Habitat Conservation Planning Branch of DFG is required for collection of state-listed plant species. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.

d. Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas.

e. Well documented. When a rare, threatened, or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5 minute topographic map with the occurrence mapped, should be completed and submitted to the Natural Diversity Database. Locations may be best documented using global positioning systems (GPS) and presented in map and digital forms as these tools become more accessible.

5. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations and mitigated negative declarations, Timber Harvesting Plans (THPs), EIR's, and EIS's, and should contain the following information:

a. Project description, including a detailed map of the project location and study area.
b. A written description of biological setting referencing the community nomenclature used and a vegetation map.
c. Detailed description of survey methodology.
d. Dates of field surveys and total person-hours spent on field surveys.
e. Results of field survey including detailed maps and specific location data for each plant population found. Investigators are encouraged to provide GPS data and maps documenting population boundaries.
f. An assessment of potential impacts. This should include a map showing the distribution of plants in relation to proposed activities.
g. Discussion of the significance of rare, threatened, or endangered plant populations in the project area considering nearby populations and total species distribution.
h. Recommended measures to avoid impacts.
i. A list of all plants observed on the project area. Plants should be identified to the taxonomic level necessary to determine whether or not they are rare, threatened or endangered.
j. Description of reference site(s) visited and phenological development of rare, threatened, or endangered plant(s).
k. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.
l. Name of field investigator(s).
m. References cited, persons contacted, herbaria visited, and the location of voucher specimens.

E-5: Line 407 West Plant Report

Special Status and Listed Plant Report
PG&E Line 407 West Natural Gas Transmission Pipeline

Yolo and Sutter Counties, California

August 2007

Prepared for:

TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019
Attn: Benjamin Hart

Prepared by:

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Special Status and Listed Plant Report
PG&E Line 407 West Natural Gas Transmission Pipeline
Yolo and Sutter Counties, California

Introduction

As requested by TRC, Gallaway Consulting Inc. (GCI) performed rare plant surveys and a floristic inventory within the Pacific Gas and Electric Company (PG&E) Line 407 West study area. Utility improvements are planned for the site. Surveys were conducted on May 3, 8, and 14, 2007 to determine the presence of special-status botanical resources and to establish whether or not these resources would be impacted by the proposed project.

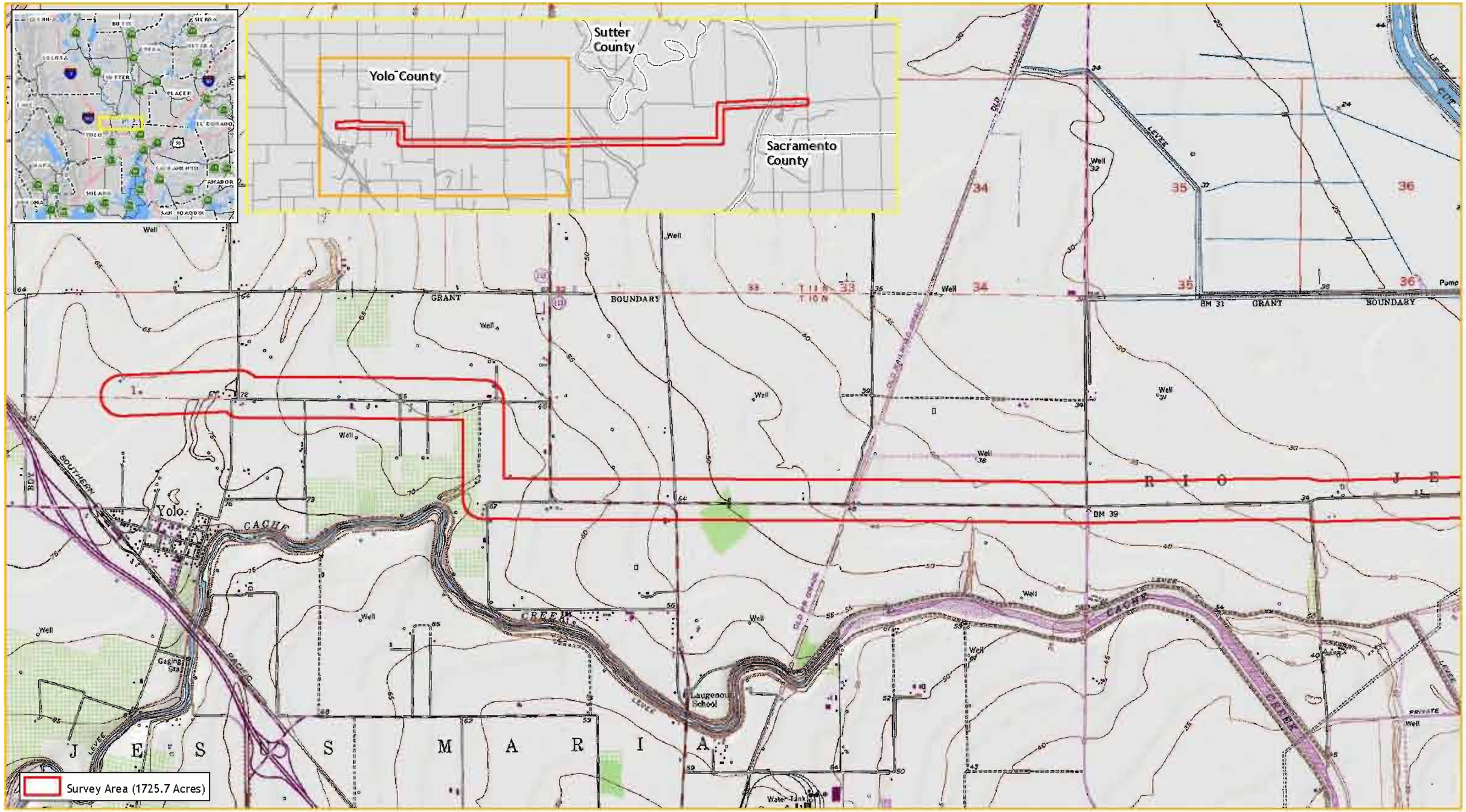
Project Description

The PG&E is planning to construct the Line 407 West Project (project) to address the need for additional natural gas supply to serve on-going residential and commercial growth in the greater Sacramento River Valley region within Yolo and Sutter Counties. Line 407 West is one of three natural gas transmission pipeline segments that are planned for construction between 2009 and 2012 to supply natural gas to the region. The project includes approximately 13.5 miles of 30-inch-diameter pipeline operating at 975 pounds per square inch gauge (psig) and transporting up to 180,000,000 cubic feet of natural gas per day between existing Line 172A and the tie-in with proposed Line 407 East near the intersection of Powerline and Riego roads in Sutter County. Line 407 West will run east from Line 172A through an area rich in agricultural production, and will cross Knights Landing Ridge Cut, the Yolo Bypass, Tule Canal, a number of unnamed irrigation canals, and the Sacramento River (**Figure 1**).

Existing Conditions

The survey area was determined by creating a 500 foot buffer on either side of the pipeline and encompasses a 1725.75-acre corridor of rural, urban, and developed land in portions of Grays Bend, Woodland, Verona, and Taylor Monument USGS quadrangles (**Figure 1**). Topography is flat due to historical farming and grading practices with project elevation ranging from 15-125 feet above sea level. Rural residential, agricultural structures, and agricultural fields occupy the extent of the study area. There were 26 soil map unit descriptions found to occur within the study area (**Table 1**).

The average annual temperature for the study area ranges from 49-70°F, with the hottest temperatures occurring in July and August. The average annual rainfall for the area is approximately 23 inches, however, during the 2006/2007 winter the area only received a total of 7.48 inches of rainfall (The Weather Underground, Inc. 2007).

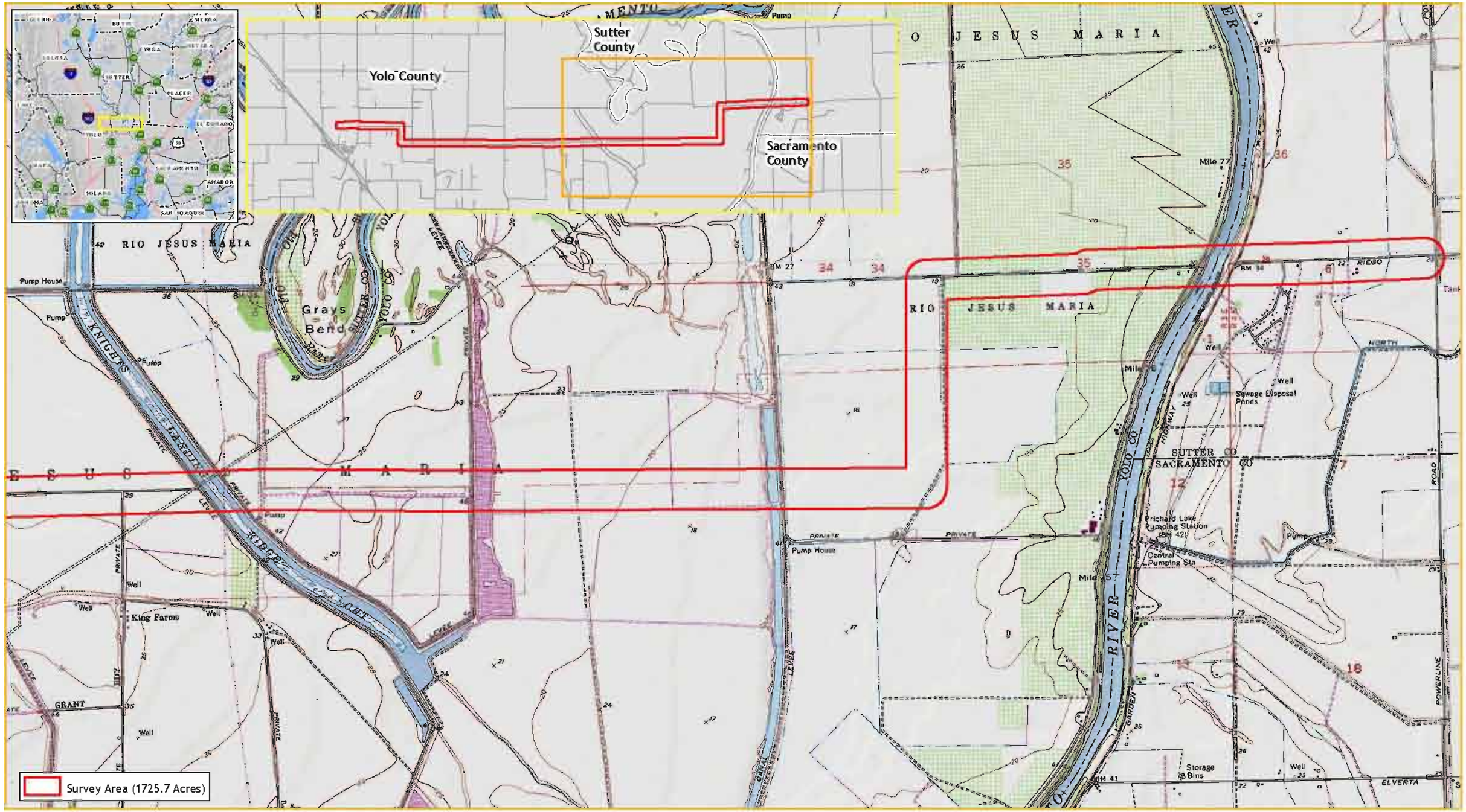


Within the Rio Jesus Maria Land Grant and
Sect 1 of T10N & R1E, Sect 1 of T10N & R2E,
Sects 9, 10, 11, 12 of T10N & R2E, Sects 5, 6 of T10N & R4E
Sect 36 of T11N & R3E, and Sect 31 of T11N & R4E
On El Dorado Bend, Knights Landing, Verona, Woodland,
Grays Bend, and Taylor Monument 7.5' USGS Quads
Map Date 6/29/07

Miles
0 0.5 1

GALLAWAY CONSULTING, INC.

Figure 1a



Within the Rio Jesus Maria Land Grant and
Sect 1 of T10N & R1E, Sect 1 of T10N & R2E,
Sects 9, 10, 11, 12 of T10N & R2E, Sects 5, 6 of T10N & R4E
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On El Dorado Bend, Knights Landing, Verona, Woodland,
Grays Bend, and Taylor Monument 7.5' USGS Quads
Map Date 6/29/07

Miles

0 0.5 1

GALLAWAY CONSULTING, INC.

Figure 1b

Table 1. Soil Map Unit Descriptions Found within the Study Area.

Map Unit Symbol	Map Unit Description	Hydric(Y or N)/ Landform
144	Nueva loam, 0 to 1 percent	Y/Floodplains
141	Marcum clay loam, siltstone substratum, 0 to 1 percent slopes	Y/Basin Floors
146	Nueva loam, wet, 0 to 1 percent slopes	Y/Floodplains
158	San Joaquin sandy loam, 0 to 2 percent slopes	N
Ya	Yolo silt loam	Y/Alluvial Fans
Sv	Sycamore complex, drained	Y/Alluvial Fans
BrA	Brentwood silty clay loam, 0 to 2 percent slopes	N
Sr	Sycamore silt loam, flooded	Y/Alluvial Fans
Su	Sycamore complex	Y/Alluvial Fans, Basin Floors
Te	Tyndall very fine sandy loam, deep	Y/Alluvial Fans
La	Lang sandy loam	Y/Alluvial Fans
So	Sycamore silt loam	Y/Alluvial Fans
Sa	Sacramento silty clay loam	Y/Alluvial Fans
Tb	Tyndall very fine sandy loam	Y/Alluvial Fans
Lb	Lang sandy loam, deep	Y/Alluvial Fans
Sw	Sycamore complex, flooded	Y/Alluvial Fans, Basin Floors
Md	Maria silt loam, deep	Y/Alluvial Fans
Sc	Sacramento clay	Y/Alluvial Fans, Basin Floors
Ra	Reiff very fine sandy loam	Y/Alluvial Fans
Yb	Yolo silty clay loam	Y/Alluvial Fans
Mb	Maria silt loam	Y/Alluvial Fans
Tc	Tyndall very fine sandy loam, drained	Y/Alluvial Fans
Sg	Sacramento soils, flooded	Y/Alluvial Fans, Basin Floors
Sp	Sycamore silt loam, drained	Y/Alluvial Fans
Lg	Laugenour very fine sandy loam	Y/Alluvial Fans
W	Water	Y/Open Water

Study Methods

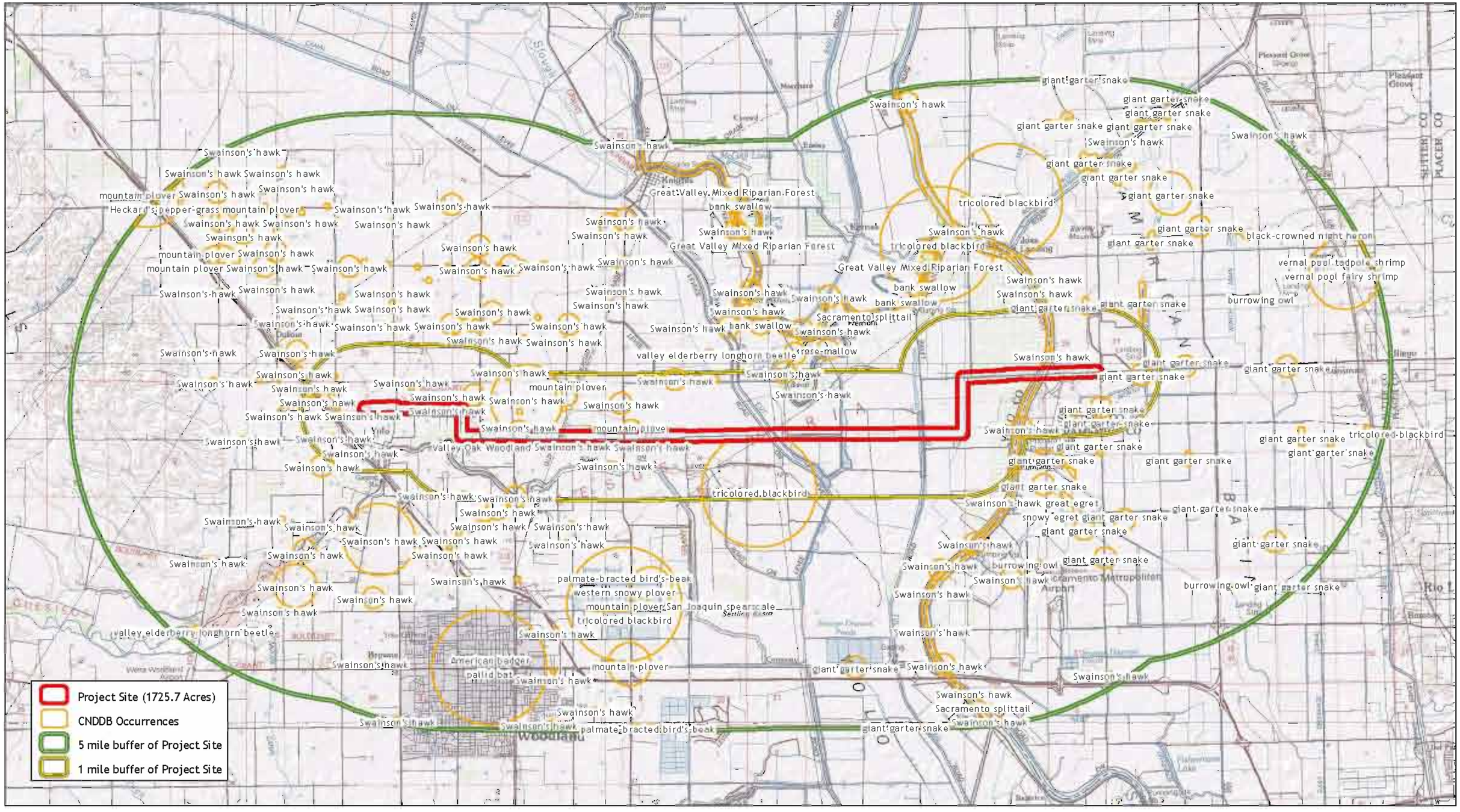
Prior to conducting the onsite survey, GCI created a list of potentially occurring special-status plant species occurring within the study area by accessing all pertinent databases, and contacting appropriate state and federal agencies. Topographic maps and aerial photos of the site were reviewed and areas of potential impact noted. The lists were then reviewed and edited taking into account existing conditions present within the study area. The California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) and U.S. Fish and Wildlife Service (USFWS) species lists are presented in **Appendix A**. A 5-mile radius CNDDB search identified several documented special-status plant species occurrences in the surrounding area (**Figure 2**). The CNDDB

provides natural history and location information on rare, threatened, endangered, and special-status species and natural communities within California. The CNDDB only documents known occurrences and is used as a preliminary tool, in addition to the USFWS species lists, to determine potential species occurrences within the study area. Surveys were conducted for all the plant species included on these lists because they each had varying degrees of potential to occur within the study area. For the purposes of this survey, special-status species are those that fall into one of the following categories:

- Designated as rare, threatened, or endangered by state or federal governments (ESA, 50 CFR 17.12 for listed plants and various notices in the Federal Register, California Endangered Species Act (CESA), 14 CCR 670.5);
- Designated as Species of Concern and/or Special Concern by state or federal governments;
- Proposed for rare, threatened, or endangered designation by state and federal governments;
- Included on the CNPS List as 1A, 1B, and 2 (Skinner and Pavlik, 2001);
- Plants that meet the definitions of rare or endangered species under the California Environment Quality Act (CEQA) (State CEQA Guidelines, Section 15380).

On May 3, 8, and 14, 2007, a pedestrian survey of the site was undertaken. The extent of the survey area were examined using transects and spot-checks of high quality habitat. Botanist Elena Alfieri, assisted by biologists Taylor Brooks and Breanna Owens, conducted botanical surveys during the appropriate flowering window of the target species (See **Appendix B** for Botanist Qualifications). Surveys were floristic in nature and conducted in accordance with the USFWS *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (January 2000) and the CNPS *Botanical Survey Guidelines* (June 2001) (**Appendix C**). When possible, reference populations or herbarium specimens of the target species were observed to refresh the surveyors' visual memory of the species and to check the blooming status of the target species (**Table 2**). The entire project site was traversed using parallel transects spaced no more than 15 feet apart. Transects were stratified according to plant community types and all suitable habitat was closely inspected (See **Appendix D** for a list of all plant species observed during surveys). A Trimble GeoXT was on hand to record special-status plant species occurrences.

PG&E Line 407 **CNDDB Occurrences**



CNDDB Occurrence provided
by CDFG (May 1, 2007)
On Sacramento 15' USGS Quad
Map Date June 20, 2007

Miles
0 1 2

GALLAWAY CONSULTING, INC.

Figure 2

Table 2. Locations of Reference Populations for Species with Potential to Occur in the Study Area Based on USFWS and CNDDB Species Lists

Species	Location of Reference Population
Plants	
Astragalus tener var. ferrisiae	On the south side of Evans-Reimer Road, about 1 mile east of Pennington Road, Gray Lodge Waterfowl Management Area
Atriplex cordulata	Gray Lodge Wildlife Area, 2 miles southeast of the headquarters building. Just south of Rutherford Road, west of Levee Road
Atriplex depressa	Delevan National Wildlife Refuge. One mile east of Excelsior Road in Cell 12 of the Refuge
Atriplex joaquiniana	About 3 miles southeast of woodland, north of Willow Slough, north and south of Road 25 and west of road 103
Cordylanthus palmatus	City of Woodland site, near junction of Road 103 and Road 25
Downingia pusilla	About 8 miles southeast of Corning, North Fork Hall Creek
Gratiola heterosepala	Archgate Reservoir, just west of the Shasta-Lassen county border, south of Pittville, west of Pittville Road
Hibiscus lasiocarpus	Upper Butte Sink Wildlife Area - Howard Slough
Juncus leiospermus var. ahartii	Along Powerline Road corridor between Fruitland Road and South Honcut Creek, west of Loma Rica
Juncus leiospermus var. leiospermus	Palermo, southeast of Daly Road
Legenere limosa	Stillwater Plains Mitigation Bank, Palermo
Lepidium latipes var. heckardii	West of Sacramento Northern Railroad
Navarretia myersii ssp. myersii	2 miles east of Sacramento-Amador Countyline, Howard Ranch
Sagittaria sandfordii	Along and between Beacon Creek and Elder Creek, east of Power Inn Road, Elk Grove

Results

Plant species determined to have the potential to occur within the study area are discussed in **Table 3**.

Habitat Characterization

The survey area includes nine habitat characterizations based on the California Department of Fish and Game California Wildlife Habitat Relationship System (CWHR) (**Attachment A**). The CWHR classification system was developed through a multi-agency effort to provide resource managers and scientists with a standardized habitat and wildlife management tool. The CWHR system is commonly used to discuss habitats in terms of wetland delineations, wildlife management plans and biological resource assessments. Habitat characterizations are divided by vegetative assemblage (i.e., tree dominated, shrub dominated, herbaceous dominated) then subdivided by location and unique vegetation. Habitats are first assessed from aerial photographs, then followed by ground truthing. The following habitats occur within the project boundaries:

Dryland Grain Crops
Dryland grain crops include annual seed producing grasses, cereal rye (*Secale cereale*), oats (*Avena sativa*), and wheat (*Triticum aestivum*). They are usually planted in drilled rows in the fall and then harvested in the spring. They may also be rotated with other irrigated crops after the fall harvest of a previous crop, dry farmed, and then harvested in the late spring. Volunteer native or naturalized herbaceous species may colonize fallowed dryland grain fields. The dryland grain crop fields within the study area had been harvested at the time of the surveys. Many of the fields observed during the dates surveyed were actively being farmed. In the active fields, specific dryland crop species being produced included wheat. There are approximately 259 acres of dryland grain crops in the survey area.

Fallow fields and along the periphery of the active fields consisted of disturbed annual grassland vegetation including annual oatgrass (*Avena* ssp.), star-thistle (*Centaurea solstitialis)*, bindweed (*Convovulus arvensis*), black mustard (*Brasica niger*), prickly lettuce (*Lactuca serriola*), turkey mullein (*Eremocarpus setigerus*), soft chess (*Bromus hordeaceous*), annual rygrass (*Lolium multiflorum*), Medusae-head grass (*Taeniatherum caput-medusae*) and long-beaked stork's-bill (*Erodium botrys*). These areas could support wildlife such as the western fence lizard (*Sceloporus occidentalis*), western meadowlark (*Sturnella neglecta*), black-tailed rabbit (*Lepus californicus*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), northern harrier (*Circus cyaneus*), and American kestrel (*Falco sparverius*).

Table 3. Species with Potential to Occur in the Study Area Based on USFWS and CNDDB Species Lists

Species		Listing Status[1]	Habitat Association	Blooming Period	Potential to Occur[2]
SCIENTIFIC NAME	COMMON NAME				
Astragalus tener var. tener	Allkali Milk Vetch	CNPS 1B	Playas, valley and foothill grassland with adobe clay soils, and alkaline vernal pools	March-June	None. No suitable habitat. Was not found during protocol-level surveys.
Atriplex cordulata	Heartscale	CNPS 1B	Chenopod scrub/meadows and seeps/valley and foothill grassland/saline or alkaline soils	April-October	None. No suitable habitat. Was not found during protocol-level surveys
Atriplex depressa	Brittlescale	CNPS 1B	Chenopod scrub/meadows and seeps/valley and foothill grassland/saline or alkaline soils/vernal pools/playas/alkaline clay soils	May-October	None. No suitable habitat. Was not found during protocol-level surveys.
Atriplex joaquiniana	San Joaquin Spearscale	CNPS 1B	Chenopod scrub/meadows and seeps/valley and foothill grassland/saline or alkaline soils/ playas/alkaline clay soils	April-October	None. No suitable habitat. Was not found during protocol-level surveys
California macrophylla	Round-leaved Filaree	CNPS 1B	Cismontane woodland and valley and foothill grassland with clay soils.	March-May	None. Not found during surveys.
Carex lenticularis var. limnophila	Lakeshore Sedge	CNPS 2	Bogs and fens, marshes and swamps, and gravelly beaches and shores in north coast coniferous forests.	June-August	None. No suitable habitat present within the survey area. Not found during surveys.
Cordylanthus palmatus	Palmate-bracted Bird's-beak	FE, SE, CNPS 1B	Chenopod scrub/valley and foothill grassland/alkaline soils	May-October	None. No suitable habitat. Was not found during protocol-level surveys
Downingia pusilla	Dwarf Downingia	CNPS 2	Valley and foothill grassland/vernal pools	March-May	None. No suitable habitat. Was not found during protocol-level surveys

Species		Listing Status[1]	Habitat Association	Blooming Period	Potential to Occur[2]
Gratiola heterosepala	Boggs Lake Hedge-hyssop	SE, CNPS 1B	Marshes and swamps/vernal pools/clay	April-August	None. No suitable habitat. Was not found during protocol-level surveys
Hibiscus lasiocarpus	Rose-mallow	CNPS 2	Marshes and swamps	June-September	None. No suitable habitat. Was not found during protocol-level surveys
Juncus leiospermus var. ahartii	Ahart's Dwarf Rush	CNPS 1B	Valley and foothill grassland	March-May	None. No suitable habitat. Was not found during protocol-level surveys
Legenere limosa	Legenere	CNPS 1B	Vernal pools	April-June	None. No suitable habitat. Was not found during protocol-level surveys
Lepidium latipes var. heckardii	Heckard's Pepper-grass	CNPS 1B	Valley and foothill grassland (alkaline flats)	March-May	None. No suitable habitat. Was not found during protocol-level surveys
Navarretia leucocephala ssp. bakeri	Baker's Navarretia	CNPS 1B	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and mesic vernal pools.	April-July	None. No suitable habitat. Was not found during protocol-level surveys
Sagittaria sandfordii	Sanford's Arrowhead	CNPS 1B	Marshes and swamps (assorted shallow freshwater)	May-October	None. No suitable habitat. Was not found during protocol-level surveys

[1] Listing Status

Federal Listing Codes
FE Federally endangered

California State Listing Codes
SE State endangered

California Native Plant Society's Listing Codes
1B Rare or endangered in California
2 Rare, threatened, or endangered in California, but more common elsewhere.

[2] Potential to Occur determinations were made following habitat assessments and floristic surveys.

Irrigated Row and Field Crops
Irrigated row and field crops can be annuals, such as cotton and lettuce, or perennials, such as alfalfa and strawberries (*Fragaria ananassa*). The annuals are usually planted in the spring and harvested in the summer or fall. They may also be rotated with other irrigated crops after the fall harvest of a previous crop, dry farmed, and then harvested in the late spring. Irrigated row and field crop at the time of surveys included alfalfa, tomatoes, sunflowers, and corn. Fallow fields and along the periphery of the active fields consisted of disturbed annual grassland vegetation and associated wildlife species as described in the previous section. Approximately 1167 acres of irrigated row crops exist within the survey area.

Orchards
As stated by Mayer and Laudenslayer (1988), orchards are single species tree dominated habitats arranged in a linear pattern and often spaced to prevent tree crowns from touching. Often the understory in orchards are managed to prevent herbaceous growth. Orchard crop species observed within the survey area included almonds and walnuts. Approximately 145 acres of orchards occur onsite. Wildlife species known to utilize these orchard crops include northern flicker (*Colaptes auratus*), scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), plain titmouse (*Parus inornatus*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), and California ground squirrel (*Spermophilus beecheyi*).

Water
Water habitats include Waters of the U.S. dominated by open water such as ponds, rivers, and lakes. In the survey area, rivers, canals, ponds, and irrigation ditches delineated were included in this habitat type. Water habitats are typically void of vegetation, however, fresh emergent vegetation is often associated with the banks of water habitats and occasionally within slow moving waters including canals and streams. Dominant species within the vegetated irrigation canals in the survey area include cattails (*Typha* sp.), vervain (*Verbena* sp.), yellow nutsedge (*Cyperus esculentus*), tall cyperus (*Cyperus eragrostis*) and floating primrose willow (*Ludwigia peploides*). Wildlife that typically utilize this habitat type include northern harrier (*Circus cyaneus*), killdeer (*Charadrius vociferous*), western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), gopher snake (*Pituophis melanoleucus catenifer*), garter snake (*Thamnophis couchi*), and pacific tree frog (*Hyla regilla*). There are approximately 60 acres of open water habitats within the survey area (please refer to the Drat Delineation of Waters of the U.S. for the PG&E Line 407 Project prepared by GCI in August 2007 for a detailed description of the Waters of the U.S. delineated onsite).

Rice
A small portion of the study area along Riego Road is active rice fields. Although they can be considered a type of fresh emergent wetland, rice fields are subject to human-induced water regimes and function as an agricultural crop rather than a naturally occurring wetland. However, in the Sacramento Valley they do support many of the same species that naturally occurring fresh emergent wetlands do (see above description),

in addition to arrowhead (*Sagittaria* ssp.), water plantain (*Alisma lanceolata*), and numerous waterfowl, egrets, and white-faced ibises (*Plegadis chihi*). Rice fields can also provide habitat for the federally and state threatened giant garter snake (*Thamnophis gigas*). Approximately 681 acres of rice fields occur within the survey area.

Valley-foothill Riparian

Riparian habitat is critical for many species, providing food, water, migration and dispersal corridors and escape, nesting and thermal cover for a very high density of California's wildlife. Mayer and Laudenslayer (1988) report that more than 50 reptiles and amphibian species, 147 bird species and 55 mammal species can occur in the California's Central Valley riparian communities. The riparian habitat onsite can be found within the vegetated irrigation canals running through the survey area and along the banks of the Sacramento River. There are approximately 18 acres of riparian habitat within the survey area.

Dominant vegetation in the canopy layer of the riparian habitat onsite included cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), and valley oak (*Quercus lobata*). Understory plants included wild grape (*Vitis californica*), wild rose (*Rosa* ssp.), Himalayan blackberry (*Rubus discolor*), blue elderberry (*Sambucus mexicana*) and mixed willow species (*Salix* ssp.). The herbaceous layer consisted of nutsedges (*Cyperus* ssp.), cattails, spikerushes (*Eleocharis* ssp.), and grasses including canary grass (*Phalaris* ssp.). Characteristic wildlife in this habitat type includes egrets (*Casmerodius albus*), ducks, raptor species, swallows, bats, broad-footed mole (*Scapanus latimanus*), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*).

Disturbed / Urban

Approximately 273 acres of the survey area is characterized as disturbed/urban, which includes disked fallow croplands, disturbed roadsides, commercial and residential developments, and associated infrastructure (i.e. roads). As stated by Mayer and Laudenslayer (1988), most units of the urban vegetation are relatively static in species composition due to maintenance. Species commonly associated with the urban environment include scrub jays, raccoons, European starlings (*Sturnus vulgaris*), mockingbirds (*Mimus polyglottos*), house finches, striped skunks, opossum (*Didelphis virginiana*), and rock doves (*Columba livia*).

Forested Upland

Forested uplands are areas dominated by an upland tree canopy including oak woodlands and pine forests. Within the survey area the forested upland areas are dominated by oaks (*Quercus* ssp.) but are small and occur interspersed with annual grassland and urban habitat types. There are approximately 13 acres of forested upland areas within the survey area. Wildlife species utilizing these areas typically include American crows, scrub jays, mourning doves (*Zenaida macroura*), starlings, mockingbirds, and western gray squirrels (*Sciurus griseus*).

Special-status Plant Species Known to Occur

No special-status plant species were observed within the survey boundaries during the protocol-level surveys. Due to the highly disturbed nature of the survey area, no suitable habitat for special-status plants occurs onsite.

Potential Effects

No potential impacts to special-status plants are expected to occur within the survey area due to the proposed project.

Additional Recommendations

Though no special-status plant species were observed onsite, an additional survey should be performed if construction activity does not occur within 3 years. Seeds of plants can be easily transferred in to the project area in a 3-year period by wind or water and can germinate should suitable conditions occur. If special-status plants should be observed at that time, the following avoidance and minimization recommendations taken from the CNPS Policy on Mitigation Guidelines Regarding Impacts to Rare, Threatened, and Endangered Plants (February 1991, revised April 1998) should be followed. California Native Plant Society List 1B and 2 plants meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act) or Section 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA. List 1B and 2 plants may require mitigation; these mitigation options are listed below (CEQA, Section 15370):

1) Avoiding the impacts altogether by not taking a certain action.
2) Minimizing impacts by limiting the degree or magnitude of the action.
3) Rectifying the impacts by repairing, rehabilitating, or restoring the impacted environment.

4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project.
5) Compensating for the impacts by replacing or providing substitute resources or environments.

Conclusions and Determinations

Due to the highly disturbed nature of the survey area, no potential exists for special-status plant species to occur onsite and thus, no impacts to these species are expected to result from the proposed project.

References

California Department of Fish and Game (CDFG). November 2003. *California Natural Diversity Data Base* (CNDDB). Sacramento, California.

_____. California Wildlife Habitat Relationship System. California Department of Fish and Game Biogeographic Data Branch. Available online at: http://www.dfg.ca.gov/whdab/html/wildlife_habitats.html#Agricultural

California Endangered Species Act. Fish and Game Code, Sections 2050-2098. Native Plant Protection Act. Fish and Game Code, Sections 1900-1913.

California Native Plant Society. Rare Plant Scientific Advisory Committee. February 1991, revised April 1998. Policy on Mitigation Guidelines Regarding Impacts to Rare, Threatened, and Endangered Plants. Sacramento, California.

Mayer, Kenneth E.; Laudenslayer, William F., Jr., eds. 1988. A guide to wildlife habitats of California. Sacramento, CA: California Department of Fish and Game. Available online: http://www.dfg.ca.gov/whdab/cwhr/pdfs/CSC.pdf [2006, August 5].

Skinner, M. and B. Pavlik. 2001. Inventory of rare and endangered vascular plants of California, 6th edition. California Native Plant Society. Sacramento, CA.

Weather Underground, Inc. 2007. available online at http://www.wunderground.com/

Personal Observation

Elena Alfieri, botanist, Gallaway Consulting, Inc. 2007
Brooks Taylor, biologist, Gallaway Consulting, Inc. 2007
Breanna Owens, biologist, Gallaway Consulting, Inc. 2007

Appendix A: CNDDB, CNPS, and USFWS Species Lists

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
WOODLAND (514A)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: June 9, 2007

Document Number: 070806023552

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation became final on May 15, 2006. See our map index.

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas

giant garter snake (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

Key:

(E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed (in the Federal Register) for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compen-sates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before

the end of your project.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be November 04, 2007.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:34 b

{QUADS_123} =~ m/514A|530C|530D|513B|513C|529C|514B|514(Search

Tip: Words meant to be searched as a unit should be wrapped in quotes, e.g., "coastal dunes". [all tips and help.][search history]

Your Quad Selection: Woodland (514A) 3812167, Zamora (530C) 3812178, Eldorado Bend (530D) 3812177, Grays Bend (513B) 3812166, Davis (513C) 3812156, Knights Landing (529C) 3812176, Madison (514B) 3812168, Winters (514C) 3812158, Merritt (514D) 3812157

Hits 1 to 11 of 11

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex cordulata	heartscale	Chenopodiaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	California macrophylla	round-leaved filaree	Geraniaceae	List 1B.1
		1	Carex lenticularis var. limnophila	lakeshore sedge	Cyperaceae	List 2.2
		1	Cordylanthus palmatus	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	Hibiscus lasiocarpus	rose-mallow	Malvaceae	List 2.2
		1	Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	List 1B.2
		1	Lessingia hololeuca	woolly-headed lessingia	Asteraceae	List 3
		1	Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	List 1B.1

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
3	Valley Oak Woodland	CTT71130CA			G3	S2.1	
4	mountain plover *Charadrius montanus*	ABNNB03100			G2	S2?	SC
5	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
6	valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened		G3T2	S2	

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
VERONA (529D)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: June 9, 2007

Document Number: 070806023658

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation became final on May 15, 2006. See our map index.

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:

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Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:00 b

{QUADS_123} =~ m/529D|513A|513B|528B|528C|512B|529A|529E Search

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[all tips and help.] [search history]

Your Quad Selection: Verona (529D) 3812175, Taylor Monument (513A) 3812165, Grays Bend (513B) 3812166, Sheridan (528B) 3812184, Pleasant Grove (528C) 3812174, Rio Linda (512B) 3812164, Nicolaus (529A) 3812185, Sutter Causeway (529B) 3812186, Knights Landing (529C) 3812176

Hits 1 to 10 of 10

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Atriplex depressa**	brittlescale	Chenopodiaceae	List 1B.2
		1	**Atriplex joaquiniana**	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	**Carex lenticularis var. limnophila**	lakeshore sedge	Cyperaceae	List 2.2
		1	**Cordylanthus palmatus**	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Hibiscus lasiocarpus**	rose-mallow	Malvaceae	List 2.2
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Lepidium latipes var. heckardii**	Heckard's pepper-grass	Brassicaceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

powered by WODA

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
2	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
3	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
4	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S3	
5	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S2	SC
6	giant garter snake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2G3	S2S3	
7	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S2	SC
8	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S2S3	
9	vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered		G3	S2S3	

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
TAYLOR MONUMENT (513A)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: June 9, 2007

Document Number: 070806023745

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation became final on May 15, 2006. See our map index.

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:

(E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed (in the Federal Register) for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out

what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compen-sates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands

are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be November 04, 2007.

Inventory of Rare and Endangered Plants

v7-07b 4-12-07

Status: search results - Wed, Jun. 20, 2007 11:47 c

{QUADS_123} =~ m/513A|529C|529D|512B|512C|528C|513B|513(Search

Tip: Having trouble with a multi-word search? Try a single word, e.g. ginger or cobra.
[all tips and help.][search history]

Your Quad Selection: Taylor Monument (513A) 3812165, Knights Landing (529C) 3812176, Verona (529D) 3812175, Rio Linda (512B) 3812164, Sacramento East (512C) 3812154, Pleasant Grove (528C) 3812174, Grays Bend (513B) 3812166, Davis (513C) 3812156, Sacramento West (513D) 3812155

Hits 1 to 12 of 12

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex cordulata	heartscale	Chenopodiaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	Carex lenticularis var. limnophila	lakeshore sedge	Cyperaceae	List 2.2
		1	Cordylanthus palmatus	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	Downingia pusilla	dwarf downingia	Campanulaceae	List 2.2
		1	Gratiola heterosepala	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	Hibiscus lasiocarpus	rose-mallow	Malvaceae	List 2.2
		1	Legenere limosa	legenere	Campanulaceae	List 1B.1
		1	Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	List 1B.2
		1	Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
2	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
3	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S3	
4	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S2	SC
5	giant garter snake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2G3	S2S3	
6	great egret *Ardea alba*	ABNGA05010			G5	S4	
7	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
8	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S2	SC
9	valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened		G3T2	S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Heckard's pepper-grass *Lepidium latipes var. heckardii*	PDBRA1M0K1			G4T1	S1.2	1B.2
2	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
3	San Joaquin spearscale *Atriplex joaquiniana*	PDCHE041F3			G2	S2.1	1B.2
4	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S2	
5	alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1			G1T1	S1.1	1B.2
6	brittlescale *Atriplex depressa*	PDCHE042L0			G2Q	S2.2	1B.2
7	giant garter snake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2G3	S2S3	
8	mountain plover *Charadrius montanus*	ABNNB03100			G2	S2?	SC
9	palmate-bracted bird's-beak *Cordylanthus palmatus*	PDSCR0J0J0	Endangered	Endangered	G1	S1.1	1B.1
10	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S2	SC
11	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G4T3	S2	SC
12	white-faced ibis *Plegadis chihi*	ABNGE02020			G5	S1	SC

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species
that Occur in or may be Affected by Projects in the
GRAYS BEND (513B)
U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: June 9, 2007

Document Number: 070806023834

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delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
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winter-run chinook salmon, Sacramento River (E) (NMFS)

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California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Plants

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

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v7-07b 4-12-07

Status: search results - Wed, Jun. 20, 2007 12:03 c

{QUADS_123} =~ m/513B|529C|529D|514A|514D|530D|513A|513(Search

Tip: Word fragments must be completed with a wildcard, e.g., `esch* hyp*` for Eschscholzia hypecoides.[all tips and help.][search history]

Your Quad Selection: Grays Bend (513B) 3812166, Knights Landing (529C) 3812176, Verona (529D) 3812175, Woodland (514A) 3812167, Merritt (514D) 3812157, Eldorado Bend (530D) 3812177, Taylor Monument (513A) 3812165, Davis (513C) 3812156, Sacramento West (513D) 3812155

Hits 1 to 9 of 9

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex cordulata	heartscale	Chenopodiaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	Carex lenticularis var. limnophila	lakeshore sedge	Cyperaceae	List 2.2
		1	Cordylanthus palmatus	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	Hibiscus lasiocarpus	rose-mallow	Malvaceae	List 2.2
		1	Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	List 1B.2
		1	Lessingia hololeuca	woolly-headed lessingia	Asteraceae	List 3

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

powered by WODA

Appendix B: Botanist Qualifications

Elena Alfieri

BOTANIST

Gallaway Consulting, Inc.

117 Meyers Street, Suite 110, Chico, CA 95928

Starting and ending dates: May 2006 – present

EDUCATION

BACHELOR OF SCIENCE in EVIRONMENTAL BIOLOGY AND MANAGEMENT, BOTANICAL EMPHASIS – *Interdisciplinary Degree*
Department of Biological Sciences, University of California, Davis
Awarded in December 2004

EXPERIENCE

Elena Alfieri has over 2 years of experience conducting botanical/rare plant surveys, wetland delineations, and valley elderberry longhorn beetle surveys (VELB) in project sites ranging from 1 to 2,000 acres, and habitat classification and mapping for the U.S. Department of Agriculture Forest Service. Ms. Alfieri has also acquired extensive knowledge of greenhouse management and exotic and native plant maintenance and identification through her many years working for the U.C. Davis Botanical Conservatory. Course work for Ms. Alfieri during her attendance at U.C. Davis included multiple plant taxonomy, plant biology and paleobotany classes. During her time at Gallaway Consulting, Inc. Ms. Alfieri has gained experience in assisting with protocol-level wet season vernal pool invertebrate surveys. Her areas of expertise include general botanical surveys and plant identification, rare plant surveys, and wetland delineations. Her recent work includes conducting protocol-level Butte County meadowfoam surveys for the Byrne Habitat Conservation Bank in Chico, California.

Appendix C: USFWS and CNPS Survey Protocol

Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants

January, 2000

These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed. or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire study area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.
2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations(s) is not available, investigators should study specimens from local herbaria.
3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.
4. Report results of botanical field inventories that include:

a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species

b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name

c. survey dates and survey methodology(ies)

d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made

e. a comprehensive list of all vascular plants occurring on the project site for each habitat type

f. current and historic land uses of the habitat(s) and degree of site alteration

g. presence of target species off-site on adjacent parcels, if known
h. an assessment of the biological significance or ecological quality of the project site in a local and regional context
5. If target species is(are) found, report results that additionally include: a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors. c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports. d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.
6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base maintained by the Natural Heritage Division of the California Department of Fish & Game. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.
7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than 3 years from the current date of project proposal submission will likely need additional survey.
8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.

CNPS Botanical Survey Guidelines

CALIFORNIA NATIVE PLANT SOCIETY
December 9, 1983
Revised June 2, 2001

The following recommendations are intended to help those who prepare and review environmental documents determine when a botanical survey is needed, who should be considered qualified to conduct such surveys, how surveys should be conducted, and what information should be contained in the survey report. The California Native Plant Society recommends that lead agencies not accept the results of surveys unless they are conducted and reported according to these guidelines.

1. Botanical surveys are conducted in order to determine the environmental effects of proposed projects on all botanical resources, including special status plants (rare, threatened, and endangered plants) and plant (vegetation) communities. Special status plants are not limited to those that have been listed by state and federal agencies but include any plants that, based on all available data, can be shown to be rare, threatened, or endangered under the following definitions:

   > A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.[1]

   Rare plant (vegetation) communities are those communities that are of highly limited distribution. These communities may or may not contain special status plants. The most current version of the California Natural Diversity Database's *List of California Terrestrial Natural Communities*[2] should be used as a guide to the names and status of communities.

   Consistent with the California Native Plant Society's goal of preserving plant biodiversity on a regional and local scale, and with California Environmental Quality Act environmental impact assessment criteria[3], surveys should also assess impacts to locally significant plants. Both plants and plant communities can be considered significant if their local occurrence is on the outer limits of known distribution, a range extension, a rediscovery, or rare or uncommon in a local context (such as within a county or region). Lead agencies should address impacts to these locally unique botanical resources regardless of their status elsewhere in the state.

2. Botanical surveys must be conducted to determine if, or to the extent that, special status or locally significant plants and plant communities will be affected by a proposed project when any natural vegetation occurs on the site and the project has the potential for direct or indirect effects on vegetation.

3. Those conducting botanical surveys must possess the following qualifications:
   a. Experience conducting floristic field surveys;
   b. Knowledge of plant taxonomy and plant community ecology and classification;
   c. Familiarity with the plants of the area, including special status and locally significant plants;

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[1] California Environmental Quality Act Guidelines, §15065 and §15380.
[2] List of California Terrestrial Natural Communities. California Department of Fish and Game Natural Diversity Database. Sacramento, CA.
[3] California Environmental Quality Act Guidelines, Appendix G (Initial Study Environmental Checklist).

d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
e. Experience with analyzing impacts of a project on native plants and communities.

4. Botanical surveys should be conducted in a manner that will locate any special status or locally significant plants or plant communities that may be present. Specifically, botanical surveys should be:

   a. Conducted in the field at the proper times of year when special status and locally significant plants are both evident and identifiable. When special status plants are known to occur in the type(s) of habitat present in the project area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the plants are identifiable at the time of survey.

   b. Floristic in nature. A floristic survey requires that every plant observed be identified to species, subspecies, or variety as applicable. In order to properly characterize the site, a complete list of plants observed on the site shall be included in every botanical survey report. In addition, a sufficient number of visits spaced throughout the growing season is necessary to prepare an accurate inventory of all plants that exist on the site. The number of visits and the timing between visits must be determined by geographic location, the plant communities present, and the weather patterns of the year(s) in which the surveys are conducted.

   c. Conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques[4,5]. Collections (voucher specimens) of special status and locally significant plants should be made, unless such actions would jeopardize the continued existence of the population. A single sheet should be collected and deposited at a recognized public herbarium for future reference. All collections shall be made in accordance with applicable state and federal permit requirements. Photography may be used to document plant identification only when the population cannot withstand collection of voucher specimens.

   d. Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas. All habitats within the project site must be surveyed thoroughly in order to properly inventory and document the plants present. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity.

   e. Well documented. When a special status plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5-minute topographic map with the occurrence mapped, shall be completed, included within the survey report, and separately submitted to the California Natural Diversity Database. Population boundaries should be mapped as accurately as possible. The number of individuals in each population should be counted or estimated, as appropriate.

5. Complete reports of botanical surveys shall be included with all environmental assessment documents, including Negative Declarations and Mitigated Negative Declarations, Timber Harvesting Plans, Environmental Impact Reports, and Environmental Impact Statements. Survey reports shall contain the following information:

   a. <u>Project location and description</u>, including:

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[4] Collecting Guidelines and Documentation Techniques. California Native Plant Society Policy (adopted March 4, 1995).

[5] Ferren, W.R., Jr., D.L. Magney, and T.A. Sholars. 1995. The Future of California Floristics and Systematics: Collecting Guidelines and Documentation Techniques. *Madroño* 42(2):197-210.

1) A detailed map of the location and footprint of the proposed project.
2) A detailed description of the proposed project, including one-time activities and ongoing activities that may affect botanical resources.
3) A description of the general biological setting of the project area.

b. Methods, including:
1) Survey methods for each of the habitats present, and rationale for the methods used.
2) Description of reference site(s) visited and phenological development of the target special status plants, with an assessment of any conditions differing from the project site that may affect their identification.
3) Dates of surveys and rationale for timing and intervals; names of personnel conducting the surveys; and total hours spent in the field for each surveyor on each date.
4) Location of deposited voucher specimens and herbaria visited.

c. Results, including:
1) A description and map of the vegetation communities on the project site. The current standard for vegetation classification, *A Manual of California Vegetation*[6], should be used as a basis for the habitat descriptions and the vegetation map. If another vegetation classification system is used, the report must reference the system and provide the reason for its use.
2) A description of the phenology of each of the plant communities at the time of each survey date.
3) A list of all plants observed on the project site using accepted scientific nomenclature, along with any special status designation. The reference(s) used for scientific nomenclature shall be cited.
4) Written description and detailed map(s) showing the location of each special status or locally significant plant found, the size of each population, and method used to estimate or census the population.
5) Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms and accompanying maps.

d. Discussion, including:
1) Any factors that may have affected the results of the surveys (*e.g.*, drought, human disturbance, recent fire).
2) Discussion of any special local or range-wide significance of any plant population or community on the site.
3) An assessment of potential impacts. This shall include a map showing the distribution of special status and locally significant plants and communities on the site in relation to the proposed activities. Direct, indirect, and cumulative impacts to the plants and communities shall be discussed.
4) Recommended measures to avoid and/or minimize direct, indirect, and cumulative impacts.

e. References cited and persons contacted.

f. Qualifications of field personnel including any special experience with the habitats and special status plants present on the site.

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[6] Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, CA. 471 pp.

Appendix D: List of All Plant Species Observed on May 3, 8, and 14, 2007

Scientific Name	**Common Name**
Ailanthus altissima	Tree-of-heaven
Aira caryophyllea	Silver European hairgrass
Alisma lanceolatum	Water plantain
Amsinkia menzisii	Fiddleneck
Artemesia douglasii	Mugwort
Arundo donax	Arundo
Avena barbata	Annual oatgrass
Azolla ssp.	Water fern
Brasica niger	Black mustard
Bromus diandrus	Rip-gut brome
Bromus hordeaceous	Soft chess
Bromus madritensis rubra	Red brome
Catalpa speciosa	Catalpa
Centaurea solstitialis	Star-thistle
Cerastium ssp.	Mouse-eared chickweed
Chamomillia suaveolus	Common pineapple-weed
Chenopodium ssp.	Common lambsquarters
Circium vulgare	Bull thistle
Convovulus arvensis	Bindweed
Cynodon dactylon	Bermuda Grass
Cyperus eragrostis	Tall Cyperus
Cyperus esculentus	Yellow Nutsedge
Digitaria sanguinalis	Crab Grass
Dipsacus ssp.	Teasel
Eleocharis macrostachya	Pale Spike-rush
Equisetum telmateia	Horestail
Eremocarpus setigerus	Dove Weed
Erodium botrys	Long-beaked stork's-bill
Eucalyptus sideroxylon	Pink Ironbark
Foeniculum vulgare	Fennel
Gastridium ventricosum	Nit Grass
Geranium dissectum	Cut-leaved geranium
Geranium molle	Dove's foot geranium
Grindelia hursutula var. davyi	Gumplant
Heliotropium curvassavicum	Wild heliotrope
Hemizonia fitchii	Fitch's Tarweed
Hordeum marinum	Mediterranean barley
Hordeum murinum	Barley
Juglans niger	Black walnut
Juncus bufonius	Toad Rush
Lactuca serriola	Prickly Lettuce
Lepidium latifolium	Perennial pepperweed
Lolium multiflorum	Annual Ryegrass
Ludwigia peploides	Floating Primrose-willow

Scientific Name	**Common Name**
Lythrum hyssopifolium	Hyssop Loosestrife
Lythrum sp.	Loosestrife
Navarretia leucocephala	White-flowered navarretia
Paspalum distichum	Knotgrass
Phalaris sp.	Canary Grass
Picris echioides	Bristly ox-tongue
Plagiobothrys ssp.	Popcorn Flower
Plantago lanceolata	English plantain
Plantanus x acerifolia	London plane-tree
Pogogyne zizyphoroides	Sacramento Valley Pogogyne
Polygonum arenastrum	Common Knotweed
Polygonum hydropiperoides	Water smartweed
Polypogon monspeliensis	Beardgrass
Populus fremontii	Fremont's Cottonwood
Psilocarphus brevissimus	Wooly Marbles
Ranunculus muricatus	Buttercup
Rosa ssp.	Rose
Rumex crispus	Curly Dock
Salix exerguta	Sandbar willow
Salix gooddingii	Goodding's willow
Salix sp.	Willow
Sambucus mexicana	Blue elderberry
Scirpus acutus	Hard-stemmed Bulrush
Silybum marianum	Milk Thistle
Sonchus ssp.	Sow-thistle
Taeniatherum caput-medusae	Medusae-head Grass
Trichostema lanceolatum	Vingegar Weed
Trifolium variegatum	White-tipped Clover
Typha sp.	Cattail
Verbena sp.	Vervain
Vicia ssp.	Vetch
Vitis californica	Wild grape
Vulpia sp.	Vulpia
Xanthium strumarium	Cocklebur

Attachment A: Habitat Characterization Map

PG&E Line 407 **Habitat Types**

Habitat Types	Area (ft.^{2})	Acres
Annual Grassland Total =	27254574.750	625.679
Dry Land Grain Crops Total =	11291416.641	259.215
Disturbed Area - Urban Area Total =	11898876.995	273.161
Forested Upland Total =	579161.871	13.296
Irrigated Row and Field Crops Total =	50831672.521	1166.935
Rice Total =	29683985.645	681.451
Orchard Total =	6306506.553	144.777
Valley Foothill Riparian Total =	799542.009	18.355
Water Total =	2609879.765	59.915
Total Habitat =	141255616.749	3242.783

Survey area derived from 500 ft. buffer of roadway
Surveyor West: EA, BT Survey Dates 5/3/07, 5/8/07, 5/14/07, 6/21/07)
Surveyor East: JG,SI,EA Survey Dates July 21, 24 - 28, Aug 10 & 25 2006
Aerial Feb 2005 (NAIP) Map Date August 6, 2007

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Attachment A.1

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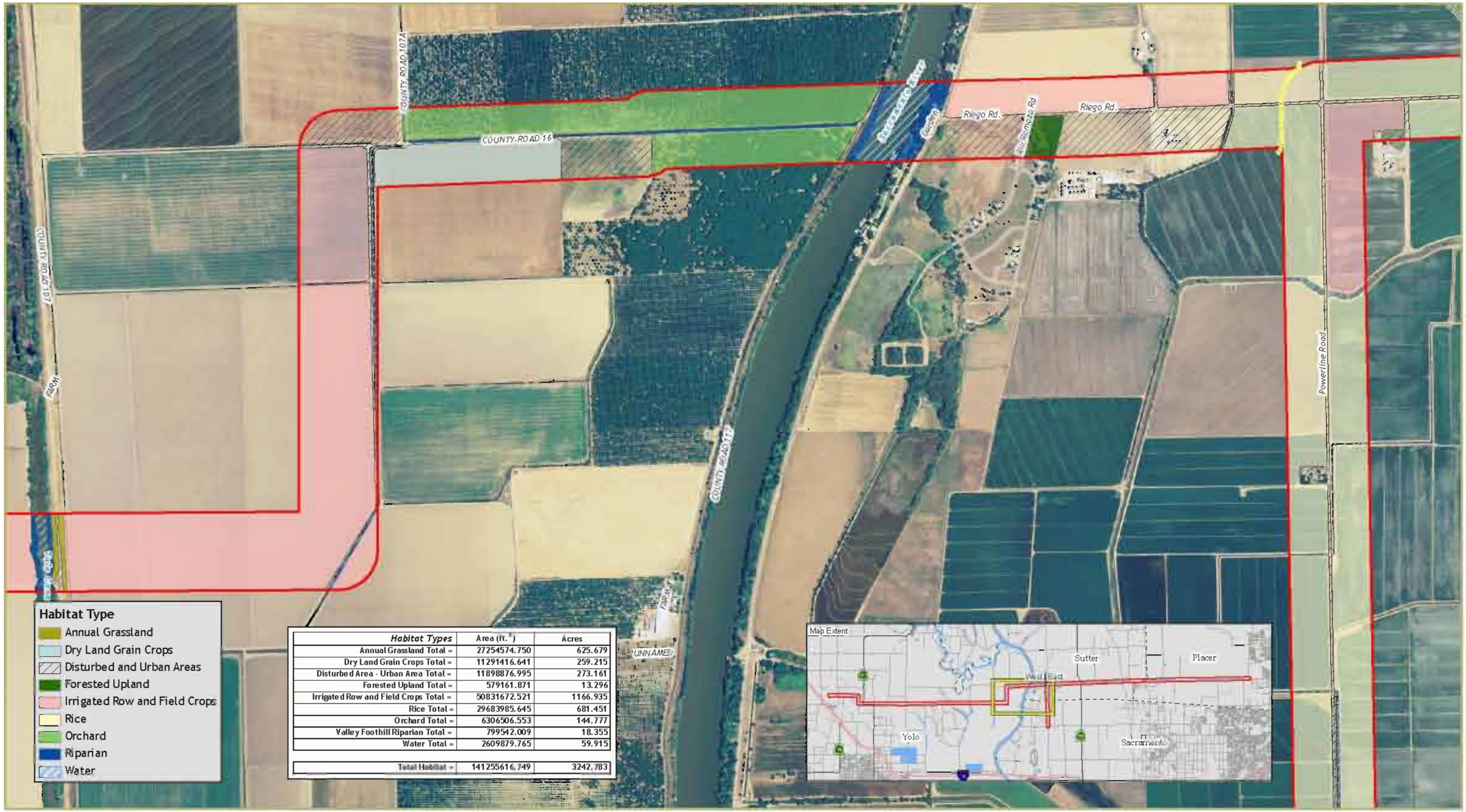

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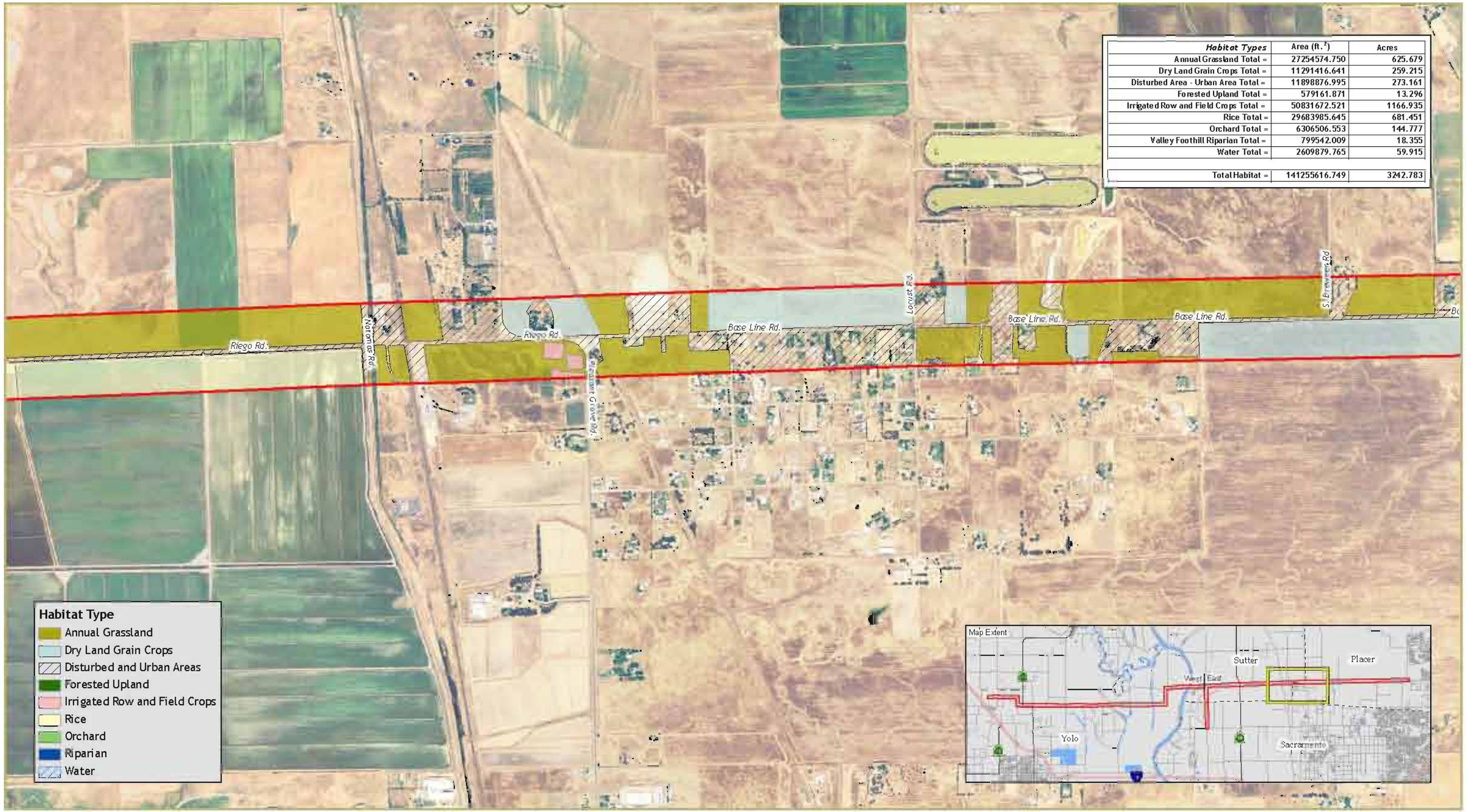

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E-6: Line 406/407 Amphibian and Reptile Habitat Assessment

SPECIAL-STATUS AMPHIBIAN AND REPTILE SPECIES HABITAT ASSESSMENT
for the
PACIFIC GAS and ELECTRIC COMPANY
NATURAL GAS TRANMISSION LINE 406/407 PROJECT
PLACER, SACRAMENTO, SUTTER, and YOLO COUNTIES

Prepared by:
Pacific Gas and Electric Company
Environmental Services
350 Salem Street
Chico, California 95928

Prepared for:
Pacific Gas and Electric Company
Technical and Land Services
2730 Gateway Oaks Drive
Sacramento, CA 95833

August 15, 2006

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Tables

1 Special-Status Amphibian and Reptile Species with Potential to Occur in the Project Vicinity

1 INTRODUCTION

1.1 Background

The Pacific Gas and Electric Company (PG&E) is planning to construct the Natural Gas Transmission Line 406 and Line 407 Project (project) to address the need for additional natural gas supply to serve on-going residential and commercial load growth in the greater Sacramento River Valley region within Placer, Sutter, Sacramento, and Yolo counties. The project includes approximately 40 miles of 30-inch transmission pipeline, approximately 2.5 miles of 10-inch transmission pipeline, and a number of pressure regulation and metering stations and additional appurtenances to serve load growth and new development in the region. Service to the area is required by late 2009.

1.2 Objectives of Amphibian Assessment

This special-status amphibian and reptile species habitat assessment was prepared as a supplement to the project Biological Assessment. The objectives of this habitat assessment are to summarize the results of field reconnaissance and review of existing resource information; assess the potential for project activities to affect special-status herpetofauna species; and to propose measures that minimize or avoid potential adverse effects of the project.

1.3 Project Description

1.3.1 General project area

The project area extends from west of the City of Roseville, Placer County to western Yolo County (Lines 400 and 401). The proposed alignment follows a series of county roads and crosses several expanses of open croplands, grasslands and riparian belts associated with various water crossings. The alignment is generally flat with the exception of rolling grasslands in the Dunnigan Hills area. Elevation along the alignment ranges from approximately 15 to 255 feet above mean sea level. Primary land use along the alignment is agricultural and current residential development is considered rural and sparse in nature.

Six natural vegetation communities were identified along the project alignment. These communities are non-native annual grasslands (most prevalent community type), valley freshwater marsh, seasonal wetland, vernal pool, riparian forest/scrub, and oak woodland habitat types. The majority of the proposed alignment passes through agricultural lands supporting various dry-land crop and rice production.

1.3.2 Description of proposed project

Pipeline Segments and Regulator Stations

The new gas transmission pipeline will consist of three segments:

- 30-inch Line 407 East will extend west from existing Line 123 on the northwest corner of Fiddyment Road and Baseline Road in Placer County to the corner of Riego Road and Powerline Road in Sutter County (12-miles).

- 10-inch Powerline Road Feeder Main (DFM) will extend south from Line 407 East to the corner of Powerline Road and West Elverta Road in northern Sacramento County (2.5-miles).
- 30-inch Line 407 West will extend from the corner of Riego Road and Powerline Road in Sutter County to Line 172A, just east of Interstate 5 in Yolo County (13.5-miles).
- 30-inch Line 406 will extend from Line 172A, just east of Interstate 5 in Yolo County to Lines 400/401 in western Yolo County (14-miles).

PG&E will also construct various pressure regulation stations in fenced, above-ground yards. Pressure Limiting Stations are required to assure the proper pressures are maintained in the transmission system. Regulation Stations are required to reduce the pressure of the gas before delivering it to the distribution pipeline system.

Construction and Right-of-Way

Construction of the pipeline will generally require a 100-foot wide construction right-of-way (ROW). The construction ROW may be narrowed in places to avoid environmental impacts; however, additional workspace may be needed at select locations for stream crossings, road crossings, and in other areas where special construction methods are required. A 50-foot permanent easement is required for operation and maintenance of the pipeline.

2 STUDY METHODS

2.1 Species Evaluated

Prior to conducting reconnaissance-level surveys, target lists of special-status amphibian and reptile species that have been recorded in or that have potential to occur in the project area were prepared (Table 1). Special-status species lists from the U.S. Fish and Wildlife Service (USFWS), California Natural Diversity Data Base (CNDDB), and California Department of Fish and Game (CDFG) Special Animals List, were referenced to compile a master list of species from these two taxa. Species lists were compiled for the following U.S. Geological Survey (USGS) 7.5-minute quadrangles:

- Esparto
- Madison
- Woodland
- Knights Landing
- Verona
- Grays Bend
- Taylor Monument
- Rio Linda
- Citrus Heights

- Pleasant Grove
- Roseville

Sources of information used to compile species lists included the on-line USFWS list of federally threatened and endangered species (USFWS 2007a), the CDFG California Natural Diversity Database (CDFG 2007a), and the CDFG Special Animals list (CDFG 2007b).

Special-status species were defined as those species currently listed, proposed for listing, or candidates for listing as rare, threatened, or endangered under Federal or California State Endangered Species Acts. California State species of concern were also reviewed (CDFG).

A total of three special-status amphibian species and three special-status reptile species with potential to occur in the project area and/or vicinity were identified (Table 1); all six species are further evaluated in this assessment.

2.2 Project Surveys

In order to encompass all potential ROW adjustments, extra work spaces, and potential effects of the project on the environment, a survey area of 500 feet was established and assessed for both sides of the proposed pipeline alignment (1000-foot survey corridor). Aerial photography and geographic information system maps, in conjunction with ground reconnaissance surveys, were used to assess the potential for sensitive species habitats to occur within the project survey corridor. Reconnaissance-level field surveys of the project alignment were performed on June 12 & 13, 2006 for L407 East; November 30, December 5 and 7, 2006 for L406; and June 29, 2007 for L407 West. The purpose of these reconnaissance level surveys was to assess site conditions, habitat types present, and to note any special-status wildlife species and habitats that may be present. The survey corridor was assessed by driving available roads and walking representative portions of the habitat within the survey area along the pipeline alignment, thus allowing a close-up inspection of the habitat; observable habitat characteristics were noted. The survey area was assessed for its potential to provide suitable habitat for special-status amphibian and reptile species. The only amphibians documented during surveys were introduced bullfrogs, *Rana catesbeiana*. Both tadpole and juvenile lifestages were observed.

3 RESULTS

3.1 Herpetofauna

Special-status herpetofauna species potentially occurring in the project action area may be directly impacted by noise, vibration, dust, sedimentation, vegetation removal, and human presence associated with the pipeline construction. Indirect impacts may also result from these activities in the form of degraded habitat quality resulting in future lost foraging opportunities or decreased prey base and impacted water quality. Significance of these impacts will vary according to when work is performed. Work that occurs during the typical wet season (mid-October through mid-May) would likely have the

most detrimental effects on herpetofauna species in the area, as they will be traversing open land to move between aquatic and terrestrial habitats. Construction of pressure regulating stations will result in a small permanent loss of habitat (4625 sq ft) identified in the project area. Project construction impacts/disturbance will be temporary in nature. The following are individual herpetofauna species accounts which include project area habitat suitability assessment and potential project related effects.

3.1.1 Special-status amphibians

California tiger salamander (*Ambystoma californiense*)

Status, distribution, and habitat requirements

The California tiger salamander (CTS) was federally designated as threatened in 2004 (USFWS 2004). Critical habitat was designated in 2005 (USFWS 2005), though the project area does not fall within the critical habitat designation. It is also listed as a state species of concern. The salamander is a California endemic, and occurs in low elevations of the Coast Ranges from Sonoma County to Santa Barbara County and in the Central Valley from Colusa County to Tulare County (Jennings and Hayes 1994). It breeds in long-lasting temporary pools as well as some permanent pools in grasslands and oak woodland habitats with small mammal burrows, particularly those of the California ground squirrel (*Spermophilus beechii*), in which it estivates (Jennings and Hayes 1994). Migration to and from breeding sites typically occurs at night following relatively warm rains from November to March (Shaffer and Fisher 1991). Juvenile salamanders may spend up to five years traveling farther and farther away from breeding pools, before returning to the one they came from or discovering another.

Habitat assessment and occurrence in the project area

Aquatic habitat was present in the project area in the forms of creeks (Curry Creek and an unnamed tributary) and drainage ditches in the L407 East segment of the project. The L407 West segment had canals, rice paddies, sloughs, the Sacramento River and drainage ditches, while canals and drainage ditches and small ephemeral streams on the L406 segment of the project area. It is known that vernal pools exist in the vicinity, but none were documented to hold water at the time of the surveys. Even though vernal pool habitats were not holding water during surveys, the area is considered potential breeding habitat for CTS, especially in the L406 segment. The open grassland provides dispersal potential, but estivation habitat (burrows and other refugia) is limited. Few small gopher/vole burrows were documented in L407 East and West, with no larger ground squirrel burrows noted, while L406 segment has many large burrow complexes. CNDDB records exist for the salamander in the L406 segments of the project area. The California Tiger Salamander is highly likely to occur in the project area.

Potential Project Related Effects

CTS is known to occur near the L406 segment area and may to be encountered during construction activities. Project activities that may impact aquatic and upland habitats through excavation or filling could take potentially occurring CTS directly through mortality, harassment, and disruption of

reproduction. During the design of the final construction plan, all attempts possible will be made to avoid surface impacts to, and within 200 feet of, aquatic habitat. Project conservation measures will ensure that impacts to CTS and its habitat are minimized or avoided. However, the project is likely to adversely affect CTS.

California red-legged frog (*Rana aurora draytonii*)

Status, distribution and habitat requirements

The California red-legged frog (CRLF) was designated as federally threatened in 1996 (USFWS 1996) and is a state species of concern. A recovery plan for the frog was published in 2002 (USFWS 2002) and Critical Habitat was designated in 2006 (USFWS 2006), though the project area does not fall within the critical habitat designation. Formerly much more widespread, current CRLF distribution is characterized as isolated localities in the Sierra Nevada and along the north and central coast range, and northern transverse range (USFWS 2002). The frog inhabits lowlands and foothills in or near permanent deep water with dense growth of emergent and woody riparian vegetation bordering permanent and semipermanent ponds, ponded streams, marshes, and springs (USFWS 1997). Upland habitat surrounding breeding areas is important for shelter during dispersal and estivation. However, it may travel considerable distances away from water on rainy nights (USFWS 1997) and overland movements in excess of two miles have been recorded. At any time of the year, the frogs may take refuge in burrows and other refugia up to several dozen meters from water (USFWS 1997).

Habitat assessment and occurrence in the project area

Aquatic habitat was present in the project area in the forms of creeks (Curry Creek and an unnamed tributary) and drainage ditches in the L407 East segment of the project. The L407 West segment had canals, rice paddies, sloughs, the Sacramento River and drainage ditches, while canals and drainage ditches and small ephemeral streams on the L406 segment of the project area. It is known that vernal pools exist in the vicinity, but none were documented to hold water at the time of the surveys. Because of the relatively shallow water and ephemeral nature of Curry Creek and an unnamed tributary to the Natomas East Main Canal the area is considered marginal for CRLF breeding. While the surrounding open grassland provides dispersal potential, estivation habitat (burrows and other refugia) is limited. No CNDDB records were found for CRLF within 10 miles of the project vicinity and bullfrog juveniles and tadpoles were identified in Curry Creek. As such, CRLF is not likely to occur in the project area.

Potential project-related effects

Potential habitat for CRLF is considered marginally suitable throughout the project area. In addition, CRLF has not been recorded in the project vicinity; therefore it is not expected to occur at project worksites. The project is expected to have no effect on CRLF.

Western Spadefoot (*Spea hammondii*)

Status, distribution, and habitat requirements

The western spadefoot is designated as a federal and state species of concern. It ranges from the northern end of California's central valley south into northwest Baja California. It also ranges east of the Sierras and the deserts, from near sea level up to 4,000 ft. (1200 m.). The spadefoot prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. The spadefoot breeds from January to May in temporary pools and quiet streams which do not contain bullfrogs, fish, or crayfish. The species burrows into drying pool bottoms or seeks refuge in mammal burrows to pass the dry season (Stebbins 2003).

Habitat assessment and occurrence in the project area

Vernal pool and seasonal wetland habitats in the project area provide suitable potential breeding habitat. Also, lowland soils provide excellent estivation habitat as spadefoots do not use the burrows of mammals, but use their hind limbs to bury themselves in loose, well drained soils. In addition, several CNDDB records exist for the species in the L407 East project area; therefore the species has a moderate to high potential for occurrence in the L407 East segment of the project area.

Potential project-related effects

Western spadefoots are known from the L407 East segment and suitable habitat exists for them. Project activities that may directly impact on-site grasslands, seasonal wetlands and vernal pools through excavation or filling could take potentially occurring western spadefoots and alter the hydrology of the wetland, thereby affecting its natural function. Construction activities may directly impact the seasonal wetlands and vernal pools in the project area. Project activities that may result in sedimentation and alteration of hydrologic regime may indirectly affect spadefoots. During the design of the final construction plan, all attempts possible will be made to avoid surface impacts to and within 250 feet of the wetlands. This practice will also minimize the amount of grassland habitat to be disturbed. Project mitigation measures will ensure that indirect impacts to seasonal wetlands are minimized or avoided. However, the project is likely to have significant impacts to western spadefoots.

3.1.2 Special-status reptiles

Western pond turtle (*Emys [=Clemmys] marmorata*)

Status, distribution, and habitat requirements

The western pond turtle is designated as a federal and state species of concern. In California, western pond turtles were historically present in most Pacific-slope drainages between the Oregon and Mexican borders (Jennings and Hayes 1994). The turtle is divided into two subspecies; the northwestern sub-species (*E.m.marmorata*) and the southwestern sub-species (*E.m.pallida*). This assessment focuses on

the northwestern sub-species. The turtle is associated with still or slow-moving permanent or nearly permanent aquatic habitats with access to suitable basking sites (logs, rocks, or open banks) and nearby upland nesting habitat. Western pond turtles are thoroughly aquatic and can be found throughout the state inhabiting woodland, grassland, and open forest habitats that contain ponds, permanent pools along intermittent drainages, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation (Stebbins 2003).

Habitat assessment and occurrence in the project area

The larger canals throughout the L407 West and L406 segments of the project area provide suitable habitat for western pond turtles. In addition, portions of Curry Creek and the unnamed tributary in L407 East segment may have permanent pools that could provide suitable habitat for the turtle in the eastern portion of the project area. Upland areas surrounding these waterways could provide suitable nesting habitat. The western pond turtle has moderate potential to occur in the project area.

Potential project-related impacts

The western pond turtle is not known to occur in the project area, but suitable habitat does exist. There is moderate potential to encounter the turtle at project worksites. Project activities that may directly impact on-site aquatic and upland habitats through excavation or filling could take potentially occurring western pond turtle. Also, project activities may result in sedimentation and alteration of hydrologic regime thereby indirectly affecting turtles. Project conservation measures will ensure that impacts to the western pond turtle and its habitat are minimized or avoided. However, the project may significantly impact western pond turtle.

California horned lizard (*Phrynosoma coronatum*)

Status, distribution, and habitat requirements

The California horned lizard is designated as a federal species of concern as well as a state species of concern. This lizard can be found throughout most of California west of the desert and Cascade/Sierra Nevada highlands. They frequent several different habitat communities including scrubland, grassland, coniferous forests, and broadleaf woodland. The coast horned lizard is common in lowlands along sandy washes where scattered low shrubs provide cover. Habitat requirements include open areas for basking and loose soils in which they can bury themselves (Stebbins 2003).

Habitat assessment and occurrence in the project area

Grassland habitat is available in the project area; however these areas lack low shrubs with very loose sandy soils for refuge and estivation. In addition, these lizards are more often known from the foothills and highlands, not the Central Valley floor. The valley floor is likely too moist through the winter to allow these reptiles refuge; unlike the amphibian species that burrow in loose soils these reptiles cannot

tolerate inundation during long wet periods. There are no known occurrences of the lizard within the project vicinity. The species has very low potential for occurring in the project area.

Potential project-related effects

Potential grassland habitat for the horned lizard exists in the project area, but suitable foraging, breeding, and estivation habitat do not. The horned lizard has not been recorded in the project vicinity and extant populations of horned lizard are not known from Sutter or Sacramento Counties. The nearest known occurrences are near Colfax in eastern Placer County. California horned lizards are not likely to occur in the project area. As such, the project is expected to have no significant impacts to the horned lizard.

Giant garter snake (*Thamnophis gigas*)

Status, distribution, and habitat requirements

The giant garter snake was federally designated as threatened in 1993 (USFWS 1993), and a draft recovery plan was proposed in 1999 (USFWS 1999). It is also listed by the state as threatened. The giant garter snake is endemic to valley floor wetlands of the Sacramento and San Joaquin Valleys and its current range extends from near Chico in Butte County south to Fresno County. Thirteen known populations are concentrated in portions of the rice production zones in the Butte, Colusa, Sutter, American, Sacramento, and Yolo basins as well as the areas of Bader Creek-Willow Creek, Caldoni Marsh, East Stockton -Diverting Canal and Duck Creek, North and South Grasslands, Mendota, and Burnell-Lanare. The species inhabits freshwater marshes, wetlands, slow-moving streams, drainage ditches, irrigation canals, and rice fields of the Central Valley. The giant garter snake requires emergent or riparian vegetation for cover and foraging, basking, and upland habitat for retreat and hibernation activities. The snake also requires permanent water during its active period of May through October (USFWS 1993).

Habitat assessment and occurrence in the project area

Aquatic habitat was present in the project area in the forms of creeks (Curry Creek and an unnamed tributary) and drainage ditches in the L407 East segment of the project. The L407 West segment had canals, rice paddies, sloughs, the Sacramento River and drainage ditches, while canals and drainage ditches and small ephemeral streams on the L406 segment of the project area. Much of this provides suitable habitat for the giant garter snake, including foraging, breeding, and refugia sites. Forty-two CNDDB records exist of the snake in the lowland areas in the L407 East and West segments of the project area. The giant garter snake is highly likely to occur in the project area.

Potential project-related effects

The giant garter snake is known to occur in the project area and is likely to be encountered during construction activities. Project activities that may impact aquatic and upland habitats through excavation or filling could take potentially occurring giant garter snake directly through mortality, harassment, and

disruption of reproduction. During the design of the final construction plan, all attempts possible will be made to avoid surface impacts to, and within 200 feet of, aquatic habitat. Project conservation measures will ensure that impacts to giant garter snake and its habitat are minimized or avoided. However, the project is likely to adversely affect giant garter snake.

4 SUMMARY OF POTENTIAL EFFECTS

The potential to impact amphibians and reptiles exists year round, because there is potential for estivating and/or nesting animals to be in the ground at any time of the year. Excavation poses the greatest threat to subterranean wildlife, which may be crushed or buried. The risk increases during the wet season (typically mid-October through mid-May), when animals may be moving between terrestrial and aquatic habitats. At these times the animals are more vulnerable to being crushed by moving equipment on roads or at work sites. Though this risk is ameliorated by the fact that most amphibians and turtles move at night, migrating animals may take refuge under equipment during the day.

5 PROJECT CONSERVATION MEASURES

To minimize potential project related impacts, the following measures are recommended:

- Confine all heavy equipment, vehicles, and construction work to existing access roads, road shoulders, and disturbed or designated areas. Avoid construction activities within 200 feet from the banks of giant garter snake aquatic habitat.

- Construction activity within habitat should be conducted between May 1 and October 1. This is the active period for giant garter snakes and direct mortality is lessened, because snakes are expected to actively move and avoid danger. Between October 2 and April 30 contact the Service's Sacramento Fish and Wildlife Office to determine if additional measures are necessary to minimize and avoid take.

- Immediately before work begins each day, a qualified biologist will perform a pre-construction survey to inspect a 200 foot buffer around any work site within 500 feet of potential aquatic habitat. 24-hours prior to construction activities that take place near giant garter snake habitat, the project area should be surveyed for giant garter snakes. Survey of the project area should be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed.

- Any dewatered habitat should remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

- Employ erosion, sediment, material stockpile, and dust control Best Management Practices (BMPs) on site. Do not permit any fill or runoff to enter wetland areas or waterways.
- Where feasible, HDD construction methods will be used to install the pipeline beneath sensitive wetland habitats identified on-site. This construction practice will avoid direct surface impacts to most wetland resources.
- Properly fence and/or cover unattended, open trenches or excavations to prevent wildlife entrapment. Provide a soil escape ramp to facilitate the escape of any trapped wildlife.

- After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions and contours. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel and soil stabilization.
- Return work areas to preexisting contours and conditions upon completion of work. When work is completed, evaluate and perform if necessary, restoration work (including revegetation and soil stabilization).
- Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as Environmentally Sensitive Areas. This area should be avoided by all construction personnel.
- In accordance with federal and state endangered species acts, report all observations of sensitive species to a PG&E biologist. Allow the PG&E biologist to contact appropriate state and federal resource agency personnel. Take care not to take or harass the species.
- Use extreme caution when handling and or storing chemicals (e.g., fuel and hydraulic fluid) near waterways, and abide by any and all applicable laws and regulations. Follow all applicable hazardous waste BMPs. Appropriate materials will be on site to prevent and manage spills.
- All construction equipment will be well maintained to prevent leaks of fuels, lubricants or other fluids into waterways.
- Service and refueling procedures will be not conducted where there is potential for fuel spills to seep or wash into waterways.
- Properly contain and remove from the project site all trash and waste items generated by construction or crew activities.
- Permit no pets, campfires, or firearms on the project site.
- A qualified biologist will provide environmental awareness training to all construction personnel before construction begins. The training will include species descriptions and protection measure discussion, including training to instruct construction workers to recognize giant garter snakes and their habitat.
- All construction personnel will visually check for wildlife beneath vehicles and equipment before moving or operating them.

6 CONCLUSIONS AND DETERMINATIONS

Several special-status amphibian and reptile species have been recorded in the project vicinity. Of the six species reviewed, four have potential to occur on site and are susceptible to project impacts. Potential adverse impacts to amphibian and reptile species assessed can be minimized or avoided if project conservation measures are implemented. Restricting work to non-sensitive or designated areas, implementation of appropriate construction BMPs, careful handling of chemicals near waterways, providing environmental awareness training to the crew, surveying work sites near aquatic habitat before construction, and restoring the site appropriately are general measures that will reduce or eliminate the negative effects that may be associated with the project. Additional conservation measures that will prevent or minimize adverse affects to potentially occurring sensitive species include avoiding sensitive temporal windows for wildlife, conducting appropriate pre-construction surveys for wildlife species in the project action area, checking for wildlife beneath vehicles and equipment at the project area, and having a

qualified biologist on-site for potential aquatic species rescue purposes. Implementation of all of these measures and careful planning will help ensure that the project has the least amount of adverse affects on ecosystems or sensitive species in the project area.

Three amphibian species were considered for this assessment. The project occurs within potential habitat for the federally listed California tiger salamander, and habitat is of low, moderate, and high quality depending on the segment within the project. The project is expected to have no effect on the California tiger salamander or California tiger salamander critical habitat for the L407 East and West segments; however it is likely to adversely affect CTS in the L406 segment. The federally listed California red-legged frog is not expected to occur in the project area. While there is suitable aquatic habitat, refugia sites are limited and there are no known localities for the frog near the project vicinity. The project is expected to have no effect on California red-legged frog or California red-legged frog critical habitat. Western spadefoot, a species of concern, is expected to occur in the eastern portion of the project area. Suitable habitat for breeding and estivation are present and previous occurrences have been documented. The project is expected to have significant impacts to western spadefoot.

Three reptile species were considered for this assessment. The western pond turtle, a species of concern, is a thoroughly aquatic turtle. Aquatic habitat within the project area has the potential to provide both breeding and basking/refugia sites. The nearest known location for pond turtles is approximately 5 miles from the project area, but the occurrence was in very similar habitat. The project may have significant impacts on western pond turtle. California horned lizard, a species of concern, is not expected to occur in the project vicinity. Horned lizards are found in foothill and highland areas with shrubby vegetation for foraging and refuge and cannot tolerate soils that experience seasonal inundation, therefore the project area does not provide suitable habitat. The project is not expected to have significant impacts on California horned lizard. Giant garter snake, a federally and state listed species, is expected to occur in the project area. Suitable habitat for breeding, foraging, and estivation are present and many previous occurrences in the project vicinity have been documented. The project is likely to adversely affect giant garter snake.

Project activities may impact waterway habitats; therefore it is required that appropriate permitting be obtained. Implementation of and adherence to recommended conservation measures will ensure that the project has the minimal amount of adverse affects on herpetofauna species and habitats.

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Tables

Table 1. Special-Status Amphibian and Reptile Species with Potential to Occur in the Project Vicinity			
Scientific name **Common name**	**Status**[1]	**Habitat Requirements**	**Habitat suitability and occurrence in the project area.**
Ambystoma californiense California tiger salamander	FT CSC	Inhabits lowlands and foothills. Breeds in long-lasting temporary pools as well as some permanent pools in grasslands and oak woodland habitats. Estivates in small mammal burrows, particularly those of the California ground squirrel, as well as cracks and crevices in dry earth.	Habitat is moderately to highly suitable in lowland areas with temporary pools in grasslands. Minimal small burrows (gopher/vole), a lot of ground squirrel activity in L406 segment. Nearest occurrences in Yolo County near Dunnigan and in southeastern Sacramento County. **The species is highly likely to occur in the L406 segment of project area.**
Rana aurora draytonii California red-legged frog	FT CSC	Believed to either never have occurred or to have been extirpated from Valley floor. Inhabits lowlands and foothills in or near permanent deep water with dense growth of emergent and woody riparian vegetation bordering permanent and semipermanent ponds, ponded streams, marshes, and springs. Upland habitat surrounding breeding areas is important for shelter during dispersal and estivation.	Habitat is marginal for CRLF breeding because of the relatively shallow water and ephemeral nature of Curry Creek and an unnamed tributary to the Natomas East Main Canal the area is. The surrounding open grassland provides dispersal potential; estivation habitat (burrows and other refugia) is limited. No CNDDB records were found for CRLF within 10 miles of the project vicinity and bullfrog juveniles and tadpoles were identified in Curry Creek. **The species is not expected to occur in the project area.**
Spea hammondii Western spadefoot	FSC CSC	Inhabits lowlands in open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Breeds in temporary pools and quiet streams.	Vernal pool and seasonal wetland habitats in the project area provide suitable potential breeding habitat and soils provide excellent estivation habitat in the L407 East segment. In addition, several CNDDB records exist for the species in the L407 East segment. **The species has a moderate to high potential for occurrence in the eastern portion of the project area.**
Emys marmorata Western pond turtle	FSC CSC	Can be found throughout the state inhabiting woodland, grassland, and open forest habitats that contain ponds, permanent pools along intermittent drainages, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation.	The larger canals, sloughs, and creeks throughout the project area provide suitable habitat for western pond turtles. Upland areas surrounding these waterways could provide suitable nesting habitat. A Single CNDDB record was found for the turtle approximately 5.5 miles south of the project area. **The species has moderate potential**

Table 1. Special-Status Amphibian and Reptile Species with Potential to Occur in the Project Vicinity			
Scientific name **Common name**	**Status[1]**	**Habitat Requirements**	**Habitat suitability and occurrence in the project area.**
			to occur in the project area.
Phrynosoma coronatum California horned lizard	FSC CSC	Can be found throughout most of California west of the desert and Cascade/Sierra Nevada highlands. Common in lowlands along sandy washes with scattered low shrubs to provide cover and open areas for basking and loose soils in which they can bury themselves.	Grassland habitat is available in the project area; however these areas lack low shrubs and very loose sandy soils for refuge and estivation. In addition, these lizards are more often known from the foothills and highlands, not the Central Valley floor. There are no known occurrences of the lizard within the project vicinity. **The species has very low potential for occurring in the project area.**
Thamnophis gigas Giant garter snake	FT ST	Inhabits freshwater marshes, wetlands, slow-moving streams, drainage ditches, irrigation canals, and rice fields of the Central Valley. Requires emergent or riparian vegetation for cover and foraging and basking and upland habitat for retreat and hibernation activities	Suitable habitat is available throughout the project area, especially in L407 East and West segments, including foraging, breeding, and refugia sites. Forty-two CNDDB records exist of the snake in the lowland areas in the central and western portions of the project area. **The species is highly likely to occur in the project area.**

Status[1]

US Fish and Wildlife Service
FT Federally listed as threatened
FE Federally listed as endangered
FC Federal candidate species
FSC Federal species of concern

California Dept. Fish and Game
CT State listed as threatened
CE State listed as endangered
CSC State species of concern
CFP State fully protected species

E-7: Line 406/407 Avian and Mammalian Habitat Assessment

SPECIAL-STATUS AVIAN AND MAMMALIAN SPECIES HABITAT ASSESSMENT
for the
PACIFIC GAS and ELECTRIC COMPANY
NATURAL GAS TRANMISSION LINE 406/407 PROJECT
PLACER, SACRAMENTO, SUTTER, and YOLO COUNTIES

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1 Special-Status Avian and Mammalian Species Reviewed

2 Wildlife Species Observed in the Project Area During Reconnaissance Surveys

1 INTRODUCTION

1.1 Background

The Pacific Gas and Electric Company (PG&E) is planning to construct the natural gas Line 406 and Line 407 Project (project) to address the need for additional natural gas supply to serve on-going residential and commercial load growth in the greater Sacramento River Valley region within Placer, Sacramento, and Sutter Counties. The project includes approximately 42 miles of 30-inch transmission pipeline, approximately 2.5 miles of 10-inch distribution feeder pipeline (DFM), and various pressure limiting and regulation stations to serve new development in the region. The new mainline alignment will stretch from the intersection of Fiddyment and Base Line Roads in Placer County west to existing transmission lines L400/401 in Yolo County; the Metro Air Park DFM will proceed south along Powerline Road to W. Elverta Road from the mainline alignment (Figure 1).

1.2 Assessment Objectives

This special-status avian and mammalian species habitat assessment was prepared as a supplement to the project Biological Assessment Report and the Preliminary Environmental Analysis documents. The objectives of this habitat assessment are to summarize the results of field reconnaissance and review of existing resource information; assess the potential for special-status avian and mammalian species to occur in the project area; assess the potential for project activities to affect special-status avian and mammalian species; and to propose measures that minimize or avoid potential adverse effects of the project.

2 PROJECT DESCRIPTION

2.1 Project Area

The project area extends from west of the City of Roseville, Placer County to western Yolo County (Lines 400 and 401). The proposed alignment follows a series of county roads and crosses several expanses of open croplands, grasslands and riparian belts associated with various water crossings. The alignment is generally flat with the exception of rolling grasslands in the Dunnigan Hills area. Elevation along the alignment ranges from approximately 15 to 255 feet above mean sea level. Primary land use along the alignment is agricultural and current residential development is considered rural and sparse in nature.

Six natural vegetation communities were identified along the project alignment. These communities are non-native annual grasslands (most prevalent community type), valley freshwater marsh, seasonal wetland, vernal pool, riparian forest/scrub, and oak woodland habitat types. The majority of the proposed alignment passes through agricultural lands supporting various dry-land crop and rice production.

2.2 Pipeline Segments and Regulator Stations

The new gas transmission pipeline will consist of three segments:

- 30-inch Line 407 East will extend west from existing Line 123 on the northwest corner of Fiddyment Road and Baseline Road in Placer County to the corner of Riego Road and Power Line Road in Sutter County (12-miles).
- 10-inch Metro Air Park Distribution Feeder Main (DFM) will extend south from Line 407 East to the corner of Power Line Road and West Elverta Road in northern Sacramento County (2.5-miles).
- 30-inch Line 407 West will extend from the corner of Riego Road and Power Line Road in Sutter County to L172A, just east of Interstate 5 in Yolo County (13.5-miles).
- 30-inch Line 406 will extend from L172A, just east of Interstate 5 in Yolo County to L400/401 in western Yolo County (14-miles).

PG&E will also construct various pressure regulation stations in fenced, above-ground yards. Pressure Limiting Stations are required to assure the proper pressures are maintained in the transmission system. Regulation Stations are required to reduce the pressure of the gas before delivering it to the distribution pipeline system. PG&E will construct the Pressure Limiting Station and Regulation Stations along the alignment at major street intersections.

2.3 Construction and Right-of-Way

Construction of the pipeline will generally require a 100-foot wide construction right-of-way (ROW). The construction ROW may be narrowed in places to avoid environmental impacts; however, additional workspace may be needed at select locations for stream crossings, road crossings, and in other areas where special construction methods are required. A 50-foot permanent easement is required for operation and maintenance of the pipeline.

3 STUDY METHODS

3.1 Species Evaluated

Prior to conducting reconnaissance-level surveys, target lists of special-status avian and mammalian species that have been recorded in or that have potential to occur in the project area were prepared (Table 1). Special-status species lists from the U.S. Fish and Wildlife Service (USFWS), California Natural Diversity Data Base (CNDDB), and California Department of Fish and Game (CDFG) Special Animals List, were referenced to compile a master list of species from these two taxa. Species lists were compiled for the following U.S. Geological Survey (USGS) 7.5-minute quadrangles:

- Esparto
- Madison
- Woodland

- Knights Landing
- Verona
- Grays Bend
- Taylor Monument
- Rio Linda
- Citrus Heights
- Pleasant Grove
- Roseville

Sources of information used to compile species lists included the on-line USFWS list of federally threatened and endangered species (USFWS 2007a), the CDFG Special Animals list (CDFG 2006a), and the CDFG California Natural Diversity Database (CDFG 2006b). USFWS lists of federally threatened and endangered species for all project counties were also reviewed for relevant avian species (USFWS 2007a).

Special-status species were defined as those species currently listed, proposed for listing, or candidates for listing as rare, threatened, or endangered under Federal or California State Endangered Species Acts. California State species of concern were also reviewed (CDFG).

3.2 Project Surveys

In order to encompass all potential ROW adjustments, extra work spaces, and potential effects of the project on the environment, a survey area of 500 feet was established and assessed for both sides of the proposed pipeline alignment (1000-foot survey corridor). In the case of arboreal nesting raptors, a 0.25-mile survey area off of the alignment was assessed (0.50-mile survey corridor). Aerial photography and geographic information system maps, in conjunction with ground reconnaissance surveys, were used to assess the potential for sensitive species habitats to occur within the project survey corridor. Reconnaissance-level field surveys of the project alignment were performed on June 12 & 13, 2006 for L407 East; November 30, December 5 and 7, 2006 for L406; and June 29, 2007 for L407 West. The purpose of these reconnaissance level surveys was to assess site conditions, habitat types present, and to note any special-status wildlife species and habitats that may be present. The survey corridor was assessed by driving available roads and walking representative portions of the habitat within the survey area along the pipeline alignment, thus allowing a close-up inspection of the habitat; observable habitat characteristics were noted. The survey area was assessed for its potential to provide suitable habitat (nesting, foraging, cover, roosting, maternity, or wintering) for avian and mammalian species from Table 1.

4 RESULTS

Twenty special-status avian and two special-status mammalian species were recorded and or determined to potentially occur in the project area (Table 1); these species were assessed for potential project-related effects. Table 2 is a list of wildlife species observed in the project area during all reconnaissance surveys.

4.1 Avian Species Accounts and Impacts

Special-status avian species potentially occurring in the project area may be directly impacted by construction activity; direct impacts are assessed as loss/degradation of habitat; breeding activity disruption; destruction of nest, eggs, and young; disruption of foraging and other life activities. Indirect impacts are assessed as degradation of habitat quality resulting from improper restoration; this could cause a loss of future foraging, nesting, or cover opportunities, decreased prey base, and impacted water quality for species occurring in the area.

Significance of these impacts will vary according to when work is performed. Work that occurs during the typical avian breeding and nesting season (February through August) would likely have the most detrimental effects on avian species in the area. Wintering species present in or near construction areas could experience direct temporary impacts (i.e. temporary displacement) which are not considered significant unless habitat quality is permanently lost as a result of construction activities. Construction of pressure regulating stations will result in a small permanent loss of habitat identified in the project area; the locations of these stations will be along the proposed pipeline alignment at major street intersections. Aside from the aforementioned pressure regulating stations, project construction impacts/disturbance will be temporary in nature and will not result in losses or adverse modification of habitat. The following are individual avian species accounts which include project area habitat suitability assessment and potential project-related effects statement:

Cooper's hawk (*Accipiter cooperii*)

Status, distribution, and threats

The Cooper's hawk is designated as a California State species of concern (CDFG 2006a). The hawk is widely distributed across North America inhabiting broken woodlands and streamside groves. It breeds across southern Canada southward to the southern United States and into central Mexico and winters throughout the United States and Mexico (National Geographic 2002). Riparian habitat loss is the major threat for the species.

Habitat requirements and relevant biology

Cooper's hawks nest and forage in forest, woodland, and riparian habitats and have become more adapted to urban areas. Cooper's hawks require and adequate prey base of small birds and mammals. They are associated with edge habitats.

Habitat assessment and occurrence in the project area

The riparian forest and oak woodland habitats within the Project area provide suitable nesting and foraging habitat for the hawk. The species has moderate potential to occur in the project area.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of cover and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring Cooper's hawks. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Tri-colored blackbird (*Agelaius tricolor*)

Status, distribution, and threats

Tricolored blackbird is designated as a California State species of concern (CDFG 2006a). Tricolored blackbirds are nearly endemic to California and the vast majority of the breeding population occurs in the Central Valley (and encompasses all valley counties) with populations also occurring in northeastern California and along the central and southern California coast. Nesting colonies are vulnerable to agricultural practices, wetland alteration and destruction, introduced predators, pesticides, and poisons (Hamilton 2004).

Habitat requirements and relevant biology

The species is a colonial nester that requires a protected nesting substrate of tall emergent or shrubby vegetation over or near open water. Foraging habitat includes annual grasslands, seasonal wetlands, agricultural fields, riparian areas, and cattle dairies. This species may visit lowland areas within mixed species flocks from October through March (Hamilton 2004).

Habitat assessment and occurrence in the project area

Emergent freshwater marsh and riparian scrub habitat along area waterways, canals, and wetlands provides marginal nesting habitat due to the cover's narrow and sparse nature; the narrow width of the emergent vegetation may not provide enough protection to nesting birds from predators. However, CNDDB records in the vicinity of the project have documented tri-colored black birds using linear habitats that are likely no wider than the emergent vegetation observed along the project alignment. Brush thickets scattered throughout the project area also provide suitable nesting substrates. Therefore, the species is considered to have moderate potential for occurrence in the project area.

Current management direction

The following are summarized management recommendations for the species as described in Hamilton 2004:

Beedy and Hamilton (1997) summarized management recommendations: (1) avoid reproductive failures by large colonies throughout the geographic distribution of this species, (2) to enhance breeding habitat and success on public lands and to encourage commitment of private lands to tricolor habitat, (3) to enhance public awareness of this species and (4) to minimize habitat losses.

Hamilton (in press) emphasized (1) monitoring to include measurements of reproductive success, (2) designate adequate and sufficient habitat for tricolors in HCPs, (3) protect ephemeral habitats, (4) develop habitat to take advantage of rice as a tricolor nesting habitat when associated with native marsh vegetation, (5) avoid dairies as a focus for management and restoration, (6) develop water point sources where their absence limits tricolor settlement, (7) encourage development of colonies in conspicuous urban environments where their educational value will be useful, (8) develop tricolor habitat when reservoirs are designed and constructed, (9) create restoration colonies, (10) emphasize native plants in restoration efforts and (11) manage problem species such as ravens, night herons and coyotes whenever possible.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of cover and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring tri-colored blackbirds. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Golden eagle (*Aquila chrysaetos*)

Status, distribution, and threats

The golden eagle is a California species of concern and is fully protected (CDFG 2006a). Golden eagles in California are predominantly resident species, with typically small seasonal migrations.

Habitat requirements and relevant biology

This species is often found foraging for lagomorphs and rodents over open terrain, including rolling hills, grasslands, savannas, desert, and shrub habitats. Golden eagles are known to hunt in pairs and to take mammals, reptiles, birds, and sometimes carrion. Nesting habitat includes cliffs of all heights and in trees in open areas. The breeding season for the golden eagle ranges from late January to August (Johnsgard 1990).

Habitat assessment and occurrence in the project area

The open grassland areas within segments L406 and L407 East provide suitable foraging habitat; the L406 segment has an adequate prey base of ground squirrels and lagomorphs, but a readily available prey base was not apparent within the L407 East segment. Isolated trees and tree groves within and near open grasslands provide potential nesting opportunities.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring golden eagle. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Short-eared owl (*Asio flammeus*)

Status, distribution, and habitat requirements

The short-eared owl is designated a California State species of concern (CDFG 2006a). The owl is considered a widespread winter migrant, found primarily in the Central Valley, in the western Sierra Nevada foothills, and along the coastline. An uncommon winter migrant in southern California, including the Channel Islands. Occasionally still breeds in northern California, but bulk of breeding range includes coastal areas in Del Norte and Humboldt counties, the San Francisco Bay Delta, northeastern Modoc

plateau, the east side of the Sierra from Lake Tahoe south to Inyo county, and the San Joaquin valley (CDFG 2007).

Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Requires dense vegetation; tall grasses, brush, ditches, and wetlands are used for resting and roosting cover. The species is partially diurnal, most commonly observed during twilight hours (Johnsgard 1988, CDFG 2007)

Habitat assessment and species occurrence in the project area

Open agricultural areas and grassland habitat along the alignment provide suitable foraging and nesting habitat.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring short-eared owls. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Burrowing owl (*Athene cunicularia*)

Status, distribution, and threats

The burrowing owl is designated as California State species of concern (CDFG 2006a). Burrowing owls range throughout most of the interior western US, southern Canada, the Central Valley of California, southern California, throughout Mexico into Central America, and along the western half of Florida. The species is declining with many populations extirpated from habitat loss/fragmentation and burrowing rodent control (Johnsgard 1988, Klute et. al. 2003).

Habitat requirements and relevant biology

Burrowing owls inhabit open, dry, gently rolling to flat grasslands, scrublands, road and railway right-of-ways, open urban habitats (i.e. airfields, campuses, and golf courses), and agricultural lands. Essential habitat characteristics for the burrowing owl are low-growing, sparse vegetation, and the occurrence of larger burrowing rodents such as ground squirrels and prairie dogs (Klute et.al. 2003).

Habitat assessment and occurrence in the project area

Non-native grassland habitat assessed in the L407 East segment had limited burrowing owl nesting potential, as suitable burrows were scarce or lacking altogether. This is likely due to the shallow nature of the eastern project area soils and underlying hardpans (Rodgers 1980). Vegetation on these grasslands, besides those actively grazed parcels, was generally tall-growing and denser than grasslands typically occupied by burrowing owls. Burrows and/or other cover microhabitat are an essential habitat component for burrowing owls and a lack of these features in an area makes the otherwise suitable landscape unsuitable for the owl.

Open grasslands in the Dunnigan Hills section of the L406 segment had an abundance of owls. Agricultural lands within all three segments contained potential owl habitat (ground squirrel burrows along area canal banks, levees, and road berms). Numerous CNDDB records exist for the owl in the project region.

Current management direction

The following are summarized management recommendations for the species as described in Klute et.al. 2003: (1) Preserve and maintain large areas of treeless grasslands (2) maintenance of suitable habitat should be performed through grazing, mowing, and fire (3) enhance suitable habitat area by providing elevated perches near suitable burrows (4) preservation of burrowing mammal populations in suitable habitat (5) relocate and provide artificial burrow for evicted owls (6) standardize mitigation protocols to minimize impacts from developments; establish buffer area standards (7) minimize pesticide use or at minimum use lowest toxicity formulas (8) standardize monitoring/surveying practices range-wide (9) increase public awareness.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of cover and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

Owls were abundantly observed within the L406 segment and also have potential to occur within agricultural areas along all three segments where suitable habitat exists. With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring burrowing owls. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Aleutian Canada goose (*Branta canadensis leucopareia*)

Status, distribution, and threats

The Aleutian Canada goose is a federally de-listed species. The goose breeds on the Aleutian Islands of Alaska and migrates to the Pacific Coast states of Oregon and California. In California, geese winter in the Sacramento and San Joaquin Valleys. Threats to the species are loss of wintering habitats and nest predation by introduced predators on the nesting grounds in Alaska (Pacific Flyway Council 1999).

Habitat requirements and relevant biology

The geese spend the winter on large open areas such as grasslands, wetlands, and agricultural areas.

Habitat assessment and occurrence in the project area

The grassland habitat (with inclusive seasonal and vernal pool wetlands) and agricultural lands in the project area offer suitable wintering areas for Aleutian Canada geese. These areas have potential to attract migrating geese on their way to ultimate wintering destinations in the San Joaquin Valley. The species is considered to have moderate potential to winter in the project area.

Current management direction

In California, the US Fish and Wildlife Service has worked extensively with local landowners in cooperative partnerships to protect and manage wintering habitat on private land through fee title acquisition, easements and voluntary programs. Important wintering and migration habitat in California and Oregon also has been acquired as national wildlife refuges. Conservation and management of winter and migration habitat in California and Oregon remains a high priority for the Service and for the California and Oregon state governments. In addition to acquiring certain lands used by the geese, the Service and the State of California are working to reduce competition between geese and humans on other privately owned cropland and pastures. In California's Sacramento and San Joaquin valleys, and along the northern California coast, private landowners manage their lands to provide wintering habitat for Aleutian Canada geese. Some landowners plant crops to provide forage for the geese. These efforts, in addition to the Service's land acquisitions and conservation easements, provide thousands of acres of wintering habitat crucial to the recovery of the Aleutian Canada goose (USFWS 2001a).

Potential project-related effects

The project construction schedule may coincide with the arrival and wintering of migrating geese from Alaska. Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss migration stop-over and/or foraging opportunities, species harassment, displacement, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future stop-over and foraging opportunities and impacted water quality through future sedimentation and/or altered hydrology.

Construction activities may temporarily disrupt foraging and resting activities of potentially occurring geese along a stop-over in the project area as the birds head south. This is not considered a significant impact to the species. Significant impacts to potentially wintering Aleutian Canada geese are not expected.

Ferruginous hawk (*Buteo regalis*)

Status, distribution, and threats

The ferruginous hawk is a California State species of concern (CDFG 2006a). The hawk's breeding range encompasses most of the interior western U.S. and central southern Canada. The species winters throughout southwestern North America and into Mexico. The species is wholly a winter migrant in California. Reasons for declines include loss of suitable breeding and wintering habitat (Johnsgard 1990).

Habitat requirements and relevant biology

The hawk inhabits sagebrush flats, desert scrub, low foothills surrounding valleys, fringes of pinyon-juniper habitats, and semi-arid grassland habitats with scattered trees, rock outcroppings, and riparian corridors with tall trees. Suitable habitats must support the hawk's main diet components which consist of large rodents and lagomorphs (Johnsgard 1990).

Habitat assessment and occurrence in the project area

The open grassland in the project area provides suitable wintering habitat for the ferruginous hawk. An abundant prey base for wintering hawks was observed within the L406 segment of the project alignment, therefore the species is considered to have moderate potential to winter in the project area.

Potential project-related effects

Project construction may coincide with the arrival of migrating hawks (generally arrive in California in September). Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of wintering and foraging opportunities, species harassment, displacement, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of wintering and foraging opportunities and impacted water quality through future sedimentation and/or altered hydrology. Construction activities may temporarily disrupt foraging activity of potentially occurring hawks. This is not considered a significant impact to the species. Significant impacts to potentially wintering ferruginous hawks are not expected.

Swainson's hawk (*Buteo swainsoni*)

Status, distribution, and threats

The Swainson's hawk is listed as threatened by California State (CDFG 2006a). Its breeding range includes the interior western U.S., northern-central Mexico, northeastern Alaska and northwestern and

south-central Canada, and the Central Valley of California; it winters primarily in South America (Johnsgard 1990). Breeding occurs from March–August (Dunne et al. 1988). Threats include loss of preferred mature riparian forest nesting habitat, loss or adverse modification of high-quality foraging habitat (open grasslands and high-prey yielding crops such as alfalfa) from development or conversion to incompatible (low-prey yielding) crop types, and pesticide use on migration route and wintering areas (Woodbridge 1998).

Habitat requirements and relevant biology

Nesting habitat consists of open areas with stands of few, dense-topped trees in juniper-sage flats, riparian areas, and oak savannas. Foraging habitat consists of open grasslands, grain, and alfalfa fields (supporting rodent populations) adjacent to nesting opportunities. Swainson's hawks typically nest in stands with only a few trees in the above-mentioned habitats, as well as within agricultural areas. Hawks can become relatively habituated to human presence and activity as they readily occupy habitat within agricultural and rural residential areas, usually along roadsides where suitable nest trees are located, but sudden changes in activity regimes (construction in previously open areas, or human intrusion) frequently causes nest abandonment, particularly during certain times of the breeding season (Johnsgard 1990, Woodbridge 1998).

Habitat assessment and occurrence in the project area

Suitable nesting habitat was observed along the entire proposed alignment as riparian forest habitat and scattered single trees and clumps of trees. The project area's open grasslands and agricultural areas provide suitable foraging habitat. Numerous CNDDB records of the hawk exist in the project area, many within two miles of the alignment. Swainson's hawks are considered to have high potential for occurrence in the project area.

Current management direction

Current management strategies for Swainson's hawks in the Central Valley are focused on mitigation of habitat losses within known hawk territories, riparian habitat conservation and restoration, and maintaining compatible crop types and open areas for foraging habitat (CDFG 1993, Woodbridge 1998).

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring Swainson's hawks. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Mountain plover (*Charadrius montanus*)

Status, distribution, and threats

The mountain plover is designated as a California State species of concern (CDFG 2006a). The plover breeds in the interior states of Montana, Wyoming, Colorado, New Mexico, and from the Texas Panhandle east to Nebraska. It winters from central California and southern Arizona southward into Mexico. Threats to the species are primarily attributed to the conversion of native prairies to croplands, significantly reducing the availability of suitable nesting habitat, and nest destruction from agricultural practices (National Geographic Society 2002, USFWS 2003).

Habitat requirements and relevant biology

The mountain plover is one of the few shorebirds that live in dry regions away from water preferring short-grass prairies and dry lowland areas; often found on grassy or bare dirt fields. Currently mountain plovers are also found on human-made landscapes such as sod farms, and cultivated fields that may mimic their natural habitat associations, and other sites with little vegetation such as alkali flats (National Geographic Society 2002, USFWS 2003).

Habitat assessment and occurrence in the project area

The grassland and agricultural fields in the project area offer suitable wintering habitat for potentially occurring mountain plovers. The species is considered to have moderate potential to winter in project area.

Potential project-related effects

The project construction schedule may coincide with the arrival and wintering of mountain plovers. Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of wintering and/or foraging opportunities, species harassment, displacement, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future wintering and foraging opportunities, and impacted water quality through future sedimentation and/or altered hydrology. Construction activities may temporarily disrupt foraging and wintering activities of potentially occurring plovers. This is not considered a significant impact to the species. Significant impacts to potentially wintering mountain plovers are not expected.

Northern harrier (*Circus cyaneus*)

Status, distribution, and habitat requirements

The northern harrier is designated as a California State species of concern (CDFG 2006a). It occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3000 m (10,000 ft). Harriers breeds from sea level to 1700 m (0-5700 ft) in the Central Valley and Sierra Nevada, and up to 800 m (3600 ft) in northeastern California. They are permanent resident of the northeastern plateau and coastal areas; less common resident of the Central Valley. The species is a widespread winter resident and migrant in suitable habitat. Harriers frequent meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Uses tall grasses and forbs in wetland, or at wetland/field border, for cover; roosts on ground (CDFG 2007).

Habitat assessment and species occurrence in the project area

Open grassland habitat and agricultural areas along the alignment provide suitable foraging habitat. The species was observed during reconnaissance surveys and therefore is considered to have a high potential for occurrence.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring northern harrier. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)

Status, distribution, and habitat requirements

The western yellow-billed cuckoo is listed as a federal candidate species and is listed as endangered by California State (USFWS 2001b, CDFG 2006a). The breeding range of the yellow-billed cuckoo formerly included most of North America from southern Canada to the Greater Antilles and northern Mexico. In recent years, the species' distribution in the west has contracted. The northern limit of breeding in the coastal States is now in Sacramento Valley, California, and the northern limit of breeding in the western interior States is southern Idaho. In California, Laymon and Halterman 1987 describe breeding populations of greater than five pairs which persist every year in California are currently limited to the Sacramento River from Red Bluff to Colusa and the South Fork Kern River from Isabella Reservoir to

Canebrake Ecological Reserve. Other sites where small populations of cuckoos (<5 pairs) breed or possibly breed (but not necessarily every year) are: The Feather River from Oroville to Verona, Butte, Yuba and Sutter counties; the Prado Flood Control Basin, San Bernardino and Riverside counties; the Amargosa River near Tecopa, Inyo Co.; the Owens Valley near Lone Pine and Big Pine, Inyo Co.; the Santa Clara River near Santa Clarita, Los Angeles Co.; the Mojave River near Victorville, San Bernardino Co.; and the Colorado River from Needles, San Bernardino Co. to Yuma, Imperial Co. Cuckoos winter in South America from Columbia and Venezuela, south to northern Argentina. The species is threatened by riparian habitat loss and modification, water management and flood control projects, and by the introduction of invasive riparian plant species (Laymon 1998, USFWS 2001b).

Cuckoos nest in riparian forests along broad, lower floodplains of larger river systems. The cuckoo requires broad, well-developed, low-elevation riparian woodlands of primarily mature cottonwoods and willows in large, contiguous tracts of habitat. Dense under story foliage seems to be an important habitat characteristic in nest site selection and cottonwood trees are an important foraging habitat component in California. The species exhibits some degree of nest site fidelity and can act as a facultative brood parasite (USFWS 2001b).

Habitat assessment and species occurrence in the project area

The broad, well developed riparian forest habitat along the Sacramento River and other large waterways within L407 West segment is considered suitable habitat for the cuckoo. The species is considered to have a moderate potential for occurrence.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring cuckoos. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

White-tailed kite (*Elanus leucurus*)

Status, distribution, and threats

The white-tailed kite is designated as a California fully protected species (CDFG 2006a). The kite is a permanent resident of river valleys, riparian woodlands, and adjacent open fields and marshes in

California's Central Valley and along the west coast (Johnsgard 1990, National Geographic Society 2002). Possible declines may be due to conversion of agricultural lands to urban areas and clean farming techniques that reduce prey populations, increased interspecific nest-site competition, and human disturbance at nests (Dunk 1995).

Habitat requirements and relevant biology

White-tailed kites are found in open grasslands, savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields with scattered trees for nesting and perching. They are often found along tree-lined river valleys with adjacent open areas, but are not usually found in forests or in clear cuts within forests. The white-tailed kite nests in dense, usually deciduous tree groves adjacent to open foraging areas, but will use oak woodlands and savanna as well. The nesting season is extended and variable depending on food availability, usually peaking from April to August, but beginning as early as February and ending as late as September (Johnsgard 1990).

Habitat assessment and occurrence in the project area

Suitable nesting habitat was observed along the entire proposed alignment as riparian forest habitat and scattered single trees and clumps of trees. The project area's open grasslands and agricultural areas provide suitable foraging habitat. Numerous CNDDB records of the kite exist in the project area, many within two miles of the alignment. White-tailed kites are considered to have high potential for occurrence in the project area.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring white-tailed kites. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Little willow flycatcher (*Empidonax traillii brewsteri*)

Status, distribution, and threats

The little willow flycatcher is listed as endangered in California (CDFG 2006a). It is a rare to locally uncommon summer resident in wet meadow and montane riparian habitats at 2,000 to 8,000 feet in the Sierra Nevada and Cascade ranges. Loss and degradation of riparian habitat is the principal reason for

the decline of the willow flycatcher population and the decrease in geographic range of the species. Impacts of livestock grazing to both the habitat and nests of breeding birds have also been implicated in the decline of the species. Nest parasitism by brown-headed cowbirds (*Molothrus ater*) has contributed to population reductions.

Habitat requirements and relevant biology

The species most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows. The little willow flycatcher primarily nests in dense willow thickets in montane meadows and along streams. This species forages in riparian and meadow habitats during the nesting season. This flycatcher is occasionally found as a migrant in Central Valley riparian systems (CDFG 2007).

Habitat assessment and occurrence in the project area

The broad, well developed riparian forest habitat along the Sacramento River and other large waterways within L407 West segment is considered suitable habitat for the cuckoo. The species is considered to have a moderate potential for occurrence.

Potential project-related effects

The project construction schedule may coincide with the migration of little willow flycatchers. Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of migration and/or foraging opportunities, species harassment, displacement, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future migration and foraging opportunities, and impacted water quality through future sedimentation and/or altered hydrology. Construction activities may temporarily disrupt foraging and migration activities of potentially occurring flycatchers. This is not considered a significant impact to the species. Significant impacts to potentially occurring migrant flycatchers are not expected.

Greater sandhill crane (*Grus canadensis tabida*)

Status, distribution, and threats

The greater sandhill crane is listed as a California State threatened species and is a fully protected species (CDFG 2006a). The crane is one of six subspecies of sandhill cranes. Nesting pairs occur in Lassen, Modoc, Plumas, Shasta, Sierra, and Siskiyou counties. Historically, the crane wintered on the expansive wetlands of California's Central Valley. Currently, it winters in lowland areas of the Sacramento, San Joaquin, and Imperial Valleys. This species continues to experience threats on both wintering and breeding grounds by agricultural and residential conversion of habitat, predation, human disturbance, collisions with power lines, and by destruction of nests and young from current agricultural practices (CDFG 1994, CDFG 2007).

Habitat requirements and relevant biology

In California, the crane breeds in wetlands and forages in meadows, irrigated pastures, fields, and marshes. Sandhill cranes roost together at night in shallow water (an important habitat characteristic) and commonly feed on grains, seeds, aquatic invertebrates, insects, small reptiles, amphibians, and rodents (CDFG 1994).

Habitat assessment and occurrence in the project area

The grassland and agricultural areas in the project area offer suitable wintering habitat for potentially occurring sandhill cranes. The open grassland habitat and agricultural fields have potential to attract wintering cranes. The species is considered to have moderate potential to winter in the project area.

Current management direction

CDFG (1994) discusses in depth recommended management directives for the crane. These directives are summarized as follows: (1) nesting and wintering habitat acquisition and management; placing conservation easements on private lands that provide these types of habitats (2) power line marking in high movement areas (adjacent species habitats) to reduce instances of collisions (3) habitat protection and restoration (4) modification of grazing practices to lessen conflicts with species nesting activity (5) maintaining compatible agricultural practices and crop types to provide for crane foraging, loafing sites (6) predator control where appropriate.

Potential project-related effects

The project construction schedule may coincide with the arrival and wintering of sand hill cranes. Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of wintering and/or foraging opportunities, species harassment, displacement, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future wintering and foraging opportunities and impacted water quality through future sedimentation and/or altered hydrology.

Construction activities may temporarily disrupt foraging and wintering activities of potentially occurring cranes. This is not considered a significant impact to the species. Significant impacts to potentially wintering sandhill cranes are not expected.

Bald eagle (*Haliaeetus leucocephalus*)

Status, distribution, and threats

The bald eagle is listed as endangered by the state; the species has been proposed for federal de-listing, with the de-listing date of August 8, 2007 (USFWS 2007). Currently, its main California breeding range is restricted to the northern Sierra Nevada and southern Cascade ranges and interior northern Coastal range (Johnsgard 1990, National Geographic Society 2002). The bald eagle winters generally throughout

its breeding range but more frequently along coastal areas. Threats include egg-shell thinning from DDT use, habitat loss, and human disturbance.

Habitat requirements and relevant biology

The bald eagle nests in large, mature trees and on cliffs near large bodies of water or free-flowing rivers that provide an adequate fish prey base. The bald eagle requires large bodies of water for hunting and fishing, as well as adjacent snags or structures for perching. The species is highly susceptible to human disturbance during nesting activities.

Habitat assessment and occurrence in the project area

No suitable nesting habitat is located along the project alignment and the project area is located outside current nesting distribution for the bald eagle. The project area may see an occasional migrant during the winter. The species is considered to have a moderate potential to occur as a migrant.

Potential project-related effects

No significant impacts to potentially occurring bald eagles from project-related work activity are anticipated because the project boundary does not transect current nesting regions for this species. The proposed project has the potential to encounter the federally and state listed bald eagle as the project timeframe may overlap with potential migrating eagles in the area. Potential effects are anticipated to include temporary displacement from the project action area and are considered insignificant or discountable.

Loggerhead shrike (*Lanius ludovicianus*)

Status, distribution, and threats

The loggerhead shrike is designated a California State species of concern (CDFG 2006a). The shrike is a common resident and winter visitor in lowlands and foothills throughout California. Threats include habitat loss and pesticide use (CDFG 2007).

Habitat requirements and relevant biology

Loggerhead shrikes prefer open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats, but it also is found in cropland areas (CDFG 2007).

Habitat assessment and occurrence in the project area

The open ruderal, agricultural, and grassland areas of the project area provide foraging habitat for the shrike. Area fence posts, barbed wire, road signs, and shrubs provide the necessary hunting perches for this species. Suitable nesting habitat was observed in the project area as scattered single trees, clumps

of trees, and shrubs/hedges associated with rural residences. The species is fairly common to the region and therefore is considered to have moderate potential for occurrence.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring loggerhead shrikes. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Long-billed curlew (*Numenius americanus*)

Status, distribution, and threats

The long-billed curlew is designated as a California State species of concern (CDFG 2006a). It is an uncommon to fairly common breeder from April to September in wet meadow habitat in northeastern California in Siskiyou, Modoc, and Lassen Counties. The long-billed curlew is an uncommon to locally very common as a winter visitant from early July to early April along most of the California coast and in the Central and Imperial valleys, where the largest flocks occur. The species is threatened by incompatible agricultural practices (CDFG 2007).

Habitat requirements and relevant biology

In California, the curlew nests on elevated interior grasslands and wet meadows, usually adjacent to lakes or marshes. Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. On estuaries, feeding occurs mostly on inter-tidal mudflats. Small numbers of non-breeders remain on the coast in summer, and larger numbers remain in some years in the Central Valley.

Habitat assessment and occurrence in the project area

The grassland and agricultural fields in the project area offer suitable wintering habitat for potentially occurring long-billed curlews. The open grassland habitat and agricultural fields have potential to attract wintering curlews, therefore the species is considered to have moderate potential to winter in the project area.

Potential project-related effects

The project construction schedule may coincide with the arrival and wintering of long-billed curlews. Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of wintering and/or foraging opportunities, species harassment, displacement, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future wintering and foraging opportunities and impacted water quality through future sedimentation and/or altered hydrology.

Construction activities may temporarily disrupt foraging and wintering activities of potentially occurring curlews. This is not considered a significant impact to the species. Significant impacts to potentially wintering long-billed curlews are not expected.

White-faced ibis (*Plegadis chihi*)

Status, distribution, and threats

The white-faced ibis is designated as both a California State species of concern (CDFG 2006a). It breeds across western United States northward to Montana, eastward to western Louisiana, and southward to South America. It winters from southern California and Louisiana southward. It is an uncommon summer resident in sections of southern California, a rare visitor in the Central Valley, and is more widespread in migration. Formerly more common, especially in the San Joaquin Valley, this species no longer breeds regularly anywhere in California. The species is susceptible to wetland habitat loss and alteration, pesticide use, and incompatible agricultural practices (Remsen 1978, CDFG 2007).

Habitat requirements and relevant biology

White-faced ibis prefer to feed in fresh emergent wetlands, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. The ibis eats earthworms, insects, crustaceans, amphibians, small fishes, and miscellaneous invertebrates. It probes deep in mud with its long bill, and also feeds in shallow water or on the water surface. They nest and roost amidst dense, freshwater emergent vegetation such as bulrushes, cattails, reeds, or low shrubs over water (CDFG 2007).

Habitat assessment and occurrence in the project area

Open agricultural fields and grasslands in the area provide suitable foraging habitat. There are no extensive emergent wetlands in the area to provide suitable nesting habitat; breeding activity may however occur along weedy field margins and within the wetland habitat associated with the slower moving canals and sloughs . Ibis were observed during reconnaissance surveys and are commonly seen in the project region, therefore the species is considered to have high potential for occurrence.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring ibis. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Purple martin (*Progne subis*)

Status, distribution, and threats

The purple martin is designated as a California State species of concern (CDFG 2006a). It is an uncommon to rare, local summer resident in a variety of wooded, low-elevation habitats throughout the state; a rare migrant in spring and fall; absent in winter. Threats include loss of habitat, removal of suitable nest substrate (snags), and competition from invasive species (starlings and house sparrows) (CDFG 2007).

Habitat requirements and relevant biology

During the breeding season, the purple martin uses valley foothill and montane hardwood, valley foothill and montane hardwood-conifer, and riparian habitats. It also occurs in coniferous habitats, including closed-cone pine-cypress, ponderosa pine, Douglas-fir, and redwood. Purple martins often nest in tall, old trees near a body of water. They also nest occasionally in residential areas. The purple martin is a cavity nester that utilizes natural and man-made cavities. During migration, they can be found in a variety of open habitats including grassland, wet meadow, and fresh emergent wetland, usually near water (CDFG 2007).

Habitat assessment and occurrence in the project area

Scattered isolated trees, small tree groves, and anthropogenic structures in the area provide suitable nesting habitat. Only one CNDDB record of the species exists in the project area; this recorded is from a similar habitat situation. The species is considered to have moderate potential to occur.

Current management direction

Management recommendations include: (1) Experiment with methods for starling control at purple martin nest sites. (2) Retain snags wherever possible; these are important nest sites for this species as well as bluebirds, chickadees, nuthatches, etc. (3) Erect nest boxes in areas where purple martins still nest.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring purple martins. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

Bank swallow (*Riparia riparia*)

Status, distribution, and threats

The bank swallow is a California State threatened species (CDFG 2006a). It is a locally common to uncommon breeding season resident in northern and central California (Garrison 1998). Because nesting only occurs in suitable habitat, breeding areas are widely dispersed throughout northern and central California in major lowland valleys and coastal areas where alluvial soils exist. The major breeding population is confined to the Sacramento and Feather Rivers and their major tributaries north of their confluence (Laymon et al. 1988). The Sacramento River population represented approximately 50% of the state's population in 1987, and the population occurs between Redding, Shasta County, and the Yolo Bypass, Yolo County. The Feather River supported 25% of the state's population in 1987; this population occurs between Oroville, Butte County, and the confluence of the Sacramento and Feather rivers, Sutter County.

Other relatively large breeding populations of several colonies have been recently found in the following locations including: (1) Scott River, Siskiyou County; (2) Cache Creek, Yolo County; (3) Pit River, Shasta and Lassen counties; (4) American River, Sacramento County; (5) Cosumnes River, Sacramento County; (6) Salinas River, Monterey County; (7) Fall River, Shasta County; (8) Hat Creek and Lake Briton area, Shasta County; (9) Susan River and Baxter Creek, Lassen County; (10) Tule and Lower Klamath Lake area, Siskiyou and Modoc counties; (11) Clear Lake Reservoir, Modoc County; (12) Indian Creek, Plumas County; (13) Long Valley Creek, Lassen County; and (14) Bishop area, Inyo County. Single colonies are widely scattered at other locations including: (1) Smith River, Del Norte County; (2) Fort Funston/Lake Merced, San Francisco County; (3) Ano Nuevo, San Mateo County; (4) Pajaro River, Monterey and Santa Cruz counties; (5) Lake Crowley, Mono County; (6) Bridgeport, Mono County (T. and J. Heindel pers. comm.); (7) Topaz Lake, Mono County (T. and J. Heindel pers. comm.); (8) Lake Shastina, Siskiyou County; and (9) Santa Clara River, Ventura County. Threats to the species are primarily attributed to habitat loss and alteration from bank protection projects (CDFG 1992).

Habitat requirements and relevant biology

Nesting colonies only occur in vertical banks or bluffs of friable soils suitable for burrowing by these small birds. Banks or bluffs must be at least 1 m tall to have some predator deterrence values, and some source of continual erosion is almost always present. Breeding habitat vegetation is extremely varied because breeding sites are mostly selected for the suitability of the nesting bank. Throughout California, colonies are mostly located amidst lowland vegetation types including riparian forests dominated by willows (*Salix* spp.) and Fremont cottonwood (*Populus fremontii*). Many colonies along the Sacramento and Feather rivers occur under cultivated crops including deciduous orchards, irrigated row crops, and dryland grain crops. Colonies at coastal locations are located under coastal grassland and coastal scrub communities, while colonies in montane environments in Shasta, Lassen, and Plumas counties occur in coniferous forests where pines (*Pinus* spp.) and firs (*Abies* spp.) dominate. Colonies in northeastern California occur under irrigated pasture, riparian forests, and desert shrub habitats (Garrison 1998).

Habitat assessment and occurrence in the project area

Vertical or near vertical canals and stream banks in the project area with friable soils provide potential nesting substrates. The species is considered to have moderate potential to occur.

Current management direction

The goal of the recovery plan (CDFG 1992) for the species is the maintenance of a self-sustaining wild population. Management strategies to achieve this goal include (1) evaluation of artificial habitat, and (2) protection, enhancement, and maintenance of natural habitats via a variety of management alternatives.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction resulting in loss of nesting and/or foraging opportunities, nesting activity disruption resulting in a loss of young or eggs, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or nesting opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring bank swallows. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

4.2 Mammalian Species Accounts and Impacts

Special-status mammalian species potentially occurring in the project area may be directly impacted by construction activity; direct impacts are assessed as direct mortality, loss/degradation of habitat; breeding

activity disruption; destruction of cover, roosting, and maternity sites; loss of young; disruption of foraging and other life activities. Indirect impacts are assessed as degradation of habitat quality resulting from improper restoration; this could cause a loss of future foraging, cover, roosting, and maternity opportunities, decreased prey base, and impacted water quality for species occurring in the area. Construction of pressure regulating stations will result in a small permanent loss of habitat identified in the project area; the locations of these stations will be along the proposed pipeline alignment at major street intersections. Aside from the aforementioned pressure regulating stations, project construction impacts/disturbance will be temporary in nature and will not result in losses or adverse modification of habitat. The following are individual mammalian species accounts which include project area habitat suitability assessment and potential project-related effects statement:

Pallid bat (*Antrozous pallidus*)

Status, distribution, and threats

The pallid bat is a California species of concern (CDFG 2006a). It commonly occurs as a yearlong resident throughout California at low elevations. Threats include loss of roosting/maternity sites and disturbance from human activity/presence.

Habitat requirements and relevant biology

A wide variety of habitats are occupied by this bat, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. The pallid bat feeds on a variety of insects and arachnids, including beetles, moths, spiders, scorpions, and Jerusalem crickets, foraging over open ground usually 2 to 8 feet aboveground. Most prey is taken on the ground as well. Like other bats, the pallid bat uses echolocation for obstacle avoidance and prey location.

The pallid bat roosts in caves, crevices, mines, and occasionally in hollow trees and buildings. Roosts are selected to protect bats from high temperatures, and the species may move deeper into cover if temperatures rise. Night roosts may be in more open sites, such as porches and open buildings. The pallid bat, like other bat species, is very sensitive to disturbance of roosting sites. Such sites are essential for metabolic economy, juvenile growth, and as night roosts to consume prey (BCI 2002).

Habitat assessment and occurrence in the project area

Anthropogenic structures, riparian areas, and scattered trees/tree groves provide potential roosting opportunities; buildings and tree hollows provide potential maternity sites. The species is considered to have moderate potential to occur in all three project segment.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction or adverse modification resulting in loss of roosting, maternity, and/or foraging opportunities, breeding activity disruption resulting in a loss of young, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or cover opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring pallid bat. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

American badger (*Taxidea taxus*)

Status, distribution, and threats

The American badger is classified as a California State species of concern (CDFG 2006a). It is an uncommon, permanent resident found throughout most of the State, except along the northern North Coast area. Species is somewhat tolerant of human activities; however predator control using indiscriminate trapping and persistent poisons causes extensive losses.

Habitat requirements and relevant biology

The badger is most abundant in drier open stages of most shrub, forest, and herbaceous habitats where friable soils are present. Badgers are carnivorous, highly specialized fossorial mustelids that help control small mammal populations.. They eat fossorial rodents: rats, mice, chipmunks, and especially ground squirrels and pocket gophers. They also eat some reptiles, insects, earthworms, eggs, birds, and carrion. Diet shifts seasonally and yearly in response to availability of prey. Badgers dig burrows in friable soil for cover and frequently reuse old burrows, although some may dig a new den each night, especially in summer (CDFG 2007).

Habitat assessment and occurrence in the project area

The open grassland habitat in the Dunnigan Hills area of segment L406 is considered suitable habitat due to the friable nature of the soil and readily available rodent prey base; a dead badger was also observed along Interstate 505 in the project area. The species is not expected to occur within the other two project segments mainly due to scarcity of suitable prey base, land use practices (agriculture), and or duripan soils.

Potential project-related effects

Potential direct effects resulting from pipeline construction include habitat destruction or adverse modification resulting in loss or reduction of cover and/or foraging opportunities, breeding activity

disruption, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss of future foraging and/or cover opportunities and impacted water quality through future sedimentation and/or altered hydrology.

With these potential project effects in mind, the project is considered to have potential to significantly impact potentially occurring badgers. However, this level of significance can be reduced to less than significant through implementation of project conservation measures.

5 PROJECT CONSERVATION MEASURES

To minimize or avoid potential project related impacts, the following measures are recommended:

- Confine all heavy equipment, vehicles, and construction work to existing access roads, road shoulders, and disturbed or designated areas. Work area extents should be delineated in the field in order to prevent construction activities from straying into sensitive areas.
- A 15mph speed limit will be observed on non-paved portions of the construction ROW.
- Minimize vegetation removal to extent possible; remove only that necessary to accommodate construction. Do not remove trees with a DBH of six-inches or greater unless necessary.
- Employ erosion, sediment, material stockpile, and dust control Best Management Practices (BMPs) on site. Do not permit any fill or runoff to enter wetland areas or waterways.
- As construction conditions and feasibility allow, HDD pipeline installation methods will be used to install the pipeline beneath sensitive wetland habitats and waterways identified along the pipeline alignment. This construction practice will avoid direct surface impacts to wetland resources.
- Properly fence and/or cover unattended, open trenches or excavations to prevent wildlife entrapment. Provide a soil escape ramp to facilitate the escape of any trapped wildlife.
- Personnel will visually check for wildlife beneath equipment and vehicles situated within the construction area prior to moving.
- Return work areas to preexisting contours and conditions upon completion of work. When work is completed, evaluate and perform if necessary, restoration work (including revegetation and soil stabilization).
- In accordance with federal and state endangered species acts, report all observations of sensitive species to appropriate state and federal resource agency personnel and take care not to take or harass the species.
- In accordance with the Migratory Bird Treaty Act, if an active nest is observed within the project area, stop work and contact a PG&E biologist immediately.
- Use extreme caution when handling and or storing chemicals (e.g., fuel and hydraulic fluid) near waterways, and abide by any and all applicable laws and regulations. Follow all applicable hazardous waste BMPs. Appropriate materials will be on site to prevent and manage spills.
- Properly contain and remove from the project site all trash and waste items generated by construction or crew activities.
- Permit no pets, campfires, or firearms on the project site.

- A qualified biologist will provide environmental awareness training to all construction personnel before construction begins. The training will include species descriptions and protection measure discussion.
- Schedule construction to avoid the breeding and nesting season of avian species in the area (typically February 1st though August 31st). If construction will take place during this time, conduct pre-construction nesting bird surveys for avian species with potential to occur on site. Additional mitigation may be required to minimize disturbance of detected nesting activity such as allowing nesting activity to conclude before initiating construction in an area, restricting certain types of construction practices/activities, creating screening devises to shield nest sites from construction activity, and establishing buffer areas around active nest sites.
- All construction activity will ideally take place during daylight hours only. Activities such as HDD operations must occur during daylight hours in order to maximize detection capability for potential frac-outs.
- PG&E will prepare an HDD Fluid Release Contingency Plan that will specify procedures to contain and clean up any drilling fluids released into the terrestrial environments or area waterways in the event of a frac-out during HDD procedures.

6 CONCLUSION AND DETERMINATION

Potential direct effects resulting from pipeline construction include habitat destruction, species harassment, displacement, or mortality, and impacted water quality though sedimentation and/or altered hydrology. Potential indirect effects include adverse habitat modification that results in loss or degradation of future habitat functionality and impacted water quality through future sedimentation and/or altered hydrology.

Potential adverse impacts to these species and their habitats can be minimized or avoided if project conservation measures are implemented. Restricting work to non-sensitive or designated areas, implementation of appropriate construction BMPs, careful handling of chemicals near waterways, providing environmental awareness to the crew, use of non invasive pipeline installation methods (such as HDD) , and restoring the site appropriately are general measures that will reduce or eliminate the negative effects that may be associated with the project. Additional conservation measures that will prevent or minimize adverse affects to potentially occurring sensitive species include avoiding sensitive temporal windows for wildlife, conducting appropriate pre-construction surveys for wildlife species in the project action area, restricting construction activities to daylight hours, checking for wildlife beneath vehicles and equipment at the project area, and having a qualified biologist on-site for construction monitoring. Implementation of all of these measures and careful planning will help ensure that the project has the least amount of adverse affects on ecosystems or sensitive species in the project area.

6.1 Determination Statement

The proposed project has the potential to encounter one federally listed bird species, however this species is slated for federally delisting on August 8, 2007. The federally threatened bald eagle has the

potential to occur as a migrant in the project area during project construction. Impacts to bald eagle would likely be no more than temporary displacement; this effect is considered insignificant or discountable. As such, the proposed project may affect but is not likely to adversely affect the federally listed bald eagle.

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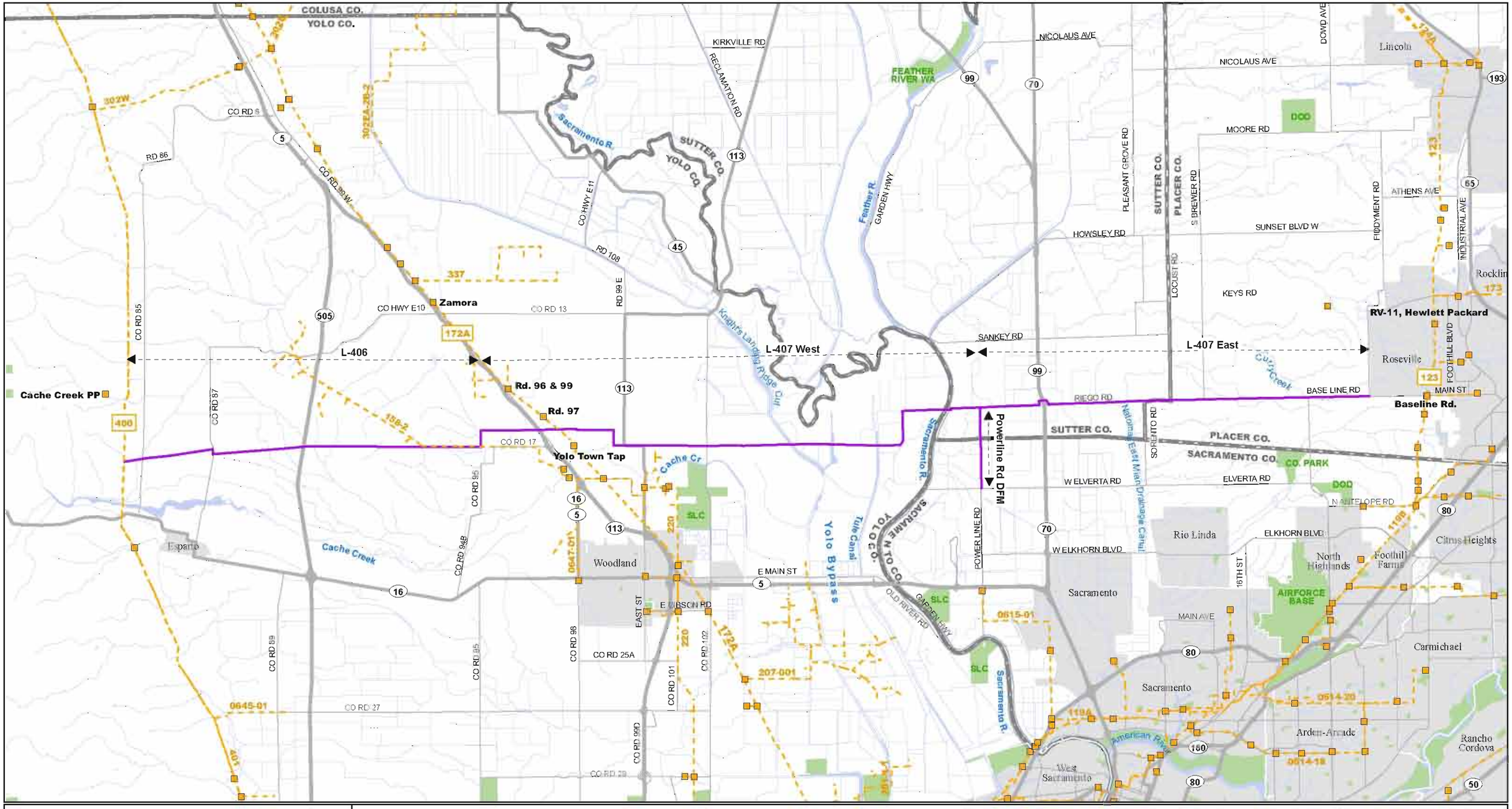

Line 406 and Line 407 Pipeline Project
Figure 1
Overview Map

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Tables

Table 1. Special-Status Avian and Mammalian Species Assessed for the L406/407 Pipeline Project			
Scientific Name Common Name	Listing Status* Federal/State	Species Habitat Requirements and California Distribution	Species Habitat Suitability and Occurrence Potential in Project Area (Pipeline Segments 406, 407 West, and 407 East)
Avian Species			
Accipiter cooperii Cooper's hawk	CSC	Patch woodlands, especially riparian. Nests in dense deciduous, mixed, and coniferous forests. May also use riparian forests/woodlands. Becoming more common in suburban and urban areas. Forages medium-sized birds and mammals in similar habitats. Year-round range throughout California (except desert southeast).	Riparian and woodland habitats in the project area provide suitable nesting substrates and foraging habitat. The species is considered to have a moderate potential for occurrence in all segments of the project.
Agelaius tricolor Tricolored blackbird	CSC	Colonial nester that requires a protected nesting substrate of tall emergent or shrubby vegetation over or near open water. Tricolored blackbirds are nearly endemic to California and over 75% of the breeding population occurs in the Central Valley (and encompasses all valley counties). Foraging habitat includes annual grasslands, seasonal wetlands, agricultural fields, riparian areas, and cattle dairies. This species may visit lowland areas within mixed species flocks from October through March.	Freshwater marsh habitat associated with waterways and wetlands and scattered brushy thickets provide marginal nesting habitat due to the generally narrow width and sparse nature of the vegetation; open grassland and agricultural habitats provide suitable foraging habitat. The species is considered to have a moderate potential for occurrence in all segments of the project.
Aquila chrysaetos Golden Eagle	CSC and CFP	Forages over open terrain, including rolling hills, grasslands, savannas, desert, and shrub habitats. Breeds in cliffs and in tall solitary trees. Species is widespread in California.	Rolling grassland within the Dunnigan Hills section of L406 provides suitable foraging habitat; this area supports a large rodent prey base and an eagle was observed during 2006 reconnaissance surveys. The species is considered to have a high potential for occurrence within the L406 segment. Species is not expected to occur within the other two project segments.
Asio flammeus Short-eared owl	CSC	Forages in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Nests on dry ground in a depression concealed in vegetation and lined with grasses, forbs, sticks, and feathers, and occasionally in burrows.	Grasslands in the L406 (Dunnigan Hills) and Line 407 East areas and open agricultural areas within all three segments provide suitable habitat. The species is considered to have a moderate potential for occurrence within all three project segments.

Table 1. Special-Status Avian and Mammalian Species Assessed for the L406/407 Pipeline Project			
Scientific Name **Common Name**	**Listing Status*** Federal/State	**Species Habitat Requirements and California Distribution**	**Species Habitat Suitability and Occurrence Potential in Project Area (Pipeline Segments 406, 407 West, and 407 East)**
Athene cunicularia hypugaea Western burrowing owl	CSC	Open, dry, low-growing vegetation, grasslands (annual or perennial), deserts, scrublands, agricultural and rangelands. Suitable habitat may contain trees and shrubs if overall canopy closure is low (< 30%). Subterranean nester associated with burrowing mammals, but may use man-made structures and debris piles. Breeding season is from March through August. Local seasonal migrations. In California, the largest population densities occur in the Central and Imperial Valleys.	Open short grass grasslands, canal levees, and area road cuts with burrowing rodent activity provide suitable nesting habitat; open grasslands and agricultural areas provide suitable foraging habitat. The species was observed along the L406 segment and suitable habitat was observed along the L407 West segment. The species is considered to have a high potential for occurrence within the L406 and L407 West segments of the project; but is not expected to occur within the L407 East segment due to lack of burrowing rodent activity.
Branta canadensis leucopareia Aleutian Canada goose	FD	Smallest subspecies of Canada goose. Nests on the Aleutian islands in Alaska and migrates south to the Sacramento and San Joaquin Valleys in winter. Populations are recovering from historically low numbers attributed to the introduction of the arctic fox to their island breeding grounds. Uses agricultural areas, grasslands, and wetlands. Primarily observed on private ranches near the Stanislaus and San Joaquin Rivers.	Open grassland and agricultural habitats provide suitable wintering habitat. The species is considered to have moderate potential to winter within all segments of the project area.
Buteo regalis Ferruginous hawk	CSC	Breeds in interior western and Great Plains states. Habitats include agricultural flatlands, open prairies, deserts, and semi-arid grasslands featuring scattered trees, rocky mounds or outcrops. May roost or nest on utility structures, trees, shrubs, cliffs, or ground outcroppings. May roost communally and forage in groups on the ground during winter migration (Aug/Sep to Feb/Apr). Winter resident in the Central Valley, Modoc Plateau, and Coastal Ranges of California.	Open grassland and agricultural habitats provide suitable wintering habitat. Due to lack of substantial prey base in Line 407 East segment, this species is considered to have low potential to occur in this segment. Potential to occur in Line 406 and 407 West segments is considered high due to presence of suitable rodent prey base.
Buteo swainsoni Swainson's hawk	CT	Nesting habitat consists of open areas with stands of few, dense-topped trees in juniper-sage flats, riparian areas, and oak savannas. Foraging habitat consist of open grasslands, grain, and alfalfa fields (supporting rodent populations) adjacent to nesting opportunities. In California, the current breeding range includes the Central Valley and the northeastern corner of the state. Winters in South America.	Open grassland and agricultural habitats provide suitable foraging habitat and riparian habitat, scattered isolated trees, and small tree groves provide suitable nesting substrate. Multiple CNDDB records exist for the species in the project area and it was observed on several occasions during reconnaissance surveys. The species is considered to have high potential for occurrence within all segments.

Table 1. Special-Status Avian and Mammalian Species Assessed for the L406/407 Pipeline Project			
Scientific Name **Common Name**	**Listing Status*** Federal/State	**Species Habitat Requirements and California Distribution**	**Species Habitat Suitability and Occurrence Potential in Project Area (Pipeline Segments 406, 407 West, and 407 East)**
Charadrius montanus Mountain Plover	CSC	Interior valleys and low altitude plains. Ground forages for large insects. Flocks may form in winter on short grass prairies, freshly plowed fields, and in grazed areas. This species is often associated with bare ground, flat topography and burrowing rodents. Breeds out of state and most of the North American population winters in California in the San Joaquin and Sacramento Valleys. Arrives in September, October, and November.	Open grassland and agricultural habitats provides suitable wintering habitat; the species was identified within the L406 segment during late year surveys. The species is considered to have a moderate potential to winter in all project segments.
Circus cyaneus Northern harrier	CSC	Breeding habitat includes fresh water wetlands, coastal brackish wetlands, open wet meadows and grasslands, shrub-steppe, desert sinks, areas along rivers and lakes, and crop fields; nest on the ground. Distributed throughout California's coastal areas, Central Valley, northeastern and Sierra Nevada regions.	Open grassland and agricultural areas within all three segments provide suitable foraging and nesting habitat. The species was observed within all three segments during reconnaissance surveys and is considered to have a high potential for occurrence within the entire project area.
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FC/CE	Rare. Nests in riparian forests along broad, lower floodplains of larger river systems. Requires broad, well-developed, low-elevation riparian woodlands of primarily mature cottonwoods and willows. Extirpated from a large portion of the historical range in California with current breeding populations restricted to four major areas (the Sacramento Valley, Kern River, Lower Colorado River and the Prado Basin). Local breeding records occur along the Feather River in Sutter and Yuba counties. Winters in South America and migrates north during May or June. Flys south beginning in August.	Well developed riparian forest habitat within the Line 407 West segment (Sacramento River, Tule Canal, Ride Cut Slough, etc.) provides suitable nesting and foraging habitat; the species is considered to have a moderate potential to occur within this segment. Lack of this type of habitat within the other two project segments precludes the species from occurring.
Elanus leucurus White-tailed kite	CFP	This species was decimated in the 1800s and 1900s by sport shooting. Adaptable. Found in open grasslands and woodlands, meadows, marshes, and other riparian areas. Breeds from January through August and may incubate a second brood. Nests in large shrubs or trees often in riparian corridors where it competes with other raptors for suitable nest sites. May roost communally in winter.	Open grassland and agricultural areas within all three segments provide suitable foraging and nesting habitat. The species was observed within all three segments during reconnaissance surveys and is considered to have a high potential for occurrence within the entire project area.
Empidonax traillii brewsteri Little willow flycatcher	CE	Very rare. Breeds in moist brushy thickets, open second-growth, and riparian woodlands (often with willows or alders) in montane regions (~2000–8000 ft). Less than 200 documented nesting pairs. A lower elevation migrant to riparian areas in the spring and fall. Winters in Central and South America.	Well developed riparian forest and scrub habitat within the Line 407 West segment (Sacramento River, Tule Canal, Ridge Cut Slough, etc.) provides suitable migration habitat; the species is considered to have a moderate potential to occur within this segment. Lack of this type of habitat within the other two project segments precludes the species from occurring.

Table 1. Special-Status Avian and Mammalian Species Assessed for the L406/407 Pipeline Project			
Scientific Name **Common Name**	**Listing Status*** Federal/State	**Species Habitat Requirements and California Distribution**	**Species Habitat Suitability and Occurrence Potential in Project Area (Pipeline Segments 406, 407 West, and 407 East)**
Grus canadensis tabida Greater sandhill crane	CT/CFP	Breeds in wetlands and forages in meadows, irrigated pastures, fields, and marshes. Sandhill cranes roost together at night in shallow water and commonly feed on grains, seeds, aquatic invertebrates, insects, small reptiles, amphibians, and rodents. Nesting pairs occur in Lassen, Modoc, Plumas, Shasta, Sierra, and Siskiyou counties. Historically wintered on California's Central Valley wetlands. Currently winters in lowland areas of Sacramento, San Joaquin, and Imperial Valleys.	Open grassland and agricultural habitats provides suitable wintering habitat. The species is considered to have a moderate potential to winter in all project segments.
Haliaeetus leucocephalus Bald eagle	FD/CE & CFP	Nests in the upper canopy of towering mature trees with open branches or in large stick nests on cliffs near large rivers, lakes, bays, and coastlines. Primarily feeds on fish. California contains resident pairs and winter migrants. Migrants arrive late in fall and winter among dense conifer stands. Wintering areas include large rivers, lakes, reservoirs, and additional habitats along migration routes.	Suitable nesting habitat absent and project area does not intersect species current known breeding distribution. Bald eagles are not expected to breed in project area, but may occur as migrants; large rivers and water bodies in the project area supporting an adequate fish prey base may be used for foraging habitat. The species is considered to have a moderate potential to occur as a migrant in all project segments.
Lanius ludovicianus Loggerhead shrike	CSC	Grasslands interspersed with scattered trees and shrubs. Breeding territories may encompass cultivated cropland, transportation right-of-ways, and shelterbelts. Typically located in scrub deserts, shrub-steppe habitats, western oak savanna, and agricultural landscapes. Shrikes typically hunt from dead trees, tall shrubs, utility wires, and fence posts. They impale their prey on sharp twigs, thorns, or barbed wire. This species has declined across North America. Shrikes in the Central Valley include resident nesting pairs as well as migrants.	Open grassland and agricultural habitats provide suitable foraging habitat and scattered isolated trees and shrubs provide suitable nesting substrate. The species is considered to have moderate potential for occurrence within all project segments.
Numenius americanus Long-billed curlew	CSC	Large shorebird present in small populations in varied habitats. Flocks form during winter and during migration. In winter this species feeds on marine invertebrates along coastal marshes and mudflats. In spring curlews occur on farm fields, prairies, and grassy meadows where they feed on insects (beetles, grasshoppers), worms, and amphibians. Nesting territories are located within interior west open, dry grasslands. Nests may occur in a grassy depression on the ground. Threatened by native grassland reduction and ground nest predation or disturbance.	Open grassland and agricultural habitats provides suitable wintering habitat. The species is considered to have a moderate potential to winter in all project segments.

Table 1. Special-Status Avian and Mammalian Species Assessed for the L406/407 Pipeline Project			
Scientific Name **Common Name**	**Listing Status*** Federal/State	**Species Habitat Requirements and California Distribution**	**Species Habitat Suitability and Occurrence Potential in Project Area (Pipeline Segments 406, 407 West, and 407 East)**
Plegadis chihi White-faced ibis	CSC	Migrant or localized breeder in California's Central Valley. Feeds in emergent wetlands (often freshwater), wet meadows, flooded pastures or croplands. Nest sites are located in dense emergent wetlands. Usually forms small nesting colonies. Nests are constructed as a deep cup of wetland plants slightly raised on a mound or platform within tall vegetation. Declining in California from 1) reduction of extensive marshlands required for nesting and 2) pesticide poisoning. Recently documented population recovery (>6,000) within the Kern NWR (San Joaquin Valley) after marsh restoration efforts. Ranges across southwestern North America.	Open grassland, agricultural areas, and freshwater marsh habitat provide suitable foraging habitat. Nesting habitat in the area is marginal due to narrow and sparse nature of emergent wetland vegetation; breeding is not likely to occur. the species was observed along the L407East segment during reconnaissance surveys. The species is considered to have high potential for occurrence in all project segments.
Progne subis Purple martin	CSC	Nests in open and semi-open areas, including savannas, cultivated lands, fields, parks, pastures. Winters in South America. Found near lakes, marshes, towns and suburbs. Utilizes natural cavities in trees and cliff niches. Additionally will nest in artificial housing, structures, or landscape features. Often forms colonies.	Open grassland and agricultural habitats provide suitable foraging habitat and scattered isolated trees and shrubs provide suitable nesting substrate; anthropogenic structures and nest boxes may also provide nesting opportunities. The species is considered to have moderate potential for occurrence within all project segments.
Riparia riparia Bank swallow	CT	Historically found along large, lowland rivers, and along the coast in Southern California. Breeding ranges are restricted to the Sacramento Valley (Sacramento and Feather Rivers), northeastern California, and small areas of the central and north coast. Inhabits riparian lowlands and nests in colonies. Requires vertical cliffs or soft banks with fine textured soils near streams, rivers, lakes, and ocean for nesting. Suitable nesting habitat declining from flood control measures (river channelization and artificial bank stabilization). Winters in South America.	Vertical cliffs and banks (consisting of friable soils) of area waterways (rivers, sloughs, canals, and creeks) provide suitable nesting substrate. There are several CNDDB records of the species in the project area (records are along the large river systems in the region). The species is considered to have moderate potential for occurrence within all project segments.
Mammalian Species			
Antrozous pallidus Pallid bat	CSC	Commonly occurs as a yearlong resident throughout California at low elevations. A wide variety of habitats are occupied, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Roosts in caves, crevices, mines, and occasionally in hollow trees and buildings.	Anthropogenic structures, riparian habitat, and scattered trees/tree groves provide potential roosting opportunities; buildings and tree hollows provide potential maternity sites. The species is considered to have moderate potential to occur in all three segments of the project.

Table 1. Special-Status Avian and Mammalian Species Assessed for the L406/407 Pipeline Project			
Scientific Name Common Name	Listing Status* Federal/State	Species Habitat Requirements and California Distribution	Species Habitat Suitability and Occurrence Potential in Project Area (Pipeline Segments 406, 407 West, and 407 East)
Taxidea taxus American badger	CSC	Uncommon, permanent resident found throughout the State except the extreme North Coast. The species inhabits the drier, open stages of most shrub, forest, and herbaceous habitats where friable soils are present. Prey items include small fossorial rodents, reptiles, insects, birds, eggs, and carrion; ground squirrels are an especially important prey species.	Suitable open grassland habitat present in the L406 segment (Dunnigan Hills); a dead badger was observed along I-505 in this area. Open grassland in the L407 East segment is deemed unsuitable because of the duripan soils and scarcity of ground squirrel prey populations, the species is not expected to occur in this or the L407 West segment.

Status*

US Fish and Wildlife Service

FT Federally listed as threatened
FE Federally listed as endangered
FC Federal candidate species
D Federal de-listed species

California Dept. Fish and Game

CT State listed as threatened
CE State listed as endangered
CSC State species of concern
CFP State fully protected species

Table 2. Wildlife Species Observed in the Project Area During Reconnaissance Surveys.

- Red-winged blackbird (*Agelaius phoeniceus*)
- Black-crowned night heron (*Nycticorax nycticorax*)
- Great-horned owl (*Bubo virginianus*)
- Mourning dove (*Zenaida macroura*)
- Western meadowlark (*Sturnella neglecta*)
- Red-tailed hawk (*Buteo jamaicensis*)
- Red-shouldered hawk (*B. lineatus*)
- Swainson's hawk (*B. swainsoni*)
- European starling (*Sturnus vulgaris*)
- Cliff swallow (*Petrochelidon pyrrhonota*)
- Northern rough-winged swallow (*Stelgidopteryx serripennis*)
- White-faced ibis (*Plegadis chihi*)
- Common moorhen (*Gallinula chloropus*)
- Western kingbird (*Tyrannus verticalis*)
- Killdeer (*Charadrius vociferus*)
- Mountain plover (*C. montanus*)
- Muskrat (*Ondatra zibethica*)
- Turkey vulture (*Cathartes aura*)
- California ground squirrel (*Spermophilus beecheyi*)
- Great egret (*Ardea alba*)
- American crow (*Corvus brachyrhynchos*)
- Northern harrier (*Circus cyaneus*)
- Yellow-billed magpie (*Pica nuttallii*)
- American kestrel (*Falco sparverius*)
- White-tailed kite (*Elanus leucurus*)
- Western burrowing owl (*Athene cunicularia*)
- Western bluebird (*Sialia mexicana*)
- Black phoebe (*Sayornis nigricans*)
- Golden eagle (*Aquila chrysaetos*)

E-8: Line 406/407 Fish Habitat Assessment

Fish Habitat Assessment
for the
Pacific Gas and Electric Company
Line 406 and Line 407 Pipeline Project

Placer, Sutter, Sacramento, and Yolo Counties, California

August 2007

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EXECUTIVE SUMMARY

Pacific Gas and Electric Company (PG&E) is planning to construct the Line 406 and Line 407 Pipeline Project (project) in California's Central Valley in Yolo, Sutter, Sacramento, and Placer counties. This natural gas pipeline project involves a new transmission pipeline that begins at PG&E's existing Lines 400 and 401 in Yolo County at the foot of the Coast Range and extends east to Line 172A (Line 406); a new transmission pipeline that extends from Line 172A near the town of Yolo east to existing PG&E Line 123 in the City of Roseville (Line 407); and a new Distribution Feeder Main (DFM) that extends from Line 407 south paralleling Powerline Road to the Sacramento Metro Air Park development in Sacramento County (Powerline Road DFM).

TRC conducted literature research and used geographic information systems and aerial maps to determine if suitable habitat for special-status fish species exists in the Line 406 and Line 407 Project areas. Critical habitat for listed fish species was also considered during the review, and avoidance and/or minimization measures were established to avoid impacts during construction of the proposed natural gas pipeline.

TRC performed reconnaissance-level field surveys to further investigate the potential for suitable habitat for special-status fish species in the Line 406 and 407 project area on July 20, 2006 and June 21, 2007. The purpose of the surveys was to identify if streams, rivers, and canals in the project area have suitable access, flows, temperatures, and/or spawning or rearing conditions that could support these species and that could potentially be impacted by project activities.

Research indicated the potential for numerous special-status fish species to occur in the Line 407 project area, particularly in the Sacramento River, the Yolo Bypass, and its associated canals. Other waterways observed in the project area include irrigation canals and a few small ephemeral drainages in the Dunnigan Hills area within the Line 406 alignment, and a large network of irrigation canals and two small creeks, Steelhead Creek and Curry Creek within the Line 407 alignment.

Special-status fish species that are expected to occur in the Line 407 area include green sturgeon (*Acipenser medirostris*), delta smelt (*Hypomesus transpacificus*), river lamprey (*Lampetra ayresii*), Central Valley steelhead (*Oncorhynchus mykiss*), Central Valley fall/late-fall run chinook salmon (*Oncorhynchus tshawytscha*), Central Valley winter run chinook salmon, Central Valley spring run chinook salmon, and Sacramento splittail (*Pogonichthys macrolepidotus*).

Project activities will not require in-stream work in or near waterways that are likely to support special-status fish species. All waterways with the potential to support special-status fish species will be crossed using horizontal directional drilling techniques. The mitigation measures outlined in this report will significantly reduce any potential for impact to special-status fish, their critical habitat, or to essential fish habitat. Therefore, the project may affect but is not likely to affect special-status fish species, critical habitat, or essential fish habitat.

INTRODUCTION

Pacific Gas and Electric Company (PG&E) is planning to construct the Line 406 and Line 407 Pipeline Project (project) to address the need for additional natural gas supply to serve ongoing residential and commercial load growth in the greater Sacramento River Valley region within Placer, Sutter, Sacramento, and Yolo counties. The project includes approximately 42 miles of 30-inch-diameter pipeline, approximately 2.5 miles of 10-inch-diameter pipeline, and approximately five aboveground pressure regulation and limiting stations.

PROJECT DESCRIPTION

PIPELINE SEGMENTS AND CONSTRUCTION METHODS

The new gas transmission pipeline will consist of four segments: Line 406, Line 407 West, Line 407 East, and the Powerline Road Distribution Feeder Main (DFM), which are described in further detail below.

Line 406

Line 406 consists of approximately 14 miles of 30-inch-diameter gas transmission pipeline that will run between existing Lines 400 and 401 and existing Line 172A in Yolo County. From Lines 400 and 401, the pipeline will head east across agricultural fields and Hungry Hollow Canal to County Road (CR) 87, where it will jog south to a point just north of the intersection with CR 19. The route will proceed east under CR 87 and across more agricultural fields and two unnamed irrigation canals to Interstate 505 (I-505) in order to align with CR 17. After crossing under I-505 and Goodnow Slough, the route will parallel CR 17. From this point, Line 406 will continue east, paralleling CR 17 and crossing a number of small ephemeral drainages to a point at the east end of the Dunnigan Hills, where it will jog north for approximately 2,500 feet. At this point, the route will turn east along farm roads to, and under, Interstate 5 (I-5). On the east side of I-5, Line 406 will continue east to a tie-in point with Line 172A and Line 407 West. The proposed in-service date is October 1, 2009.

Line 407 West

Line 407 West consists of approximately 13.5 miles of 30-inch-diameter pipeline that will run between the junction of existing Line 172A and proposed Line 406 in Yolo County, and proposed Line 407 East near the intersection of Powerline and Riego roads in Sutter County. Beginning at the tie-in point with Lines 406 and 172A near I-5, Line 407 West will run east through agricultural fields to CR 98. The route will cross under and parallel CR 98 south to CR 16A. The pipeline will then head east along CR 16A to CR 99B, which it will parallel south to CR 17. At CR 17, the pipeline will turn east and parallel CR 17 to the Knights Landing Ridge Cut. The route will cross under this canal to the east and pass through more agricultural fields before going under the western levee of the Yolo Bypass. Line 407 West will then cross east through agricultural fields within the Yolo Bypass before crossing under the eastern levee of the Yolo Bypass and Tule Canal and reaching an irrigation canal on the eastern side of the bypass, which it will parallel north to CR 16. The route will parallel CR 16 east through Sacramento

River Ranch Conservation Bank lands and walnut orchards to the Sacramento River crossing site near the junction of CR 16 and CR 117. From this point, the pipeline will cross under the Sacramento River for approximately 3,000 feet and will then follow Riego Road in Sutter County past the Huffman East, Huffman West, Vestal, and Atkinson Natomas Basin Habitat Conservation tracts, to the corner of Powerline and Riego roads, where it will meet the Powerline Road DFM and Line 407 East.

Line 407 East

Line 407 East consists of approximately 12 miles of 30-inch-diameter pipeline that will run between proposed Line 407 West in Sutter County and existing Line 123 in Placer County. Line 407 East will extend east from the junction of Line 407 West and the Powerline Road DFM along Riego and Baseline roads in Sutter and Placer counties. The route will cross State Route (SR) 70/99 and a number of irrigation canals, including the North Drainage Canal and the Natomas East Main Drainage Canal (Steelhead Creek). Line 407 East will continue east, crossing an unnamed tributary to Steelhead Creek and Curry Creek along Baseline Road before connecting with Line 123 near the intersection of Baseline and Fiddyment roads.

Powerline Road Distribution Feeder Main

The Powerline Road DFM consists of approximately 2.5 miles of 10-inch-diameter steel pipeline that will supply natural gas to new developments in north Sacramento County, including the Metro Air Park and North Natomas. This segment will parallel Powerline Road between Riego Road in Sutter County where Lines 407 East and West meet, and West Elverta Road in Sacramento County. The Powerline Road DFM will be constructed concurrently with Line 407 East.

Regulator Stations

The project will include the construction of additional appurtenances necessary for operation of the four line segments. Five fenced, aboveground pressure limiting, pressure regulating, metering, and main line valve stations will be constructed along Line 406 and Line 407 to ensure that proper pressures are maintained in the transmission system and to reduce the pressure of the gas before delivering it to the distribution pipeline system. These stations will consist of the following.

- The Capay Metering Station is required at the connection of Lines 400 and 401 and Line 406, and will cover an area of approximately 100 feet by 100 feet.

- The Yolo Junction Pressure Limiting Station is required at the connection of Line 406 and Line 172A near I-5, and will cover an area of approximately 100 feet by 130 feet.

- The Baseline Road Pressure Limiting Station is required at the connection of Line 407 and Line 123 at Baseline Road and Watt Avenue and will be approximately 85 feet by 145 feet.

- The Powerline Road Pressure Regulating Station, near the corner of Powerline Road and West Elverta Road along the Powerline Road DFM, will be constructed in a yard measuring approximately 40 feet by 100 feet.

- The Powerline Road Main Line Valve will be installed within a yard measuring approximately 30 feet by 30 feet at the intersection of Riego and Powerline roads.

Other components necessary to the operation of the pipeline include aboveground line markers and electrolysis test stations.

Construction and Right-of-way

The 30-inch-diameter pipeline will be constructed within a 100-foot-wide right-of-way (ROW). The ROW will consist of 50 feet of temporary construction workspace and 50 feet of permanent easement. The 10-inch-diameter DFM will be constructed in a 60-foot-wide ROW. The ROW will consist of 25 feet of temporary construction workspace and 35 feet of permanent easement. Additional ROW space may be required in areas such as directionally-drilled crossings, bore locations, and as needed for laydown of project materials. In certain areas where sensitive environmental or land-use issues are determined to exist, the ROW may be narrowed to avoid these features.

WATERBODY AND ROAD CROSSING PROCEDURES

Specific crossing methods have not yet been identified for all of the water features that will be crossed by Line 406 and Line 407. Major crossings include two crossings of Knights Landing Ridge Cut, the Yolo Bypass/Tule Canal, the Sacramento River, Steelhead Creek, Curry Creek, and sensitive vernal pool complexes. Where feasible and warranted to avoid impacts to resources, bore or horizontal directional drilling (HDD) techniques may be employed. At smaller crossings, such as irrigation ditches and intermittent creeks, PG&E may employ dry-crossing techniques (flumed or dam and pump-around) to open cut these features.

Open Cut

For crossings where it is feasible and all required permits have been obtained, PG&E plans to open cut features such as smaller irrigation ditches and canals. When water is flowing, water features that are open cut will likely require a dam-and-pump-around setup where the workspace to be trenched is kept dry during construction and water is pumped around the workspace. Open-cut crossings will be trenched, the pipe installed, and the trench backfilled in one day where possible.

Bores

Traditional bores, also referred to as jack and bore, involve the excavation of a bore pit on one side of the crossing, and a receiving pit on the other side. A bore power rig is placed on a rail assembly in the bottom of the bore pit. The first segment of pipe is set on supports on the rail assembly, with auger sections inside. A cutting head, which is slightly larger in diameter than the pipe, is attached to the leading edge of the auger, and the other end of the auger is attached to the

power unit. The auger segments serve to move the soil back through the pipe and into the pit as the cutting head advances. The power unit rotates the cutting head and, using the rail assembly to maintain the proper alignment, pushes the pipe segment into the hole as the cutting head advances. Once the end of the first pipe segment approaches the face of the bore pit, the auger is disconnected, and the power unit backs out. A second pipe segment is lowered into the pit, and an auger section is inserted and threaded into the section already in the hole. The second pipe segment is welded together with the segment in the hole, and the rotating and pushing resumes. Additional pipe and auger segments are successively added in this manner until the leading pipeline edge and cutting head break through into the receiving pit. Soil deposited into the bore pit by the auger is removed by an excavator.

Horizontal Directional Drill

HDD utilizes a hydraulically powered horizontal drilling rig mounted on a portable steel skid. Support equipment includes a drilling mud tank and a power unit for the hydraulic pumps and mud pumps. The variable-angle drilling unit is adjusted to the proper design angle for the particular bore, and the first and smallest of the cutting heads begins the bore at the surveyed entry point in a small pit on the surface. The first section of drill stem has an articulating joint near the drill cutting head that can be controlled by the bore operator. Successive drill stem sections are added as the drill head makes its way under the crossing. Once the drill head reaches the midpoint and deepest point of the crossing, the drill head is articulated slightly by the operator to begin its upward climb toward the exit point. Once through, a succession of larger cutting heads and reamers are pulled and pushed through the bore hole until it is the appropriate size for the pipeline.

During the HDD, drilling mud is pumped under high pressure through the drill stem to rotate the cutting head and return the soil cuttings to the small pit at the surface entry point. The mud is pumped from this small pit to a processing unit where the cuttings are removed and the mud reused. Infrequently, the geologic strata above the bore may be weak and/or unconsolidated and the high pressure of the drilling mud results in a fracture of these strata, allowing drilling mud to rise to the surface. The boring operation is stopped immediately when this occurs. This situation is termed a “frac-out” and is usually resolved by reducing the mud system pressure or increasing the mud viscosity. While the bore is occurring, special armor-coated pipe sections to be pulled through the crossing are strung on pipe supports in the extra workspace along the edge of the ROW, welded, and the joints are coated. Once the bore hole is the correct diameter, a pulling head is welded on the end of this pipeline section, and the pipe is pulled through the bore until it surfaces on the other side. Bulldozers with sidebooms and slings support the pipe as it is slowly pulled through the bore hole. The completed bored crossing is then connected to the trenched pipeline, and the trench tie-in sites are backfilled.

SCHEDULE

The Line 406 and Line 407 Pipeline Project is scheduled to be constructed as dictated by the need for additional natural gas supply resulting from added load on the existing natural gas transmission system. Current projections are that Line 406, Line 407 East, and the Powerline Road DFM will be constructed between 2009 and 2010. Line 407 West is projected to be constructed between 2010 and 2012. Regulatory agencies responsible for special-status species

and water quality in the project area may require that construction take place during work windows that are designed to minimize impacts to special-status species, their habitats, and water quality.

SETTING

Line 406 is located in the Lower Cache and Sacramento-Stone Corral watersheds (U.S. Geological Survey [USGS] Hydrologic Units 18020110 and 18020104, respectively) in Yolo County. Only Hungry Hollow Canal, Goodnow Slough, and several small unnamed ephemeral streams in the Dunnigan Hills Region will be crossed by Line 406 (see Figure 1-1 in Attachment A). According to preliminary research, these waterways are not likely to support special-status fish species because they do not have suitable water quality, flow, temperature, substrate, and/or impassible barriers exist that do not allow access to fish.

Line 407 and the Powerline Road DFM are located within the Sacramento-Stone Corral, Lower Sacramento, and Lower American watersheds (USGS Hydrologic Units 18020104, 18020109, and 18020111, respectively) in Yolo, Sutter, Sacramento, and Placer counties. Surface water flows in the region include three major rivers; the Sacramento, American, and Feather. Of the major river systems in the project vicinity, Line 407 will only cross the Sacramento River (Figure 1-2 in Attachment A).

In addition to the Sacramento River, Line 407 will cross the Knights Landing Ridge Cut and Tule Canal, two larger drainage canals, and the Yolo Bypass, a large flood conveyance bypass that receives water from the Sacramento River and associated canals during high winter flows. The Knights Landing Ridge Cut runs southeast from the Colusa Basin to the Yolo Bypass and conveys water from the Colusa Basin Drainage Canal. In winter months, the Ridge Cut also delivers excess flood waters from the Sacramento River into the Yolo Bypass. Running roughly north to south, the Tule Canal serves as the eastern drainage boundary of the Yolo Bypass and conveys flood waters from the Sacramento River away from the more populated centers of the Sacramento Valley and into the Toe Drain, which eventually flows back into the Sacramento River downstream. While these two waterways may support special-status fish species during high flows in the winter and spring, special-status fish species are not likely to survive summer low flows, poor water quality, and high temperatures. Studies have found that in the winter months, the Yolo Bypass contains many listed species, including delta smelt (*Hypomesus transpacificus*), river lamprey (*Lampetra* ayresi), steelhead (*Oncorhynchus mykiss*), chinook salmon (*Oncorhynchus tshawytscha*), and Sacramento splittail (*Pogonichthys macrolepidotus*), but that these species leave the bypass in the vicinity of the project as waters recede in the spring and summer months (Sommer et. al., 2001).

Line 407 will also cross Curry Creek and Steelhead Creek, as well as a number of irrigation canals and ditches of various sizes. Curry Creek is a small, seasonal drainage that runs in a generally east to west direction into the Cross Canal and eventually into the Sacramento River. Steelhead Creek is a larger perennial drainage that has been channelized through the project area and over much of its length, and runs in a north-to-south direction in the project area, eventually flowing into the Sacramento River. An unnamed tributary to Steelhead Creek flows from east to west and will also be crossed by Line 407. Near the project area, flows in Steelhead Creek are

more seasonal than in the stretches below the confluence with Dry Creek. Dry Creek is a perennial, spring-fed tributary to Steelhead Creek located approximately 6 miles south and downstream of the project area.

METHODS

LITERATURE REVIEW

The California Department of Fish and Game (CDFG) California Natural Diversity Data Base (CNDDB), U.S. Fish and Wildlife Service (USFWS) Endangered Species List, and the National Marine Fisheries Service (NMFS) list of protected anadromous species were accessed for information on special-status fish species, critical habitat, and essential fish habitat (EFH) known to occur in the project area and its vicinity. The NMFS Sacramento Area Office and the California Department of Water Resources, Aquatic Ecology Section were also contacted for information on the potential for special-status species to occur in the project area.

Special-status fish species that were considered in this assessment include all federally and state-listed threatened and endangered species, candidates for listing, and federal and state species of concern. A special-status species was considered a potential inhabitant of the project area if its general habitat requirements (i.e., suitable water quality, temperature, flow, substrate, and access to the waterway) and known geographical distribution encompassed any waters within the project, or within approximately 10 miles of the project.

FIELD SURVEY

TRC biologists Benjamin Hart and Kevin Janik conducted field reconnaissance-level surveys on July 20, 2006 and June 21, 2007 to identify any waterways in the survey area that may provide suitable habitat for special-status fish species. A survey area of approximately 500 feet on either side of the proposed project alignment was established to encompass any potential ROW adjustments and extra workspace needed for the project that could potentially impact waterways that support special-status fish species. Additionally, areas downstream of the proposed project were also considered in the survey as impacts to water quality within the project area could potentially affect waters downstream of the project. Conditions that were considered included seasonal flow and water quality characteristics, riparian cover, substrate composition, and accessibility of the waterway, including in-stream structures that may create barriers to fish passage.

REGULATORY BACKGROUND

PACIFIC COAST SALMON PLAN

The Pacific Coast Salmon Plan guides management of commercial and recreational salmon fisheries off the coasts of Washington, Oregon, and California. This fishery management plan (FMP) covers the coastwide aggregate of natural and hatchery salmon species that is contacted by salmon fisheries in the exclusive economic zone (EEZ) off the coasts of Washington, Oregon, and California. In addition, the plan contains requirements and recommendations with regard to EFH for the managed stocks. The EFH includes marine areas within the EEZ, as well as

estuarine and freshwater habitat within the internal waters of Washington, Oregon, California, and Idaho.

While all species of salmon fall under the jurisdiction of this plan, it currently only contains fishery management objectives for chinook, Coho, pink (odd-numbered years only), and any salmon species listed under the Endangered Species Act that is measurably impacted by Pacific Fishery Management Council fisheries.

ESSENTIAL FISH HABITAT

The Magnuson-Stevens Act, as amended by the Sustainable Fisheries Act of 1996, requires federal agencies to consult with NMFS on activities that may adversely affect EFH. In addition, the law requires fishery management councils to include descriptions of EFH and potential threats to EFH in all federal fishery management plans. The Pacific Fishery Management Council amended the Pacific Coast Salmon Plan in 2000 to include descriptions of EFH for different salmonid species. EFH for chinook was defined for freshwater, estuarine, and marine waters.

Freshwater EFH for chinook salmon consists of four major components, including spawning and incubation, juvenile rearing, juvenile migration corridors, and adult migration corridors and adult holding habitat. Important features of essential habitat for spawning, rearing, and migration include substrate composition, water quality, water quantity, depth and velocity, channel gradient and stability, food, cover and habitat complexity, space, access and passage, and floodplain and habitat connectivity.

Chinook salmon EFH includes all those streams, lakes, ponds, wetlands, and other waterbodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California. Salmon EFH excludes areas upstream of longstanding naturally impassible barriers (i.e., natural waterfalls in existence for several hundred years), but includes aquatic areas above all artificial barriers except specifically cited impassible dams (NMFS, 2006c).

RECOVERY PLAN FOR THE SACRAMENTO/SAN JOAQUIN DELTA NATIVE FISHES

The Recovery Plan for the Sacramento/San Joaquin Delta Native Fishes (Recovery Plan) includes recovery and restoration objectives for eight species of fish that utilize the Sacramento/San Joaquin Delta for a significant segment of their life history. The Recovery Plan includes six of the sensitive species that have a potential to occur near the project area; Central Valley spring-run chinook salmon, Central Valley fall- and late-fall-run chinook salmon, winter-run chinook salmon, Sacramento splittail, Delta smelt, and Green sturgeon.

The Recovery Plan delineated actions believed to be necessary for the restoration and recovery of the eight species. Recovery and restoration criteria were designed to monitor the effectiveness of the recovery actions, to determine when a species has stabilized to a secure level, and to determine when a species qualifies for delisting.

Though the Recovery Plan was designed to monitor and restore the eight species, many of them have had further declines in numbers and have been elevated in listing status since the plan was published.

STEELHEAD RESTORATION AND MANAGEMENT PLAN FOR CALIFORNIA

The purpose of the Steelhead Restoration and Management Plan for California (Plan) is to assure the maintenance, restoration, and enhancement of California's steelhead stocks. The Plan provides guidelines for steelhead restoration and management to be integrated into current and future planning processes for specific river and stream systems. It also identifies those needs specific to steelhead and is intended to augment current anadromous fish restoration plans. The Plan focuses on restoration of native and wild stocks of steelhead, as these stocks have the greatest value for the species as a whole in terms of maintaining genetic and biological diversity.

The Plan focuses on the following five strategies to restore native stocks of steelhead:

- Restore degraded habitat
- Restore access to historic habitat that is presently blocked
- Review angling regulations to ensure that steelhead adults and juveniles are not over-harvested
- Maintain and improve hatchery runs, where appropriate
- Develop and facilitate research to address deficiencies in information on freshwater and ocean life history, behavior, habitat requirements, and other aspects of steelhead biology

The Plan includes recommendations for the management of American River stocks of steelhead, which include those in Steelhead Creek and Dry Creek south of the project area.

RESULTS

RESULTS OF LITERATURE REVIEW

A total of eight special-status fish species were found in CNDDB records and listed by the USFWS or NMFS that have the potential to occur within a 10-mile radius of the project area. Of these, the delta smelt, was ruled out from potentially occurring in the project area due to its range and the lack of suitable habitat in the survey area. Table 1 lists the sensitive species identified in the literature review, including their listing status, habitat associations, and potential for occurrence based on the field survey results. The following section includes descriptions of the special-status species that were found during the records search.

Table 1: Special-status Fish Species Habitat Associations and Potential to Occur

Species	Listing Status[1]	Habitat Association/Life History	Potential to Occur in Project Area
Green sturgeon (*Acipenser medirostris*)	FT; CSC	Anadromous species; large portions of life history are spent in the ocean. Migrations by adults into freshwater occur between late February and late July, with a spawning period generally ranging from March to July. Spawning takes place in deep, fast-moving water with temperatures between 46.5 and 57 degrees Fahrenheit (deg. F). Preferred spawning substrate is likely large cobble, but can range from clean sand to bedrock. Juveniles typically migrate out to sea before the end of their second year, primarily during summer and fall.	Likely to occur in the Sacramento River near the project between February and July.
Delta smelt (*Hypomesus transpacificus*)	FT; ST; CH	Delta smelt are usually found in estuarine waters with temperatures ranging from 43 to 82.5 deg. F, and salinities between 2 and 7 parts per thousand (ppt), but rarely above 18 ppt. Delta smelt spawn in freshwater at temperatures from about 44.5 to 59 deg. F between February and June. Spawning takes place in dead-end sloughs and shallow edge waters of channels in the western Delta. Eggs are adhesive and stick to hard substrates, such as rocks, gravel, tree roots, and submerged branches. Critical habitat has been designated in the Sacramento-San Joaquin Delta for Delta smelt, but does not occur in the project area.	Not likely to occur in the project area due to lack of suitable habitat. Species known range is approximately 11 miles downstream of the project.
River lamprey (*Lampetra ayresii*)	CSC	Lampreys are anadromous, entering the ocean in late spring and spending three to four months in saltwater before migrating back to freshwater in autumn. Spawning takes place between February and May in tributary streams to select larger rivers (Sacramento/ San Joaquin). Presumably, adults need clean, gravelly riffles in permanent streams for spawning. Ammocoetes require sandy, silty backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 77 deg. F.	Likely to occur in the Sacramento River year-round and potentially the Yolo Bypass near the project area during wet months.

Species	Listing Status[1]	Habitat Association/Life History	Potential to Occur in Project Area
Central Valley steelhead (*Oncorhynchus mykiss*)	FT; CH	Steelhead trout in the Central Valley enter freshwater from the ocean when winter rains provide large amounts of cold water for migration and spawning. Steelhead typically spawn in clean gravel within tributaries to mainstem rivers and return to the ocean after spawning, if possible. For one to two years after hatching, juvenile steelhead are found in cool, clear, fast-moving permanent streams and rivers where there is ample riparian cover or undercut banks, and where invertebrate life is abundant. Steelhead prefer temperatures in the range of 59 to 64.5 deg. F, but can withstand temperatures between 34 and 81 deg. F for short periods. Temperatures beyond this range are lethal to trout species. Critical habitat for the Central Valley steelhead has been designated in the Sacramento River, Yolo Bypass, and in Steelhead Creek approximately 6 miles south of the project crossing site.	Likely to occur in the Sacramento River year-round and potentially the Yolo Bypass and Steelhead Creek near the project area during wet months.
Central Valley fall- and late-fall-run chinook (*Oncorhynchus tshawytscha*)	FC; CSC; EFH	Fall-run chinook migration into freshwater occurs in late summer and early fall. Valley reaches of rivers are often too warm to support salmon in summer. Spawning typically occurs on gravel bars within a few days or weeks of entering freshwater. Adults die after spawning. Late-fall-run chinook are the largest and most fecund salmon species in California. They typically enter the river as four- to five-year-old fish beginning in October, and hold in freshwater for one to three months before spawning. Adapted for spawning in reaches of mainstem rivers, such as the upper Sacramento, which remain cold and deep enough in summer months for rearing of juveniles. Juveniles typically migrate to the ocean after 7 to 13 months in freshwater. Optimal temperatures for growth and survival of chinook range between 41 and 66 deg. F. At around 71 to 73 deg. F, major mortality is experienced in wild populations.	Likely to occur in the Sacramento River year-round and potentially the Yolo Bypass near the project area during wet months.

Species	Listing Status[1]	Habitat Association/Life History	Potential to Occur in Project Area
Central Valley spring-run chinook (*Oncorhynchus tshawytscha*)	FT; ST; CH; EFH	Spring-run chinook salmon enter the Sacramento River as immature fish in spring and early summer and migrate into headwaters where they hold in pools until they spawn. Juveniles emerge from early November through the following April, and typically rear in freshwater for 3 to 15 months. Juveniles emigrate from the tributaries to estuarine waters and the ocean between mid November and June. Some fish remain in the stream until the following October and emigrate as yearlings, usually with the onset of storms starting in October through the following March. Optimal temperatures for growth and survival of chinook range between 41 and 66 deg. F. At approximately 71 to 73 deg. F, major mortality is experienced in wild populations. Critical habitat has been designated in the Sacramento River and in the Yolo Bypass.	Likely to occur in the Sacramento River year-round and potentially the Yolo Bypass near the project area during wet months.
Sacramento River winter-run chinook (*Oncorhynchus tshawytcha*)	FE; SE; CH; EFH	Winter-run chinook typically migrate upstream as immature fish during winter and spring, then spawn several months later in summer. Most winter-run chinook return to freshwater as three-year-olds, and spawn in clear, cool water released from Shasta Reservoir. Juveniles remain in fresh water for 5 to 10 months, followed by an intermediate time in estuarine waters before entering the ocean. Optimal temperatures for growth and survival of chinook range between 41 and 66 deg. F. At around 71 to 73 deg. F, major mortality is experienced in wild populations. Critical habitat for winter-run chinook has been designated in the Sacramento River from Kenswick Dam to the San Francisco Bay.	Likely to occur in the Sacramento River year-round and potentially the Yolo Bypass near the project area during wet months.

Species	Listing Status[1]	Habitat Association/Life History	Potential to Occur in Project Area
Sacramento splittail (*Pogonichthys macrolepidotus*)	CSC	Sacramento splittail are primarily freshwater fish, but are tolerant of salinities of 10 to 18 ppt. They are commonly found in temperatures ranges from 41 to 75 deg. F, but can tolerate temperatures up to 91.5 deg. F for short periods. Adults move upstream during the winter and spring to forage and spawn. Spawning occurs between late February and early July in areas of flooded vegetation (Yolo and Sutter bypasses, low-lying parts of delta islands, and river mouths), though it is most frequent in March and April. Most splittail larvae remain near the spawning sites for 10 to 14 days before moving into offshore habitats.	Likely to occur in the Sacramento River in the winter and spring and potentially the Yolo Bypass near the project area during wet months.

Sources: CDFG (1996); McEwan (2001); Moyle (2002); NMFS (2006a); NMFS (2006b)

[1] Listing Status

Federal Listing

FE	Federally endangered
FT	Federally threatened
CH	Designated critical habitat
EFH	Essential fish habitat
FC	Federal candidate species

State Listing

SE	State endangered
ST	State threatened
CSC	California species of concern

Green Sturgeon

The green sturgeon (*Acipenser medirostris*) is a federally threatened species, and is a California species of concern. The green sturgeon is the most marine of the sturgeon species, coming into rivers mainly to spawn, and remaining in fresh water for up to two years in their early life stages. Spawning takes place in deep, fast-moving water with temperatures between 46 and 57 degrees Fahrenheit (deg. F). Larval and juvenile green sturgeons remain near estuaries in early life stages, but they migrate considerable distances as they grow. Juveniles typically migrate out to sea before the end of their second year, primarily during summer and fall (Moyle, 2002).

Delta Smelt

The delta smelt (*Hypomesus transpacificus*) is a federally and state-threatened species with critical habitat designated in the Sacramento/San Joaquin Delta. Delta smelt are slender-bodied fish, approximately 2 to 3 inches long, belonging to the Osmeridae family. They have a steely blue sheen on the sides and may seem almost translucent. Smelts live together in schools and feed on zooplankton. Delta smelt are a euryhaline species (able to adapt to a wide range of salinities), and have been collected from estuarine waters with up to 14 parts per thousand (ppt) salinity. For a large part of their one-year life span, delta smelt live along the freshwater edge of the mixing zone, where the salinity is approximately 2 ppt (USFWS, 2007).

Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse widely into river channels and tidally influenced backwater sloughs. They spawn in shallow, fresh, or slightly brackish water upstream of the mixing zone, mostly in backwater sloughs and channel edgewaters. Although spawning has not been observed in the wild, the eggs are thought to attach to substrates, such as cattails, tules, tree roots, and submerged branches (USFWS, 2007).

River Lamprey

The river lamprey (*Lampetra ayresi*) is a California species of concern. River lampreys are small (average length of spawning adults is approximately 6.7 inches) and predaceous, with an oral disc that is generally at least as wide as the head. Adult river lampreys are dark on the back and sides, silvery to yellow on the belly, and the tail is darkly pigmented. As the lamprey becomes sexually mature, the gut degenerates and the two dorsal fins grow closer together, eventually joining. Ammocoetes (juvenile lampreys) can be recognized by their pale heads (especially around the gill openings), a prominent line behind the eye spot, and a tail in which the center tends to be lightly pigmented (Moyle, 2002).

The ammocoetes begin their transformation into adults during the summer at approximately 4.7 inches total length (TL). The process of metamorphosis may take 9 to 10 months, the longest known for any lamprey. Lampreys in the final stages of metamorphosis congregate immediately upriver from salt water and enter the ocean in late spring. Adults apparently only spend three to four months in salt water, where they grow rapidly, reaching 9.8 to 12.2 inches TL (Moyle, 2002).

River lampreys prey on a variety of fishes in the 4- to 12-inch TL size range, but the most common prey seems to be herring (*Clupea* spp.) and salmon. Unlike other species of lamprey in California, river lampreys typically attach to the back of the host fish, above the lateral line, where they feed on muscle tissue. Feeding continues even after the death of the prey. The effect of river lamprey predation on prey populations is minimal. River lampreys can apparently feed in either salt or fresh water (CDFG, 1995).

Adults migrate back into fresh water in the fall and spawn during the winter or spring months in small tributary streams. While maturing to reproductive age in streams, river lampreys shrink in length by about 20 percent. They dig saucer-shaped depressions in gravelly riffles for spawning. Adults die after spawning. Ammocoetes remain in silt-sand backwaters and eddies and feed on algae and microorganisms. The duration of the ammocoete stage is not known, but it is probably three to five years, making the total life span of the river lamprey approximately six to seven years (Moyle, 2002).

Central Valley Steelhead

Central Valley steelhead (*Oncorhynchus mykiss*) are similar to some Pacific salmon species in their ecological requirements. They are born in freshwater, migrate to the ocean where most of their growth occurs, and return to freshwater to spawn. Unlike Pacific salmon, steelhead are iteroparous (i.e., can spawn more than one time). They can spawn up to four times, but mortality rates between fish of succeeding ages are high, typically 50 to 75 percent, so that very few fish spawn so often (Moyle, 2002).

In California, peak spawning occurs from December through April in small streams and tributaries with cool, well-oxygenated water. The length of time it takes for eggs to hatch depends mostly on water temperature. Steelhead eggs hatch in approximately 30 days at 51 deg. F. Fry usually emerge from the gravel four to six weeks after hatching, but factors such as redd depth, gravel size, siltation, and temperature can speed or retard this time. Juvenile steelhead can spend one to three years in freshwater before migrating to the ocean. Once at sea, they spend one to four years before returning to spawn (McEwan, 2001).

Central Valley steelhead are considered “winter” steelhead, because they enter streams between August and October and hold in freshwater until tributary flows are high enough to enter for spawning. They typically spawn shortly after reaching spawning grounds, often traveling long distances to reach ideal spawning habitat (Moyle, 2002).

Critical habitat for the Central Valley steelhead has been designated by the NMFS in the Sacramento River, the Yolo Bypass, and in lower Steelhead Creek approximately 6 miles south of the project crossing site (Figure 1-2 and 1-3 in Appendix A). Central Valley steelhead are federally listed as threatened (NMFS, 2005).

Central Valley Fall- and Late-fall-run Chinook

Chinook salmon (*Oncorhynchus tshawytscha*), the largest of the salmon species, belong to the family Salmonidae, and are one of eight species of Pacific salmonids in the genus *Oncorhynchus*. Chinook salmon are anadromous (i.e., adults migrate from a marine environment into the

freshwater streams and rivers of their birth to spawn) and semelparous (i.e., spawn only once and then die).

Adult female chinook will prepare a nest, or redd, in a stream area with suitable gravel composition, water depth, and water velocity. Suitable gravel is usually a mixture of gravel and cobble with low silt content. The adult female chinook may deposit eggs in four to five nesting pockets within a single redd. After spawning, adult chinook guard the redd from 4 to 25 days before dying. Chinook salmon eggs hatch between 90 to 150 days after deposition, depending upon water temperatures. Eggs are deposited at a time to ensure that young salmon fry emerge during the following spring when the river or estuary productivity is sufficient for juvenile survival and growth (NMFS, 2006b).

Juvenile chinook may spend from three months to two years in freshwater after emergence and before migrating to estuarine areas as smolts, and then into the ocean to feed and mature. Coastwide, chinook salmon remain at sea for one to six years, although typically remain for two to four years, with the exception of a small proportion of yearling males (jack salmon), which either mature in freshwater or return after two to three months in saltwater (NMFS, 2006b).

The Central Valley fall- and late-fall-run chinook designation actually consists of two distinct migrations of chinook, which are candidates for listing by the NMFS and are California species of concern. Fall-run chinook are adapted for spawning in lowland reaches of large rivers and their tributaries. They migrate from the ocean in late summer and early fall in mature condition and typically spawn within a few days or weeks of reaching the spawning grounds. Juveniles emerge in spring and move downstream to rear in mainstem rivers or estuaries before heading out to sea (Moyle, 2002).

Late-fall-run chinook typically migrate into rivers between October and April, and hold in the river for one to three months before spawning. They are adapted for spawning and rearing in mainstem rivers, such as the upper Sacramento, which remain cold and deep enough in summer for rearing of juveniles. Juveniles grow rapidly and head out to sea after 7 to 13 months in freshwater (Moyle, 2002).

EFH has been designated for all species of chinook salmon managed by the NMFS and the Pacific Fisheries Management Council under the Pacific Coast Salmon Plan of 1997, and Amendment 14 to the Pacific Coast Salmon Plan of 2000. Within the project area, EFH includes all watercourses accessible to chinook salmon. The Central Valley fall- and late-fall-run chinook salmon evolutionary significant unit is listed as a species of concern by the NMFS and CDFG.

Central Valley Spring-run Chinook

Central Valley spring-run chinook (*Oncorhynchus tshawytscha*) are listed by the NMFS and the CDFG as threatened. Critical habitat for the species has been designated in the Sacramento River and Yolo Bypass (Figure 1-2 in Attachment A).

Central Valley spring-run chinook salmon are similar in many of their life history characteristics to other chinook salmon runs in the Central Valley, with the exception of their run timing, their spawning period, and the amount of time spent in the river by juveniles before migrating out to

sea. Spring-run chinook salmon enter the Sacramento River as sexually immature fish in spring and early summer, usually between March and September. They move upstream and enter tributary streams, holding in headwater pools until they spawn typically between late August and October. Adults die after spawning. Juveniles typically rear in freshwater for 3 to 15 months. Juveniles typically emigrate from the tributaries to estuarine waters and the ocean between mid November and June (Moyle, 2002).

Sacramento River Winter-run Chinook

Winter-run chinook (*Oncorhynchus tshawytscha*) in California are unique to the Sacramento River. They are listed by the NMFS and CDFG as endangered and critical habitat has been designated in the Sacramento River (Figure 1-2 and 1-3 in Appendix A). Winter-run chinook salmon are similar in many of their life history characteristics to other chinook salmon runs in the Central Valley, with the exception of their run timing, their spawning period, and the amount of time spent in the river by juveniles before migrating out to sea.

Winter-run salmon typically migrate upstream as immature fish during winter and spring, then spawn several months later in summer. Most winter-run chinook return to fresh water at three years old, and spawn in the upper Sacramento River in clear, cool water released from Shasta Reservoir. Adults die after spawning. Juveniles remain in fresh water for 5 to 10 months, followed by an intermediate time in estuarine waters before entering the ocean. Optimal temperatures for growth and survival of winter-run chinook salmon range from between 41 and 66 deg. F. At around 72 to 73.5 deg. F, major mortality is experienced in wild populations (Moyle, 2002).

Sacramento Splittail

The Sacramento splittail (*Pogonichthys macrolepidotus*) is a California species of concern that is adapted to survival in a wide range of salinities and temperatures, as well as severe conditions in highly alkaline waters. Splittail are primarily freshwater fish, but are tolerant of salinities of 10 to 18 ppt. Splittail are commonly found in temperatures ranging from 41 to 75 deg. F, but can tolerate temperatures up to 91 deg. F for short periods. Splittail of all sizes can also tolerate low dissolved-oxygen levels, making them well suited to the slow-moving sections of rivers and sloughs. Splittail are most commonly found in the Suisun Bay and Marsh region in dead-end sloughs that typically have small streams running into them (CDFG, 1995).

Splittail are benthic foragers that feed extensively on opossum shrimp (*Neomysis mercedis*). However, detritus material typically makes up a high percentage of their stomach contents. They will feed opportunistically on earthworms, clams, insect larvae, and other invertebrates. They are preyed upon by striped bass (*Morone saxatilis*) and other predatory fishes.

Adult splittail move upstream during the winter and spring to forage and spawn in flooded areas. Spawning takes place between late February and early July in areas of flooded vegetation (e.g., Yolo and Sutter bypasses, low-lying parts of Delta islands, and river mouths). Most splittail larvae remain in shallow, weedy areas near the spawning sites for 10 to 14 days before moving out into deeper habitat as swimming abilities increase (Moyle, 2002).

Splittail are relatively long-lived (about five to seven years) and are highly fecund (up to 100,000 eggs per female). Their populations fluctuate on an annual basis depending on spawning success and strength of the year class. Both male and female splittail mature by the end of their second year, although occasionally males may mature by the end of their first year and females by the end of their third year (Moyle, 2002).

RESULTS OF FIELD SURVEY

The Sacramento River is the only waterway in the project area that was observed to have year-round flows and access to special-status fish species within the project area, and that is likely to support special-status fish species at the time of construction of the Line 406 and Line 407 project. Other waterways that may support special-status fish species during wet portions of the year include the Yolo Bypass (including Tule Canal), Knights Landing Ridge Cut, and potentially Steelhead Creek; however, suitable flows and/or habitat were not observed in these waterways during the field survey, and thus, these waterways are highly unlikely to support the aforementioned species in the project area during the dry months when construction of the Line 406 and Line 407 Pipeline Project is scheduled to take place. During the surveys, only very low flows were observed in the Yolo Bypass (Tule Canal), Knights Landing Ridge Cut, and Steelhead Creek, and water quality was observably poor with stagnant pools and large growths of aquatic vegetation, in addition to numerous bullfrogs and other species that would likely prey on any surviving juvenile fish that remain in these waterways after winter flows subside.

Steelhead Creek flows to the American River and portions of this creek approximately 6 miles downstream of the project (at the confluence of Dry Creek) are listed as critical habitat for the Central Valley steelhead. The lower portions of this waterway are also known to support the Central Valley fall/late fall-run chinook salmon, which is a candidate for listing and for critical habitat. Within the project area, however, the conditions of Steelhead Creek are not likely to support migrating, spawning, or rearing special-status fish due to poor-quality habitat. No suitable spawning habitat was observed in the upper reaches of Steelhead Creek, nor was any in-stream cover observed that would support juvenile rearing. Fish may occasionally stray into the portions of Steelhead Creek near the project site, but only during wet months. These strays are not likely to successfully spawn or rear in the portions of Steelhead Creek near the project site. During the surveys, flows in Steelhead Creek were very low, with numerous stagnant pools near the project crossing site. Water quality was observably poor, with algal and vegetative growth covering a good portion of the ponded surface.

Numerous irrigation canals and small ephemeral waterways were observed in the project area. Some of the irrigation canals had substantial flows at the time of the field survey. However, these waterways are not likely to support the special-status fish species that were identified during the literature review because access to these waterways by the species is limited or nonexistent, and habitat features that would support the survival of these species (riparian cover, instream structures, suitable substrate, undercut banks, etc.) were not observed. The small ephemeral creeks that were observed in the Line 406 and Line 407 project area are not likely to support special-status fish species at any time of the year due to lack of access, variable seasonal flows, and lack of suitable spawning, rearing, or foraging habitat.

DISCUSSION AND RECOMMENDATIONS

POTENTIAL EFFECTS TO SPECIAL-STATUS SPECIES

Direct Effects

Direct effects to special-status fish species, including direct mortality or loss of habitat, could occur if fish are present in waterways that will be crossed during construction and if construction methods require instream work.

Direct effects to critical habitat designated in the Sacramento River for the winter-run chinook, and in the Sacramento River and Yolo Bypass for the Central Valley steelhead and spring-run chinook, could result if project activities impact water quality or any of the components of the critical habitat (spawning, rearing, foraging, etc.).

Direct effects to EFH for salmon species could result if construction activities directly impact any of the habitat components of salmon EFH, including spawning and incubation habitat, juvenile rearing habitat, juvenile or adult migration corridors, or adult holding habitat.

Indirect Effects

Indirect effects to special-status fish species, critical habitat, or EFH could result if construction activities during dry months result in impacts to water quality or habitat in the wet season(s) following completion of the project (i.e., spills of hazardous materials in or near seasonally utilized waterways, removal of vegetation or instream structures utilized by rearing juveniles, increased turbidity resulting from unrestored construction areas, etc.). Additionally, indirect effects to habitat downstream of the project could result from a frac-out of drilling mud during the HDD procedure, which could temporarily reduce water quality or habitat value.

RECOMMENDATIONS

To minimize the potential for direct or indirect effects to special-status fish species, critical habitat, and salmon EFH, the following avoidance and minimization measures are recommended:

- Perform all water-crossing construction during dry months when there is less potential for special-status fish species to occur in the waterways.
- Where feasible, employ HDD methods to install the pipeline below watercourses with the potential to support special-status fish species.
- Implement a frac-out plan to manage the inadvertent release of any drilling muds into watercourses with the potential to support special-status fish species in the event of a frac-out.
- Confine all heavy equipment, vehicles, and construction work to approved roads and work areas. Stream channel work areas should be limited to what is absolutely necessary for

construction. To the maximum extent feasible, construction vehicles should be kept out of watercourses with the potential to support special-status species.

- Implement erosion, sediment, material stockpile, and dust control Best Management Practices on-site to minimize the potential for fill or runoff to enter waterways.

- Use caution when handling and/or storing chemicals (e.g., fuel and hydraulic fluid) near waterways, and follow any and all applicable laws regarding hazardous material handling/storage. Service and refueling procedures should take place at least 100 feet from waterways or in an upland area at least 100 feet from waterway boundaries to prevent spills from entering waterways. These activities may be performed closer than 100 feet if a qualified biologist finds in advance that no reasonable alternative exists, and that contractors have taken the appropriate steps (including secondary containment) to prevent spills and provide prompt cleanup in the event of a spill.

- Maintain all construction equipment to prevent leaks of fuels, lubricants, or other fluids into waterways.

- Restore work areas to preexisting contours and conditions upon completion of work to minimize indirect impacts to water quality, critical habitat, and salmon EFH in and around the project area.

CONCLUSION AND DETERMINATION

The Line 406 and Line 407 Pipeline Project will be constructed in the dry season when many of the project area waterways that may support special-status fish species will be dry or will not have sufficient flow or water quality to support the species. Additionally, larger waterways, including the Sacramento River, which may support special-status fish species year-round, and Knights Landing Ridge Cut, Tule Canal, and Steelhead Creek, which may support these species during wet months, will be crossed using HDD methods, thereby significantly reducing potential impacts to special-status fish, critical habitat, and salmon EFH.

Construction through the Yolo Bypass will require traditional trenching methods during dry months, which will temporarily disturb approximately 15 acres of ground that is submerged in wet months when the bypass floods. However, special-status fish species are not expected to be in the area during the construction period, as the bypass dries out in the spring and summer and any remaining water flows into Tule Canal, which will be crossed using HDD methods. Additionally, the area where the pipeline is proposed to cross the bypass is heavily modified on an annual basis by ground-disturbing agricultural practices that take place in the bypass. If the project area within the Yolo Bypass is restored to its preconstruction condition following completion of the project, impacts to special-status species, critical habitat, and EFH are not likely to result.

Since the pipeline will be buried underground and will require minimal aboveground structures (regulator stations and line markers), operation and maintenance of the pipeline are not expected to impact special-status fish species, their critical habitat, or salmon EFH.

Determination Statement

Based on the temporary nature of pipeline construction; the project design, including HDD crossing methods at major waterways with the potential to support special-status fish species; the construction timing during dry months when seasonal waterways are not likely to support special-status fish; and with the implementation of restoration of the pipeline ROW and the avoidance and minimization measures outlined above, the PG&E Line 406 and Line 407 Pipeline Project is not likely to impact special-status fish, their critical habitat, or salmon EFH.

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E-9: Line 407 East Dry-Season Sampling for Branchiopod

DRY-SEASON SAMPLING FOR FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE PG&E LINE 407 EAST PROJECT

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DRY-SEASON SAMPLING FOR FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE PG&E LINE 407 EAST PROJECT

INTRODUCTION

Helm Biological Consulting was contracted by Gallaway Consulting, Inc. to conduct dry-season sampling for large branchiopods (fairy shrimp, tadpole shrimp, and clam shrimp) that are listed as threatened or endangered under the Federal Endangered Species Act (e.g., vernal pool fairy shrimp [*Branchinecta lynchi*] and vernal pool tadpole shrimp [*Lepidurus packardi*]) at the PG&E Line 407 East Project.

The PG&E Line 407 East Project is proposed for natural gas transmission pipeline installation. The survey area for this linear project consists of approximately 1,800 acres occurring along the north and south sides of Baseline and Riego Roads as well as, the east and west side of Powerline Road, just west of the City of Roseville and just north of the Cities of Rio Linda and North Highlands, in Placer, Sutter, and Sacramento Counties, California. Moreover, the PG&E Line 407 East Project encompasses portions of Sections 1-8 and 17-20 of Township 10 North, Range 4 East of the Taylor Monument 7.5-minute U.S. Geological Survey topographic quadrangle map (hereafter "USGS map"), Sections 31-36 of Township 11 North, Range 4 East of the Verona USGS map, Sections 1-6 of Township 10 North, Range 5 East of the Rio Linda USGS map, Sections 31-36 of Township 11 North, Range 5 East of the Pleasant Grove USGS map, Section 6 of Township 10 North, Range 6 East of the Citrus Heights USGS map, and Section 31 of Township 11 North, Range 6 East of the Roseville USGS map (Figure 1).

Gallaway Consulting, Inc. identified 33.739 acres of wetlands, including (4.089 acres) of fresh emergent wetlands, (0.217 acre) of riparian, (1.950 acres) of seasonal swales, (21.785 acres) of seasonal wetlands, (4.359 acres) of vernal pools, and (1.339 acres) of vernal swales onsite (Attachments DS-01 – DS-26).

This report discusses the methods and results of the dry-season sampling for the presence of federally-listed large branchiopods at the PG&E Line 407 East Project.

PG&E Line 407 East Project

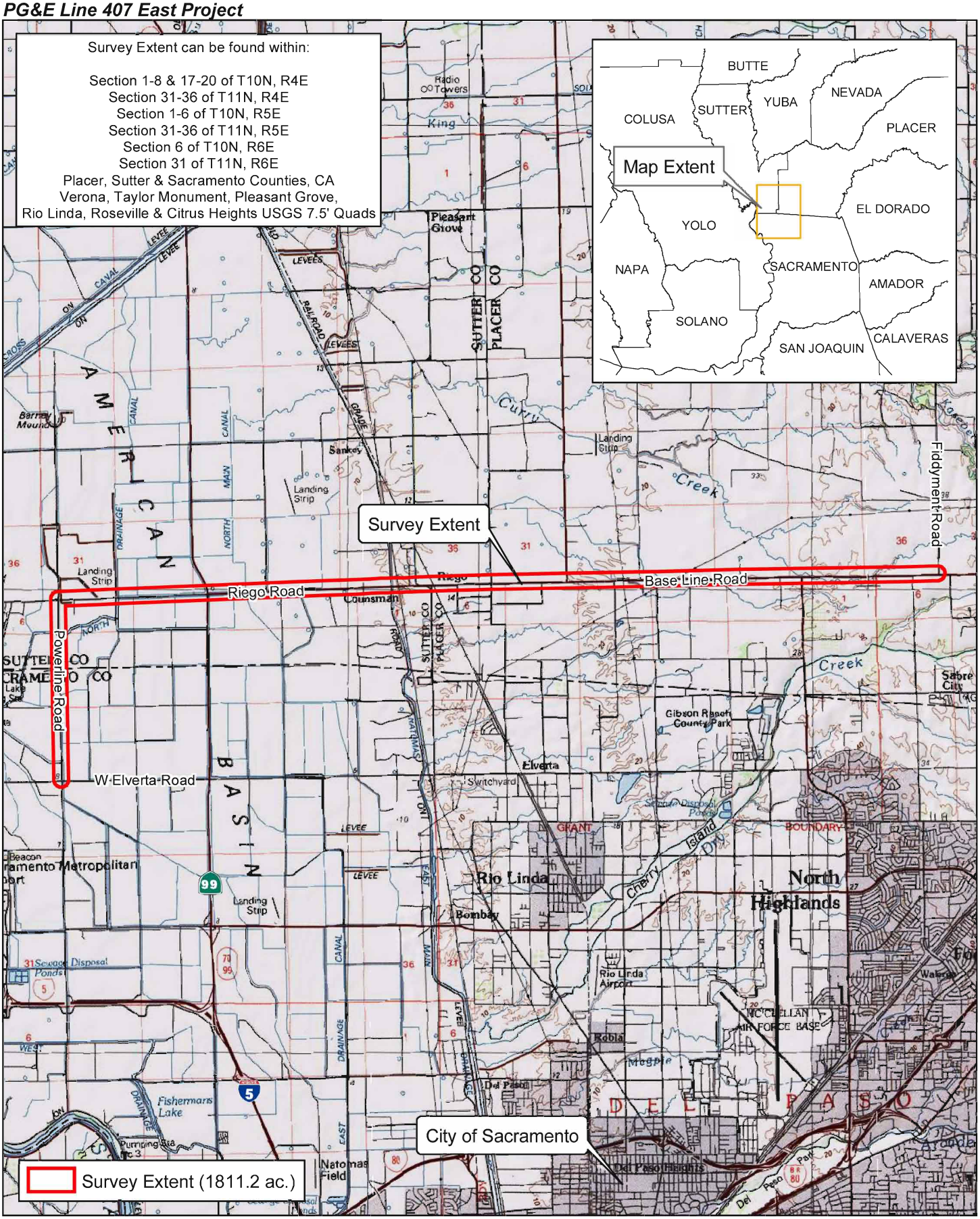

Figure 1.

METHODS

Dr. Brent Helm conducted dry-season sampling on November 5, 6, and 18, 2006 as authorized by U.S. Fish and Wildlife Service (USFWS) (Appendix A). Sampling was conducted under permit TE-795930-4 of Section 10(a)(1)(A) of the Federal Endangered Species Act, 16 U.S.C. 1531 *et seq.*, and its implementing regulations. Methods generally followed USFWS's *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (1996) and are described below.

All areas that potentially could support federally-listed large branchiopods were sampled. Potential habitat for federally-listed large branchiopods is defined as any seasonal inundated depression that on average ponds water two (2) inches or greater in depth for 30 or more consecutive days. Potential habitat characteristics of large branchiopods are based on the life history of Central Valley endemics (Eriksen and Belk 1999; Helm 1998, 1999; Helm and Vollmar 2002). The presence of water marks, algae mats, driftlines, hydrophytic ("water-loving") vegetation, slope, contributing watershed, maximum potential ponding depth and aquatic arthropods (i.e., crustaceans and insects) exoskeletons were helpful indicators for evidence of ponding depth and duration. Habitats that swiftly flow water (e.g., creeks, streams, ephemeral drainages) or semi-to-permanently inundated areas that support population of predators (e.g. bullfrogs, fish, and crayfish) were not generally considered suitable habitat for federally-listed large branchiopods.

Dry-season sampling involved the collection of a minimum of ten-soil sub-samples mainly from the lowest topographic areas within each basin considered potential habitat onsite. Soil samples were placed in liter size plastic freezer bags and marked with the project name, basin number, and date. The soil was then transported to a laboratory for processing and analysis.

In the laboratory, a brine solution was prepared by mixing table salt (NaCl) with lukewarm tap water in a large container. The collected soil material was placed in the brine solution. The soil material was then gently worked by hand to breakdown any persistent soil structure. The organic material rising to the top of the brine solution was skimmed off and placed in a 600-micron diameter pore-size sieve stacked atop a 75-micron diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while gently rubbing it with a soft-bristle brush. The

soil retained from the 75-micron diameter pore size sieve was then removed and thinly (1 mm) spread into plastic petri dishes.

The contents of each petri dish were examined under a 10 to 240-power zoom binocular microscope. A minimum of 0.5-hour was spent searching the contents of each petri dish for large branchiopod cysts (embryonic eggs). Dr. Helm's large branchiopod cyst reference collection and scanning electron micrographs of cysts (Hill and Shepard 1998, Mura 1991, and Gilchrist 1978) were used to identify and compare any cysts observed within the soil samples.

RESULTS

A total of 177 basins were sampled using dry-season techniques. This included 136 wetlands mapped by Gallaway Consulting Inc., and an additional 41 basins (HBC1–HBC14) identified by Helm Biological Consulting as potential large branchiopod habitat (Attachments DS-01 – DS-26). A total of 96 wetlands mapped by Gallaway Consulting Inc. were not sampled for the following reasons:

- Eighteen wetlands occurring in non-accessible parcels (WF001, WF002, WF007, WF023, OW193, WF057, OW094, OW093, WF060, WF061, WF062, WF059, WF063, WF090, WF091, WF092, OW0145, and OW0154)
- Six wetlands that are semi-perennial to perennial and/or would have swift flows (OW075, WF018, OW210, WF034, OW091, and WF112)
- Four wetlands did not possess adequate ponding depth and duration characteristics for federally-listed large branchiopods to complete their life cycle (WF054, WF055, WF056, and WF034)
- Two perennial ponds (OW226 and OW227)
- All of the irrigation ditches (a total of 66) that contain summer water due to crop maintenance, except for three (OW013, OW135, and OW195)

Cysts belonging to the genus *Branchinecta* were observed in soils collected from 41 basins onsite (Table 1). Cysts belonging to the California fairy shrimp (*Linderiella occidentalis*) were observed in soils collected from 21 basins onsite (Table 1). Representative photographs of the basins onsite are found in Appendix B.

Table 1. Results of Soil Examinations

Basin No.	Insect Exo-Skeletons	Micro-Turbularian Cysts	Cladocera Ephippia	Ostracods Live/Cysts/ Carapaces	Large Branchiopod Cysts *Branchinecta* sp.	Large Branchiopod Cysts *Lindeniella occidentalis*	Hydracarina Live/Eggs	Nematoda	Collembola
HBC	X						X	X	
HBCA	X			X					
HBCB	X						X	X	
HBC1	X		X				X		
HBC1A	X								
HBC1B	X	X	X	X					
HBC1C	X	X							
HBC1D	X		X	X					
HBC1E	X	X	X						
HBC1F	X	X		X					
HBC2	X	X	X						
HBC2A	X	X		X					
HBC3			X	X				X	
HBC3A	X	X		X					
HBC4	X		X						
HBC4A	X								
HBC4B	X	X	X				X		
HBC4C	X	X	X		1	1			
HBC4D	X	X							
HBC5	X	X	X		5				
HBC6		X							
HBC6A	X		X						
HBC7	X						X		
HBC8	X		X				X		
HBC8A	X	X	X						
HBC8B	X	X							
HBC8C	X		X	X					
HBC8D	X				3				
HBC8E	X	X	X						X
HBD8F	X		X	X					X
HBC9	X		X					X	X
HBC9A	X	X	X						
HBC10	X		X					X	
HBC11	X	X						X	
HBC12	X	X	X				X		
HBC12A	X	X							
HBC12B	X				2				
HBC12C	X	X							
HBC12D	X	X							
HBC13									
HBC14	X		X				X	X	
OW008,OW113,OW097, OW101,OW103,OW105, OW107,OW109,OW111	X								X
OW013	X		X	X	≈30		X	X	X
OW043	X		X						
OW065		X	X				X		X
OW066	X								
OW068	X								
OW069	X							X	X
OW070									
OW074	X							X	X
OW080,OW082		X							X
OW086	X	X		X			X	X	
OW087	X			X			X		X
OW088,OW089								X	X
OW097	X								
OW099	X						X		X
OW114	X								
OW115	X								X
OW117,OW119,OW120, OW122									
OW124	X	X					X	X	X

Table 1. Results of Soil Examinations

Basin No.	Insect Exo-Skeletons	Micro-Turbularian Cysts	Cladocera Ephippia	Ostracods Live/Cysts/ Carapaces	Large Branchiopod Cysts *Branchinecta* sp.	Large Branchiopod Cysts *Linderiella occidentalis*	Hydracarina Live/Eggs	Nematoda	Collembola
OW127	X		X	X		5	X		
OW128	X			X			X	X	X
OW135	X				>100		X	X	X
OW195					>50			X	X
OW217,OW219	X		X	X		2	X		X
WF003	X	X	X	X			X		
WF004	X	X	X				X		
WF005	X	X					X	X	
WF006	X	X							
WF008	X	X	X				X		
WF009	X		X				X		
WF010		X						X	
WF011		X	X	X			X		
WF012	X	X	X		>100				
WF013	X			X			X	X	X
WF014	X		X				X	X	
WF015							X	X	
WF016	X	X	X				X	X	
WF017	X		X				X		
WF020	X						X	X	X
WF022	X	X	X	X			X	X	X
WF024	X	X	X				X	X	
WF025,WF026	X	X	X	X			X		
WF028	X	X	X	X			X	X	X
WF029,WF030,OW078	X	X	X	X			X	X	
WF031,WF027	X		X	X			X	X	
WF032		X	X	X				X	
WF033	X		X				X		
WF035	X		X				X	X	
WF036	X								
WF037	X			X		3	X	X	
WF038	X							X	
WF039	X							X	
WF040				X	2				X
WF041	X	X	X	X	3	2	X		
WF042	X								
WF043	X		X		≈ 15		X		
WF044	X	X	X						
WF045			X				X	X	
WF046	X	X	X		3				
WF047	X		X						
WF048	X	X	X	X	≈ 60	≈ 10	X	X	X
WF049	X	X		X			X	X	
WF050	X	X	X	X			X		
WF051	X		X	X					
WF052	X	X	X	X					
WF053	X								
WF058	X	X	X						
WF064,OW225	X	X	X	X	2			X	
WF066	X	X	X		≈ 20	≈ 10	X		
WF067	X		X						
WF068	X	X	X				X	X	
WF069	X	X	X	X	≈ 15		X	X	
WF070	X	X	X	X	5		X	X	
WF071	X		X		≈ 30				
WF072	X	X	X		≈ 50		X	X	
WF073	X	X	X		2		X	X	
WF074	X							X	
WF075					3		X		
WF077	X		X	X			X		
WF078	X	X	X	X			X	X	
WF079	X	X	X	X			X		
WF080	X	X		X	20	8			
WF081	X	X							

Table 1. Results of Soil Examinations

Basin No.	Insect Exo-Skeletons	Micro-Turbularian Cysts	Cladocera Ephippia	Ostracods Live/Cysts/ Carapaces	Large Branchiopod Cysts *Branchinecta* sp.	Large Branchiopod Cysts *Linderiella occidentalis*	Hydracarina Live/Eggs	Nematoda	Collembola
WF082	X	X	X		≈ 50			X	X
WF083	X	X	X				X		
WF084	X						X		
WF085	X	X	X						X
WF086	X	X	X		1		X		X
WF087	X	X					X	X	
WF088	X	X	X	X	1		X	X	
WF089	X		X	X	5		X		
WF094	X		X	X	1	1			
WF095	X		X		≈ 50	1		X	
WF096	X		X		35	5			
WF097	X	X			≈ 20	≈ 10			
WF098	X		X		≈ 25	≈ 10		X	X
WF099			X		≈ 40	≈ 20			
WF100	X	X	X		>100	≈ 15			
WF101	X	X	X		>100	≈ 10			
WF102	X	X	X		>100	≈ 10			
WF103	X	X	X		>100	≈ 30			
WF104		X			>150	≈ 30			
WF105	X		X		>200	5			
WF106	X		X		≈ 50	≈ 10			X
WF107			X						
WF108	X	X						X	
WF109	X		X					X	
WF110	X	X			≈ 30				
WF111		X	X				X		X
WF113	X	X							
WF114	X	X	X						
WF115	X	X	X						
WF116									
WF117	X						X		
WF118	X			X			X		
WF119	X	X		X	1				
WF120	X	X	X				X	X	

DISCUSSION

The California fairy shrimp is a somewhat common large branchiopod found in the Central Valley and has no state or federal status (e.g., listed as threatened or endangered). However, several species within the genus *Branchinecta* are listed as threatened or endangered under the Federal Endangered Species Act. Positive identification of the *Branchinecta* sp. cysts to species would entail hatching and rearing the cysts to maturity or the collection of mature branchiopod specimens from the occupied habitat during the wet-season.

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U. S. Fish and Wildlife Service. 1996. Interim Survey Guidelines to Permittees for Recovery Permits under Section 10 (a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. 11 pp.

APPENDIX A. USFWS AUTHORIZATION LETTER

Subj: **Survey Authorization for [redacted] and PGE Project site**
Date: 9/22/2006 1:42:28 P.M. Pacific Standard Time
From: Mary_Hammer@fws.gov
To: bhelm69485@aol.com
CC: Lawrence_Host@fws.gov, holly_herod@fws.gov

Brent, by this email message you are authorized to conduct wet and dry season sampling for federally-listed vernal pool crustaceans per the conditions of your permit, TE-795930-3, at the [redacted] along the PG&E Project site in Placer, Sutter, and Sacramento Counties. [redacted] The PG& E project site consists of approximately 1,800 acres and is located just west of the city of Roseville and north of Rio Linda and North Highlands. Approximately 30 seasonal wetland habitats were identified on site.

Please remember to have all biologists carry a copy of their permit while doing the work, and to follow the terms and conditions of the permit and the survey protocol, including the reporting requirements. Please include the recovery permit numbers and all persons involved in the reports of the results of surveys, and the date of this authorization, to help ensure that we correctly record the fulfillment of the reporting requirement under this authorization.

Please send separate copies of the report(s) at the time of any formal or informal consultation under section 7 of the Endangered Species Act with the Fish and Wildlife Service.

Please let us know if the surveys are not performed as authorized, or if they are done by a different permittee under a separate authorization. Also include a summary of what surveys were authorized, who was authorized, when the surveys were done, and who did the surveys in your annual report for each recovery permit involved with this survey authorization.

Thank you for your assistance.

Mary Hammer
Senior Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Endangered Species Division
2800 Cottage Way, Rm. W-2605
Sacramento, CA 95825-1846
(916) 414-6600
Fax: (916) 414-6713

APPENDIX B. REPRESENTATIVE PHOTOGRAPHS

PG&E Line 407 East Project – WF083

PG&E Line 407 East Project – WF105

PG&E Line 407 East Project – WF108

PG&E Line 407 East Project – WF087

PG&E Line 407 East Project – WF072

PG&E Line 407 East Project – WF114

PG&E Line 407 East Project – WF039

PG&E Line 407 East Project – WF026

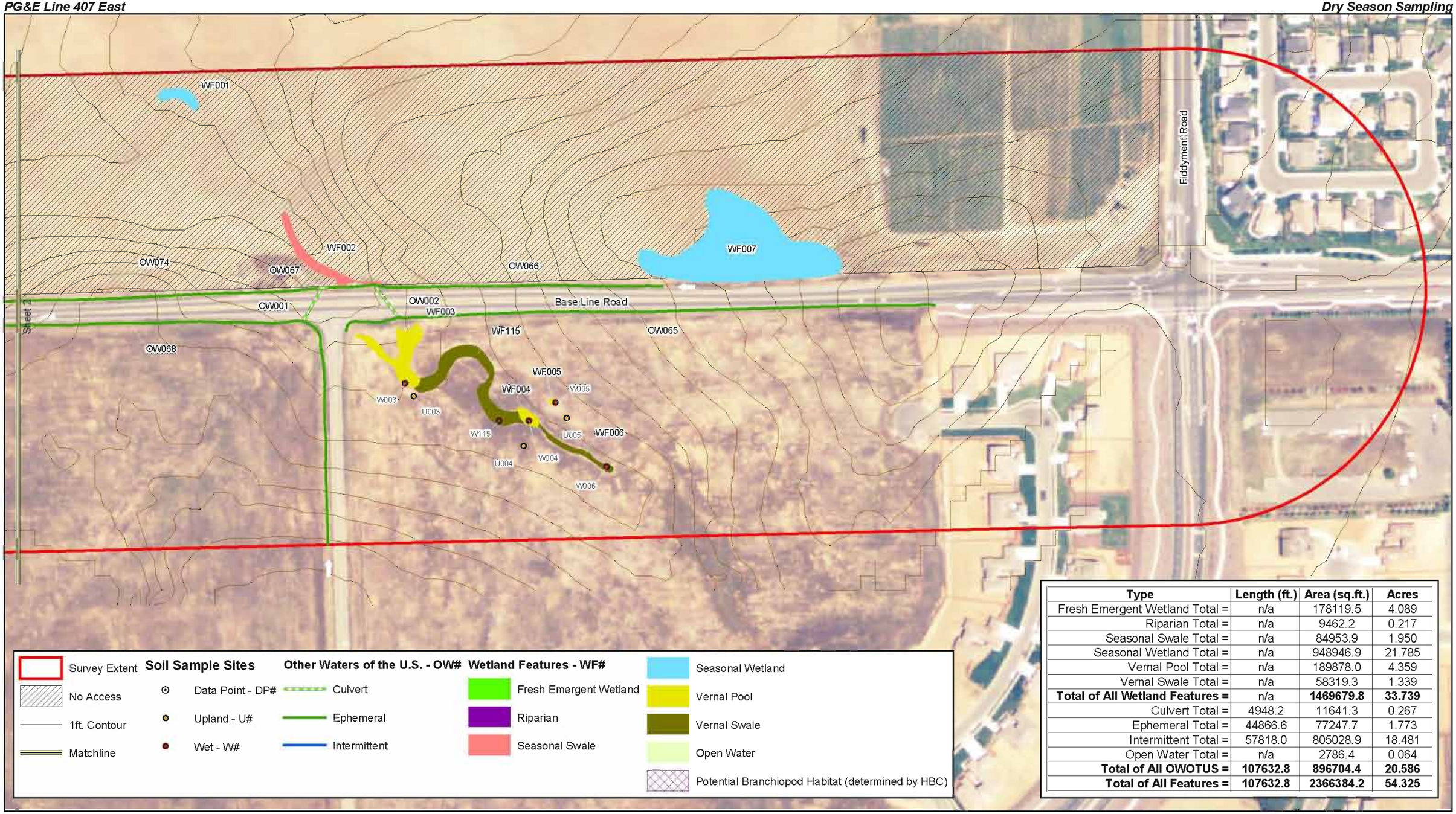
PG&E Line 407 East Project – WF003

PG&E Line 407 East Project – OW086

PG&E Line 407 East Project – OW066

PG&E Line 407 East Project – OW135

ATTACHMENTS (DS-01 – DS-26)



Type	Length (ft.)	Area (sq.ft.)	Acres
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Riparian Total =	n/a	9462.2	0.217
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Seasonal Wetland Total =	n/a	948946.9	21.785
Vernal Pool Total =	n/a	189878.0	4.359
Vernal Swale Total =	n/a	58319.3	1.339
Total of All Wetland Features =	n/a	**1469679.8**	**33.739**
Culvert Total =	4948.2	11641.3	0.267
Ephemeral Total =	44866.6	77247.7	1.773
Intermittent Total =	57818.0	805028.9	18.481
Open Water Total =	n/a	2786.4	0.064
Total of All OWOTUS =	**107632.8**	**896704.4**	**20.586**
Total of All Features =	**107632.8**	**2366384.2**	**54.325**

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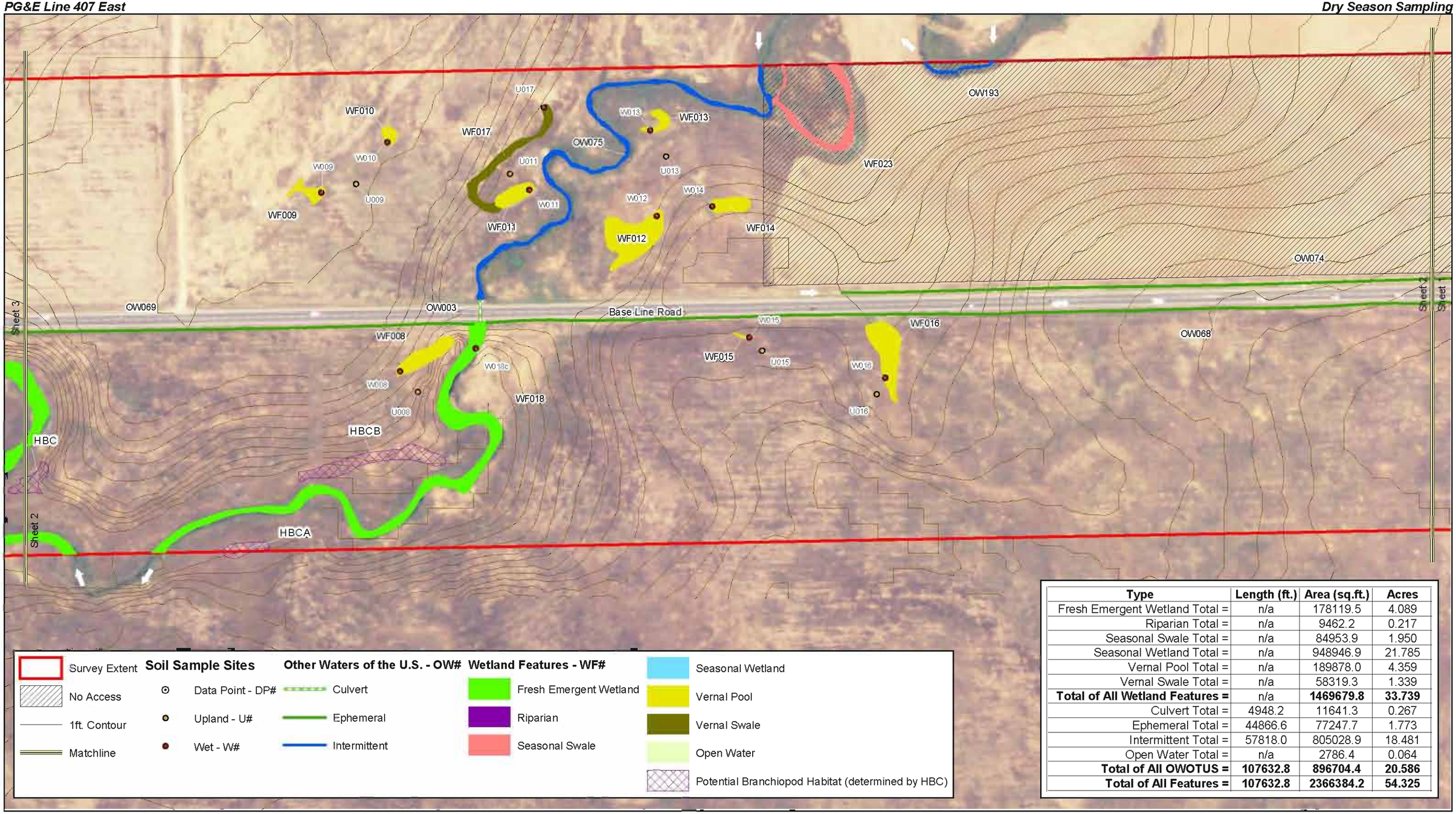
Date of Aerial: Feb. 2005 (NAIP)/Contours derived from USGS DEM
Map Date: Aug. 29, 2006/Revisions

0 200 400 Feet

GALLAWAY CONSULTING, INC.



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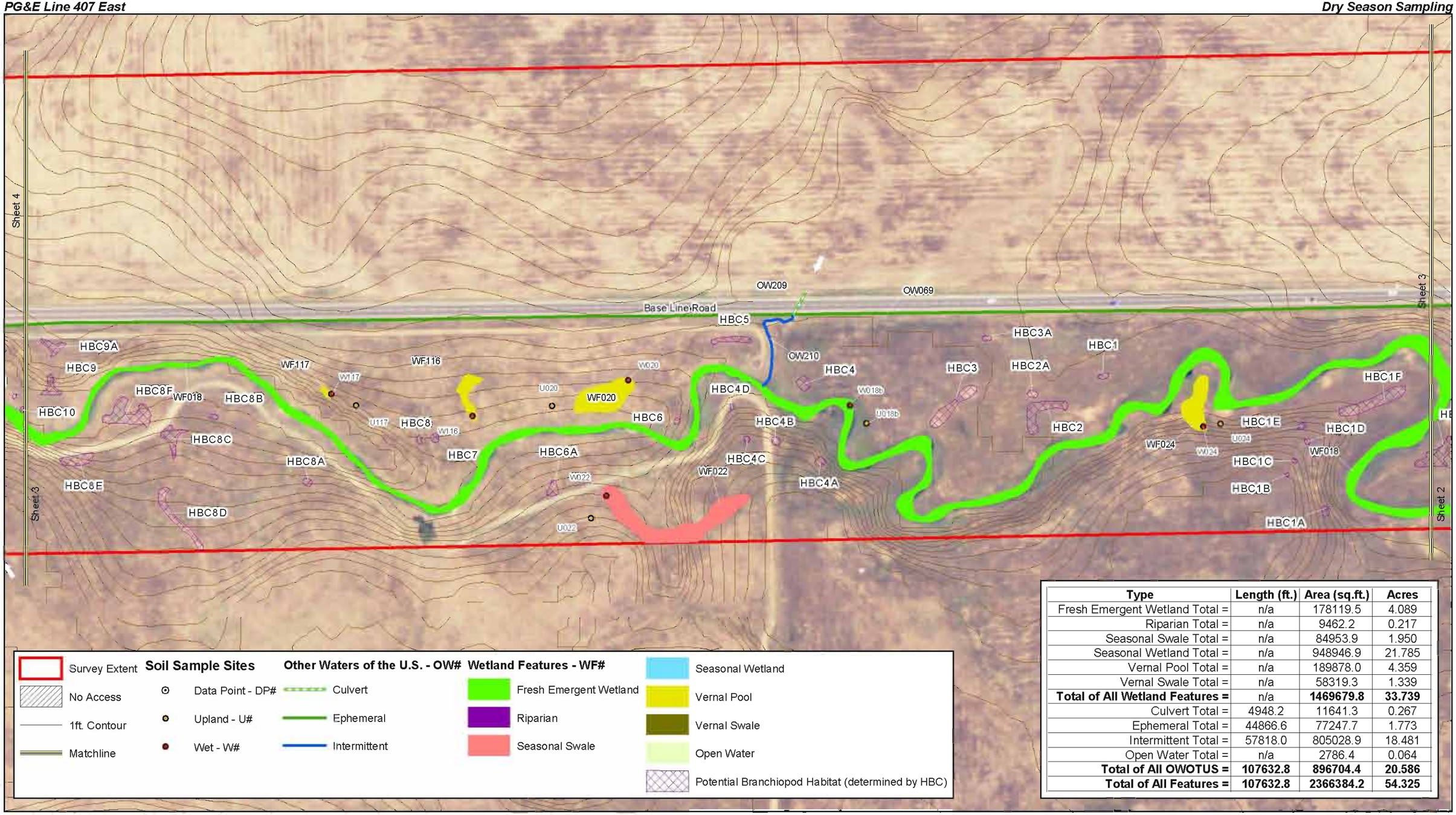

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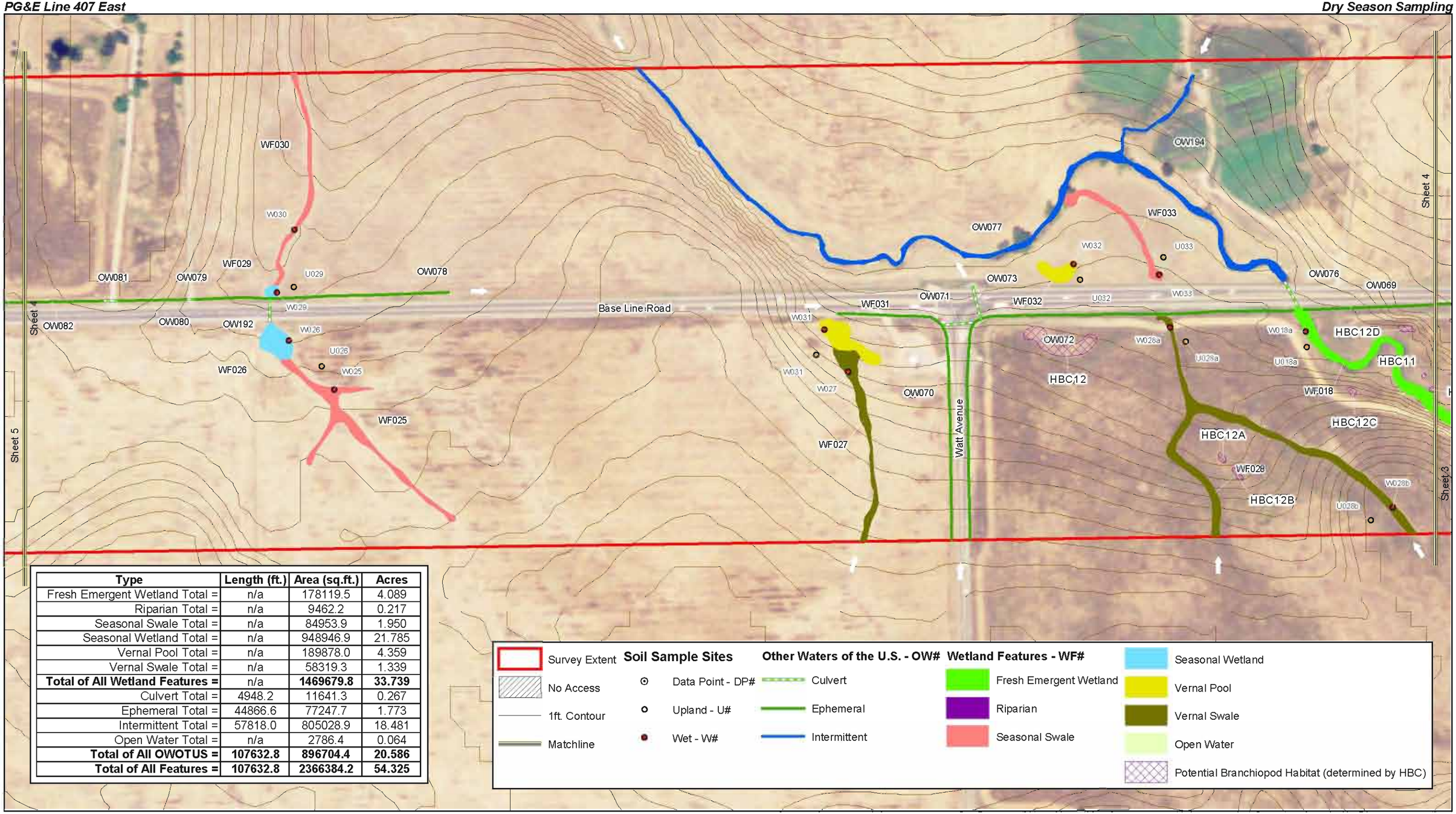

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Survey Extent
No Access
1ft. Contour
Matchline

Soil Sample Sites
Data Point - DP#
Upland - U#
Wet - W#

Other Waters of the U.S. - OW#
Culvert
Ephemeral
Intermittent

Wetland Features - WF#
Fresh Emergent Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Vernal Pool
Vernal Swale
Open Water
Potential Branchiopod Habitat (determined by HBC)

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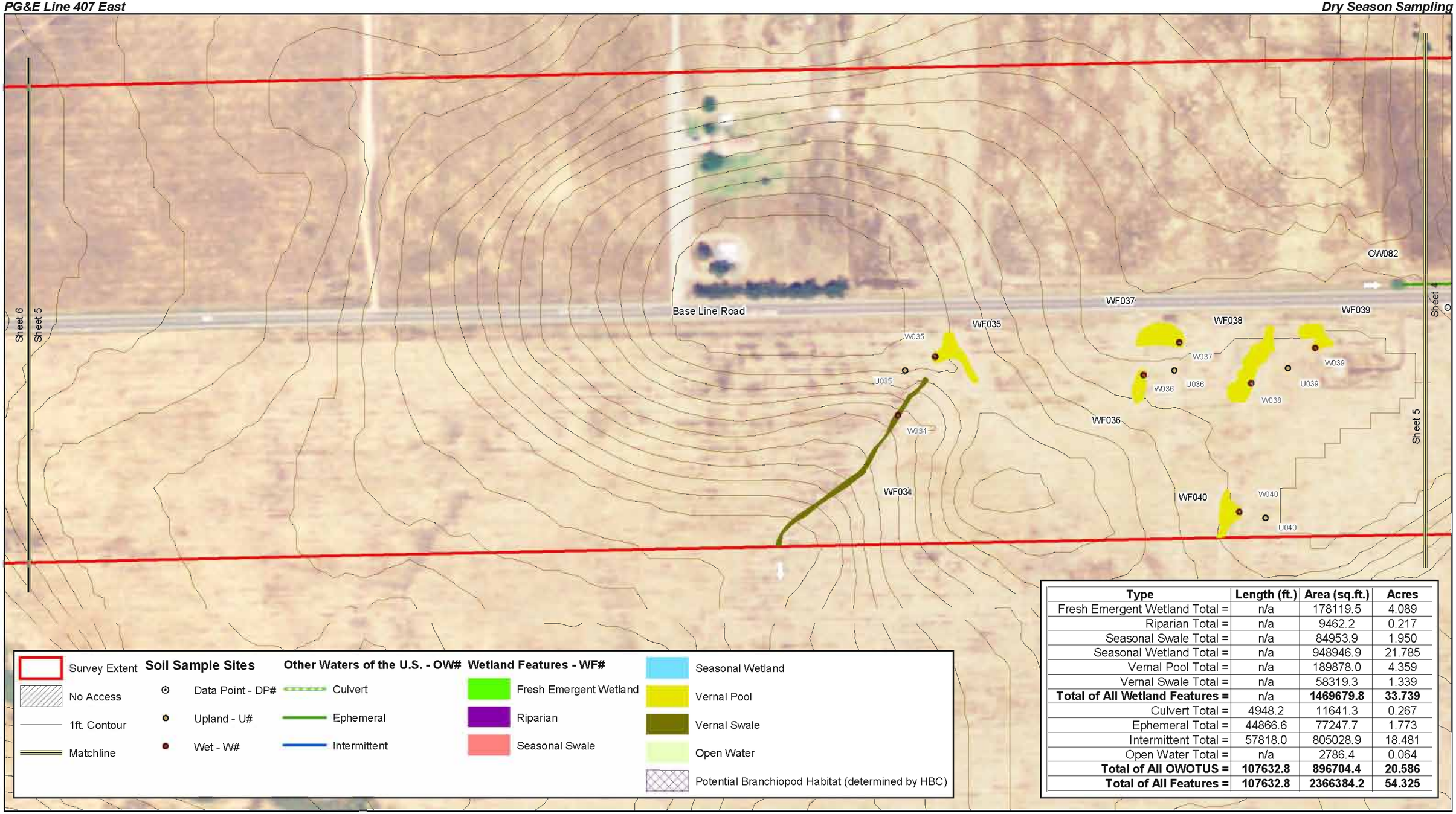

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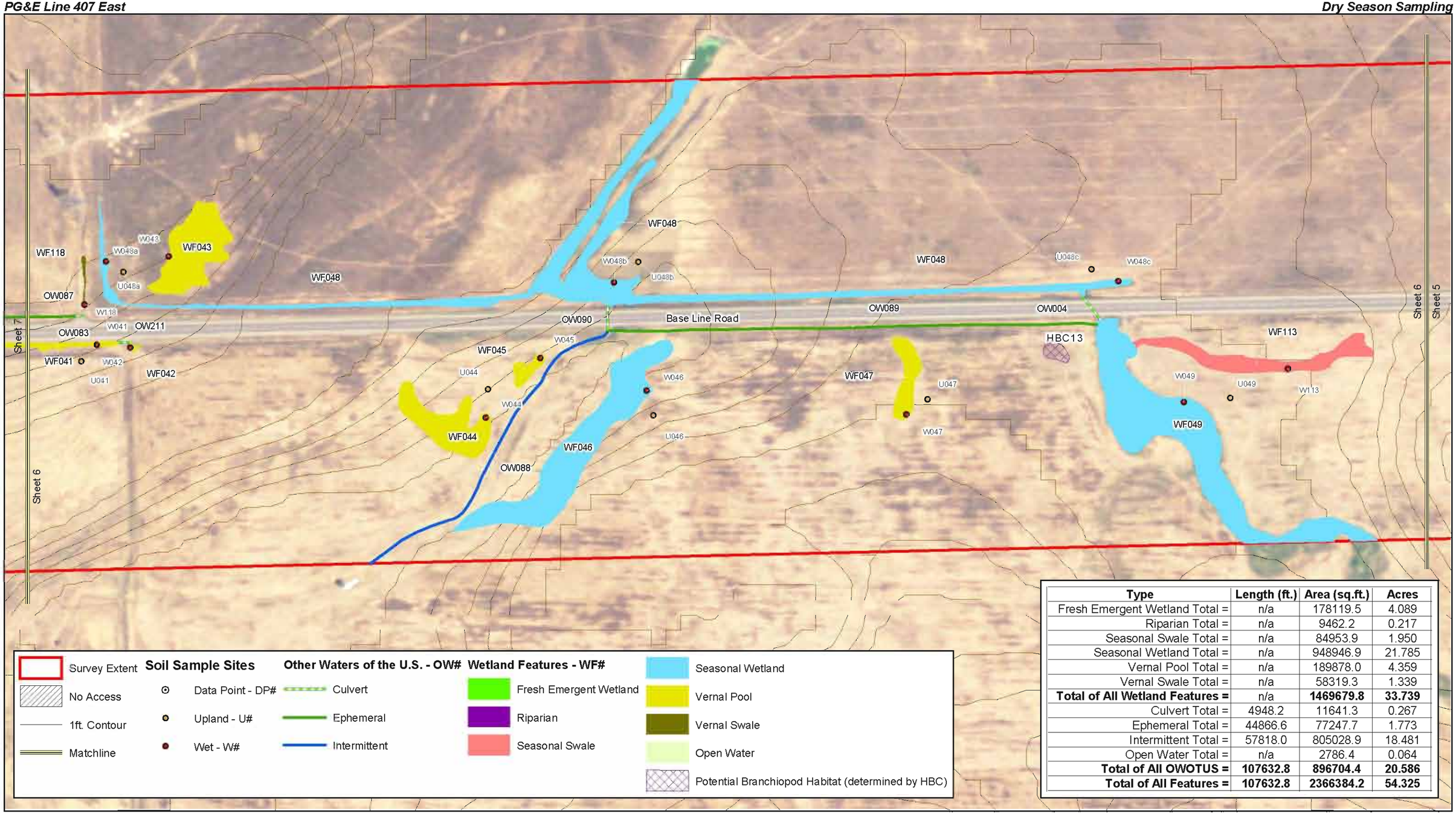

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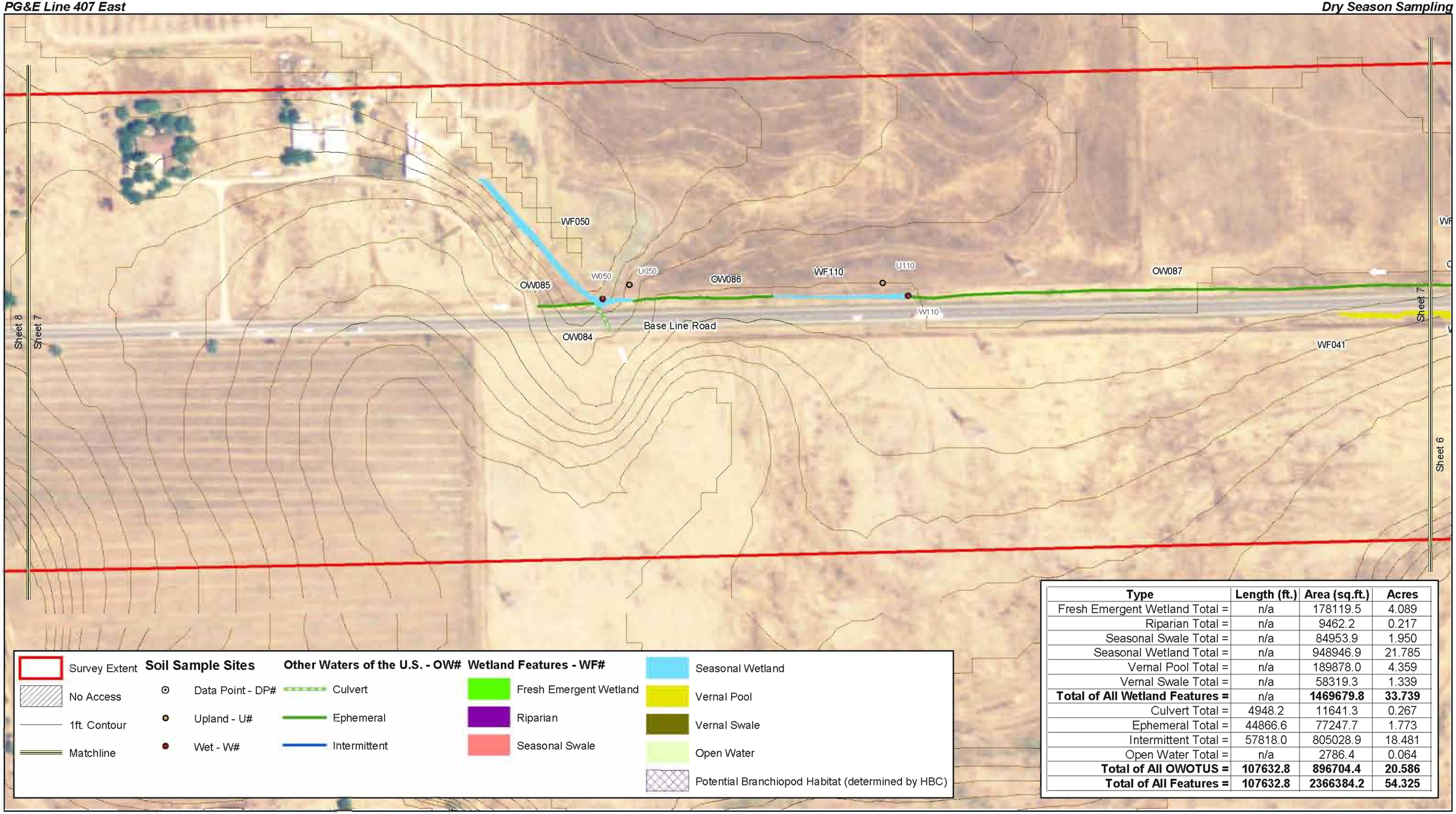

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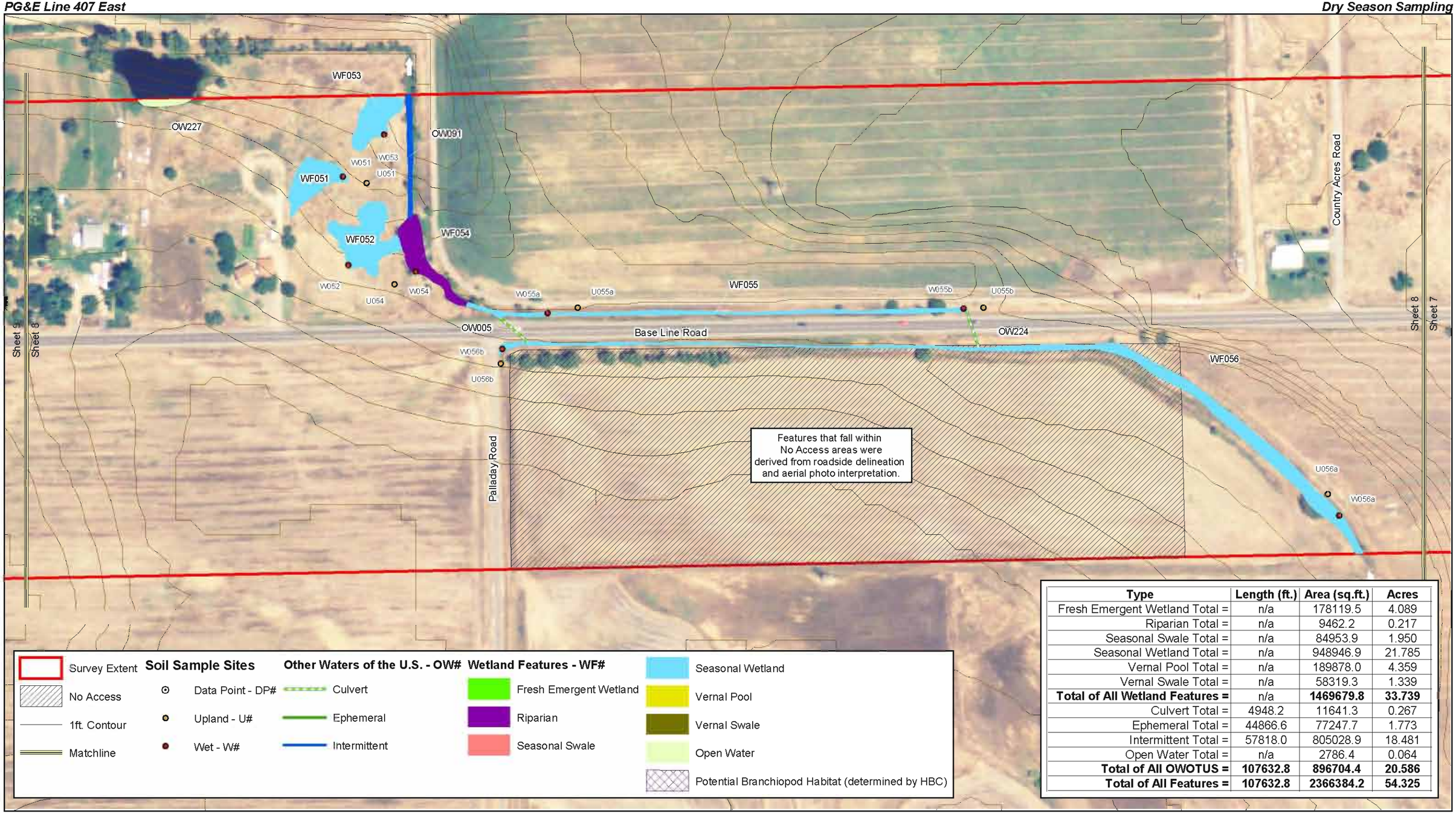

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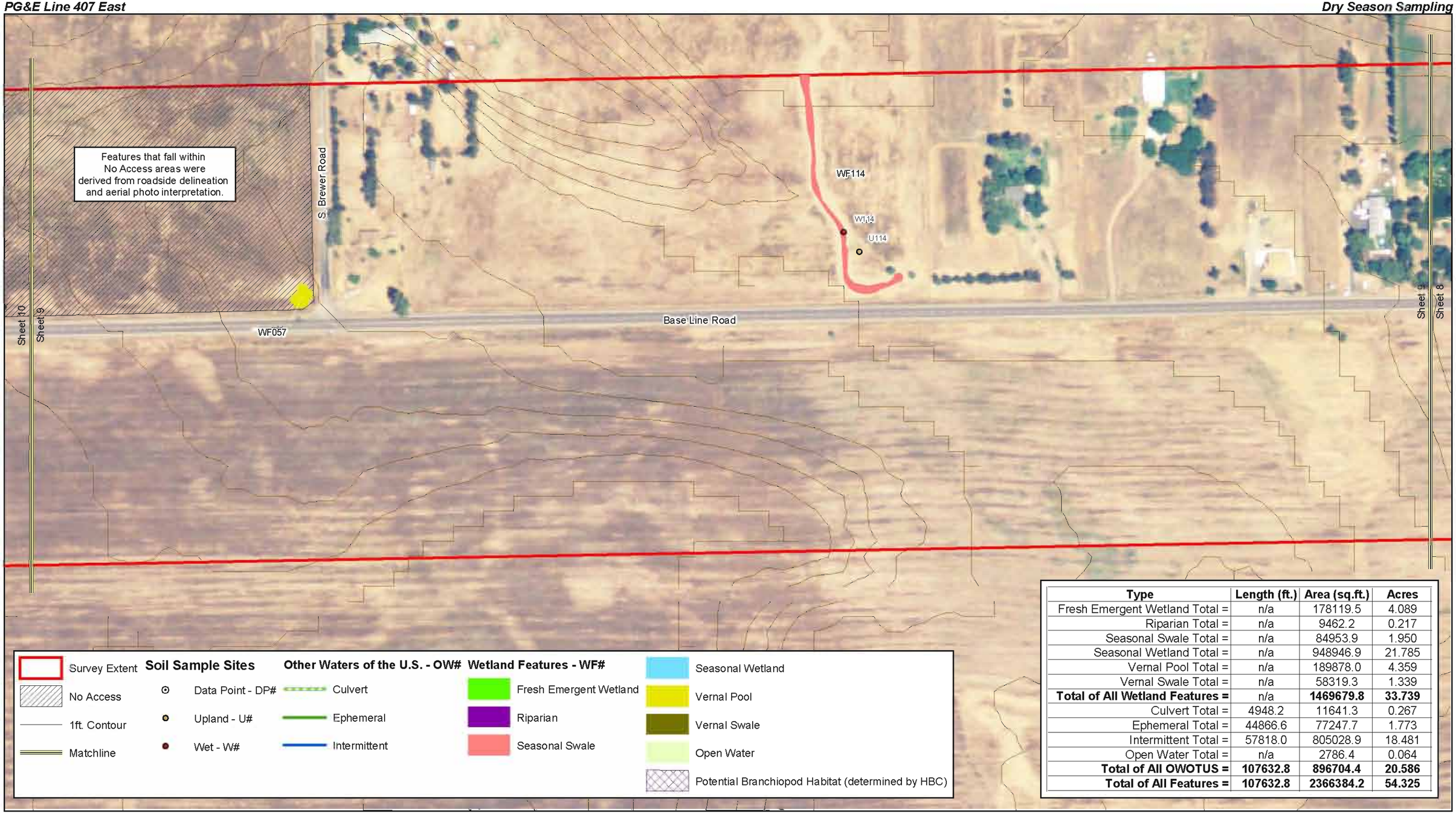

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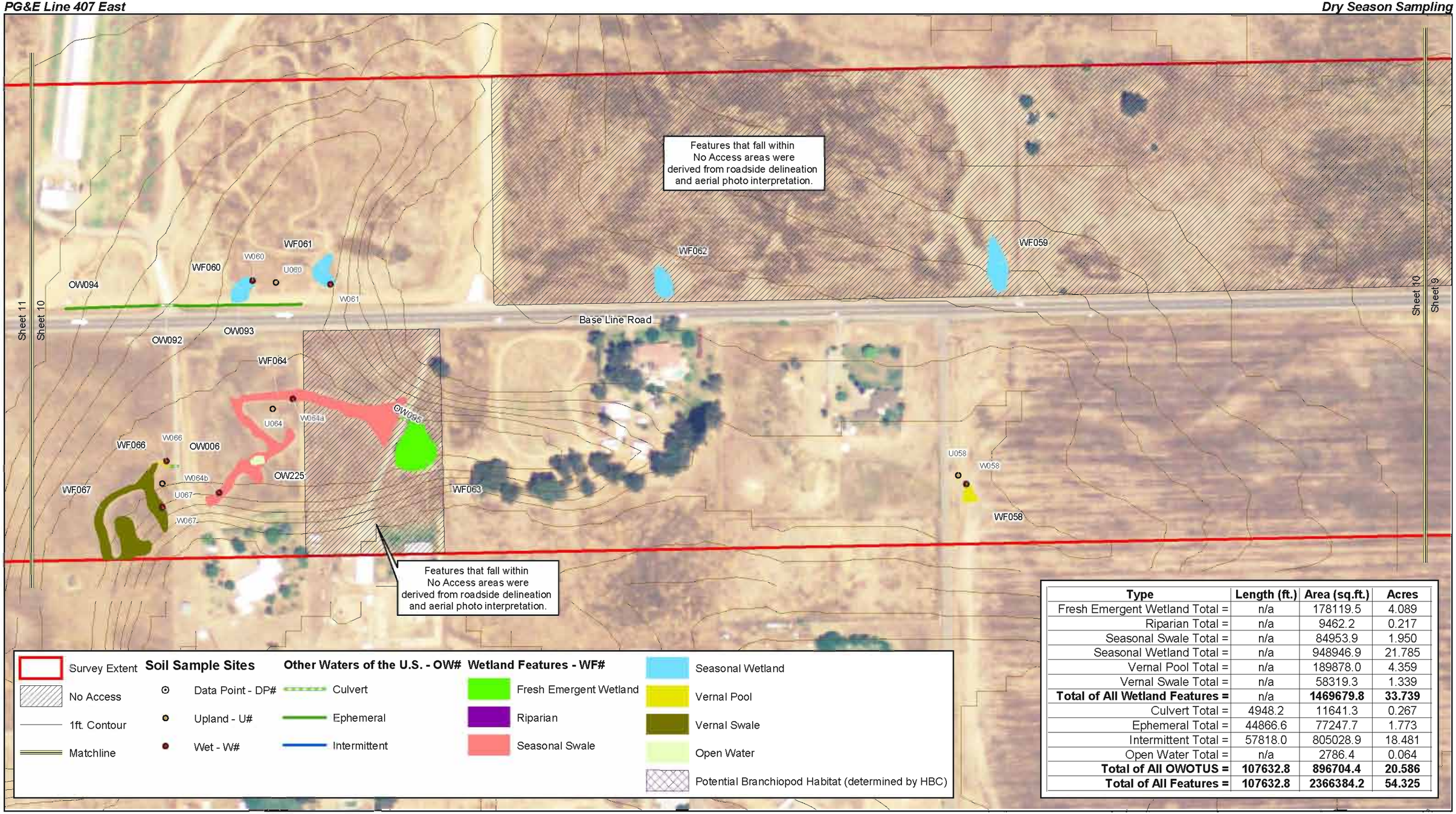

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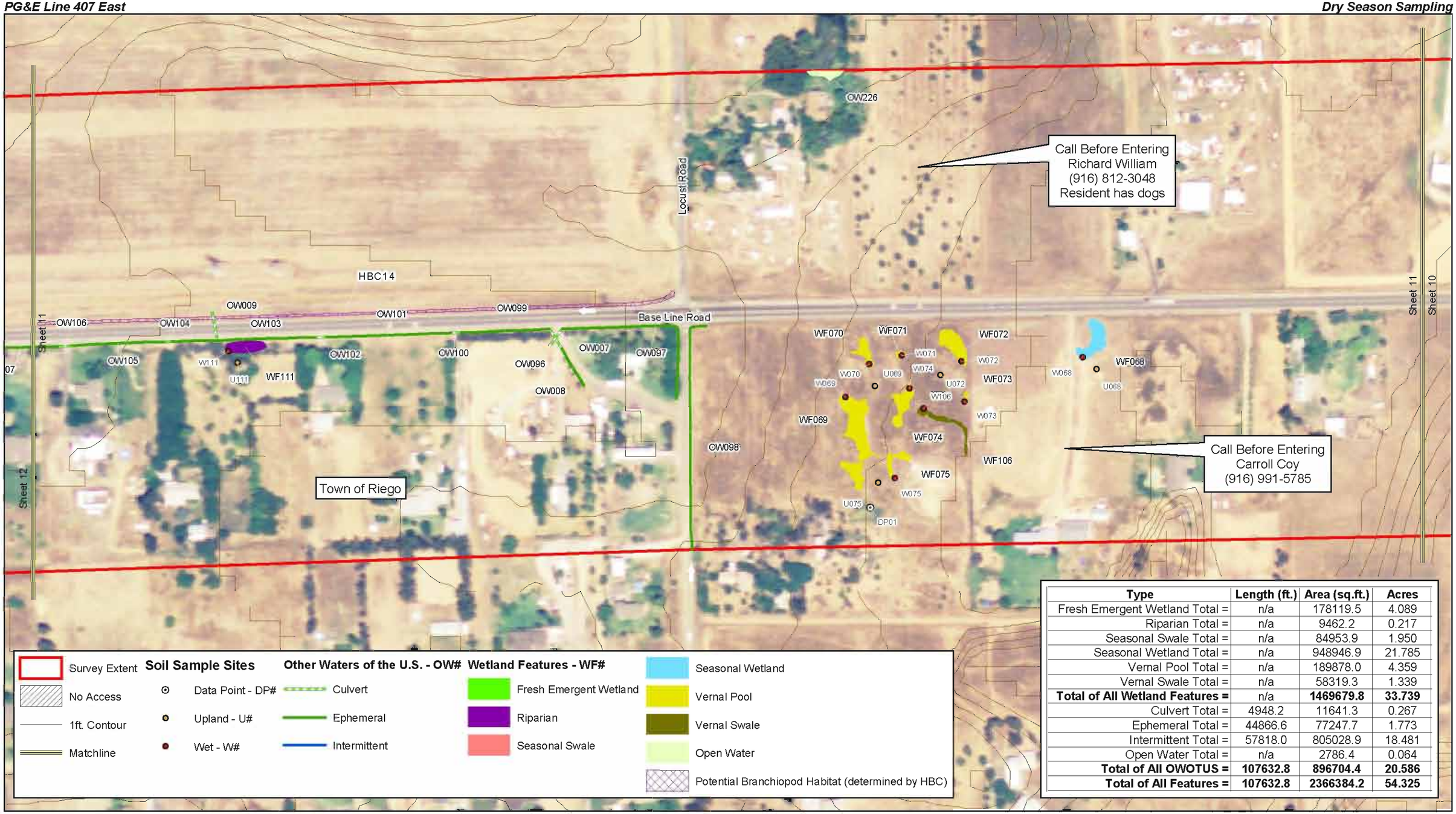

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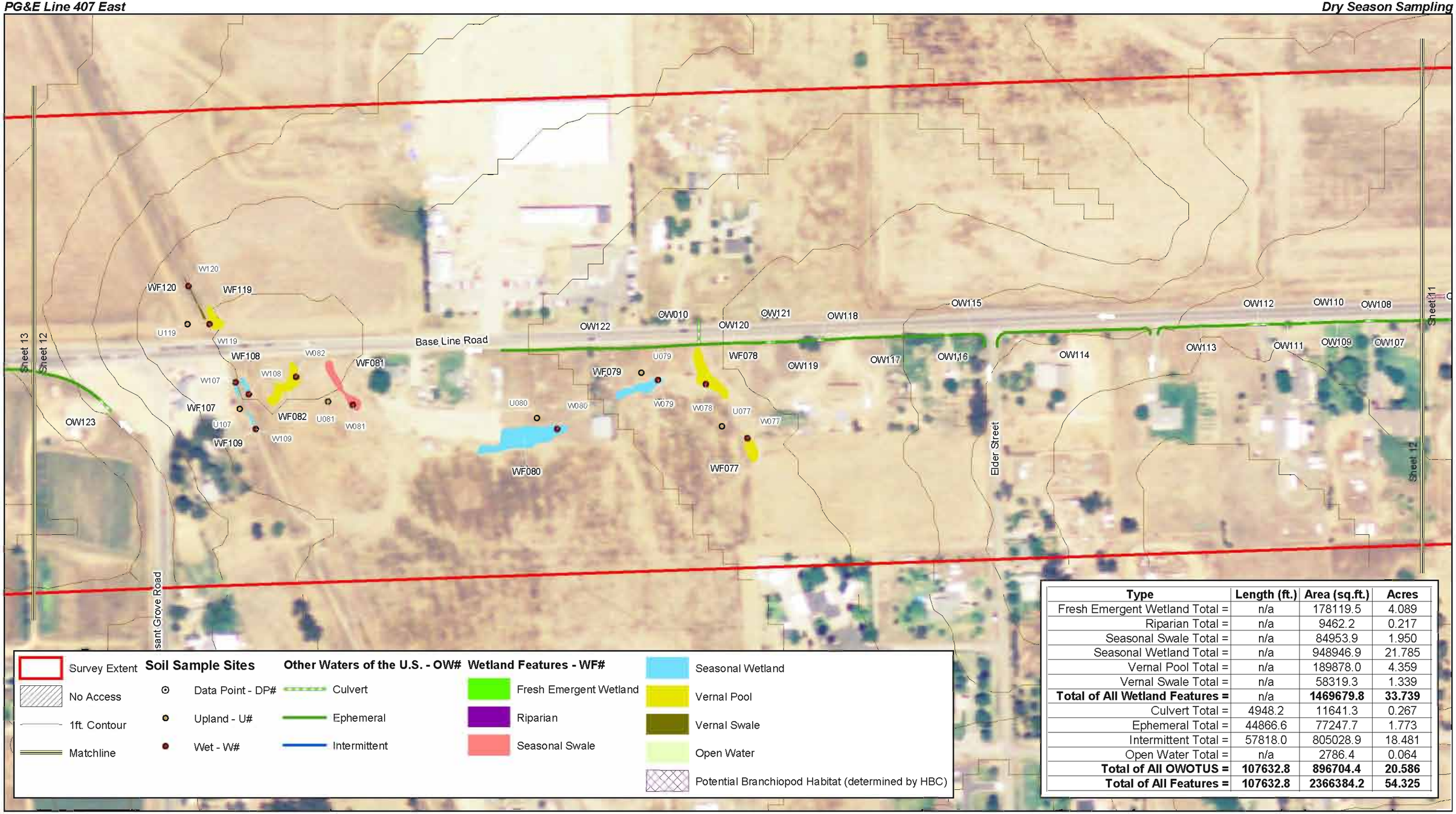

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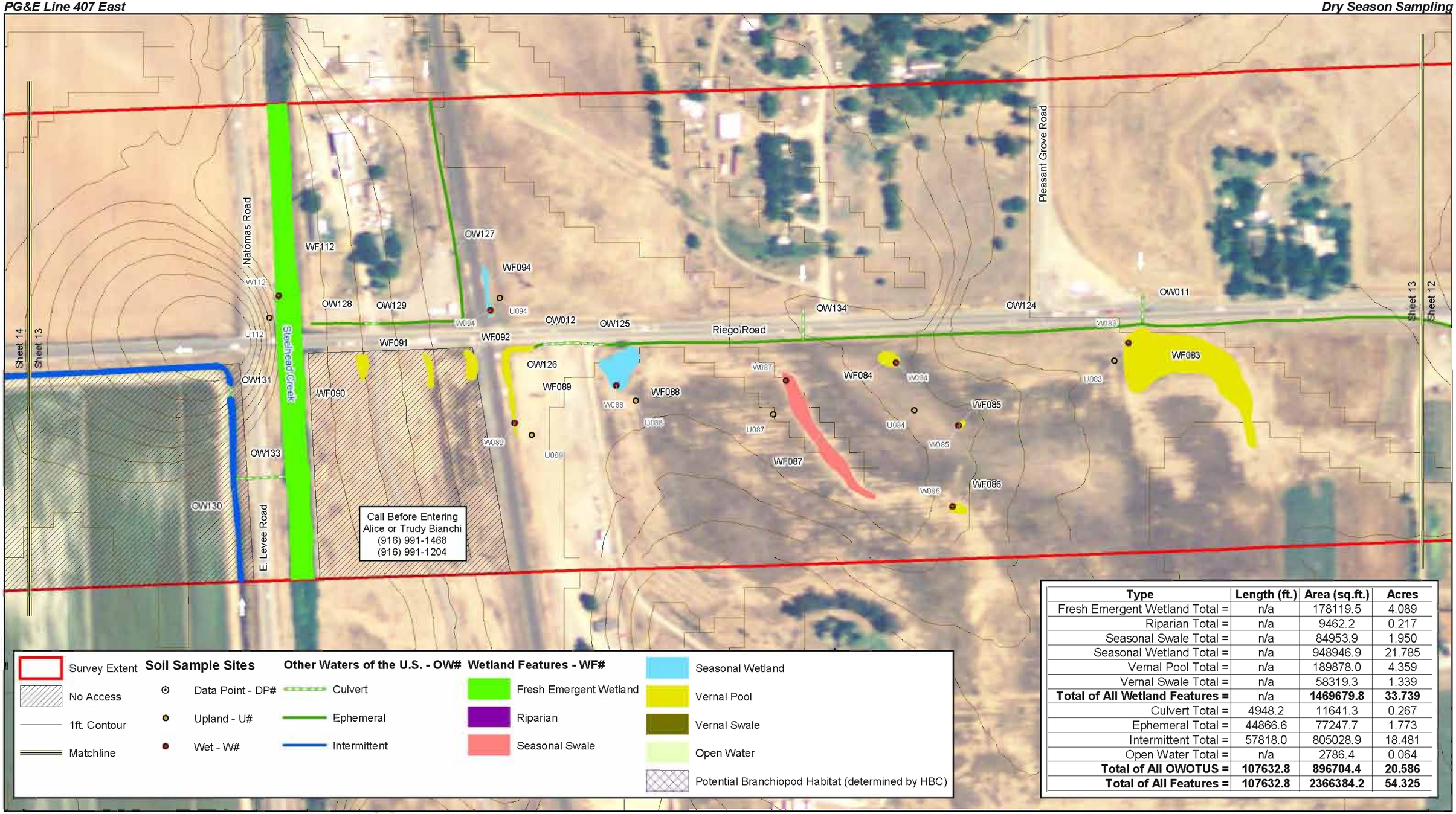

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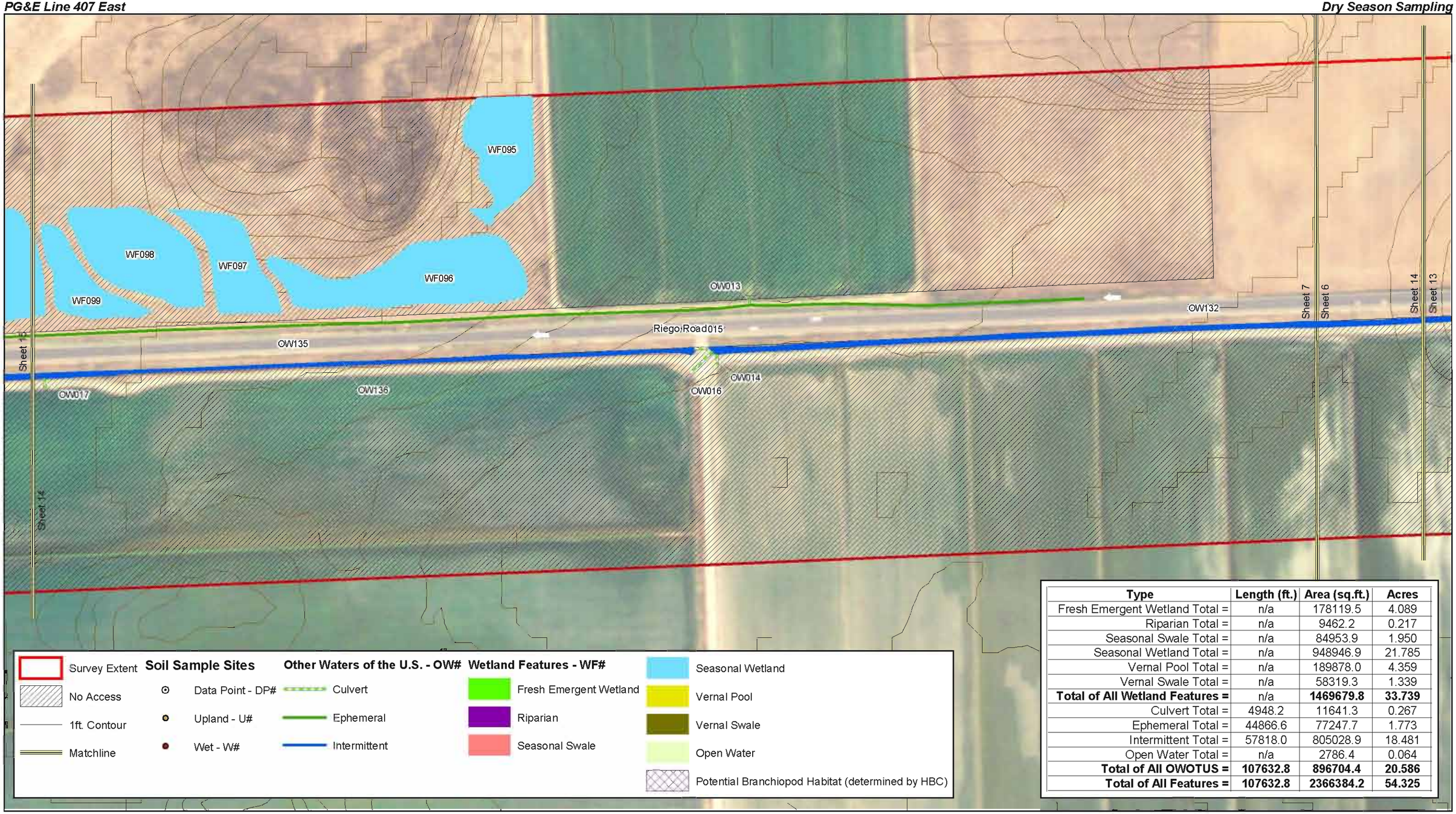

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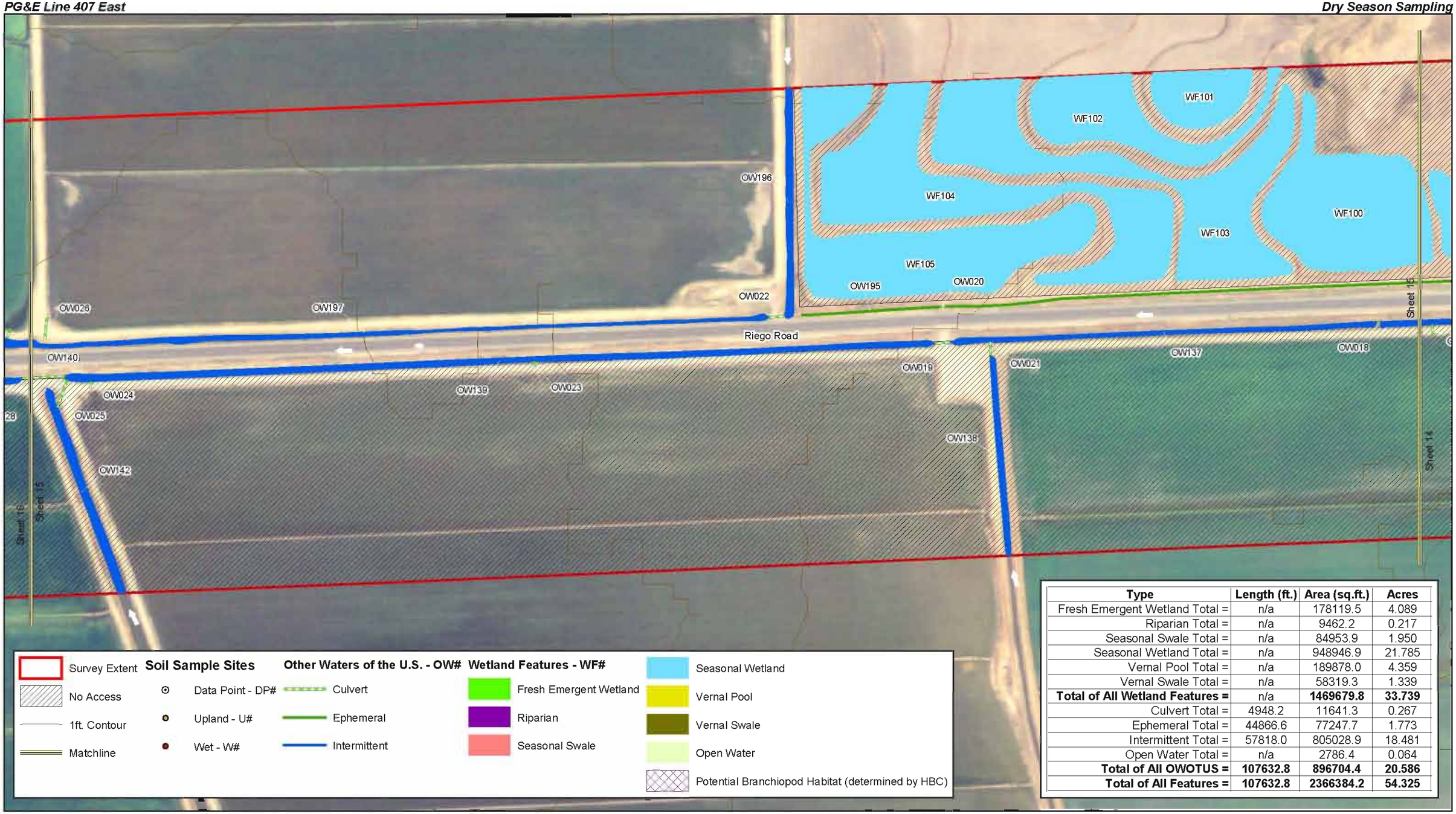

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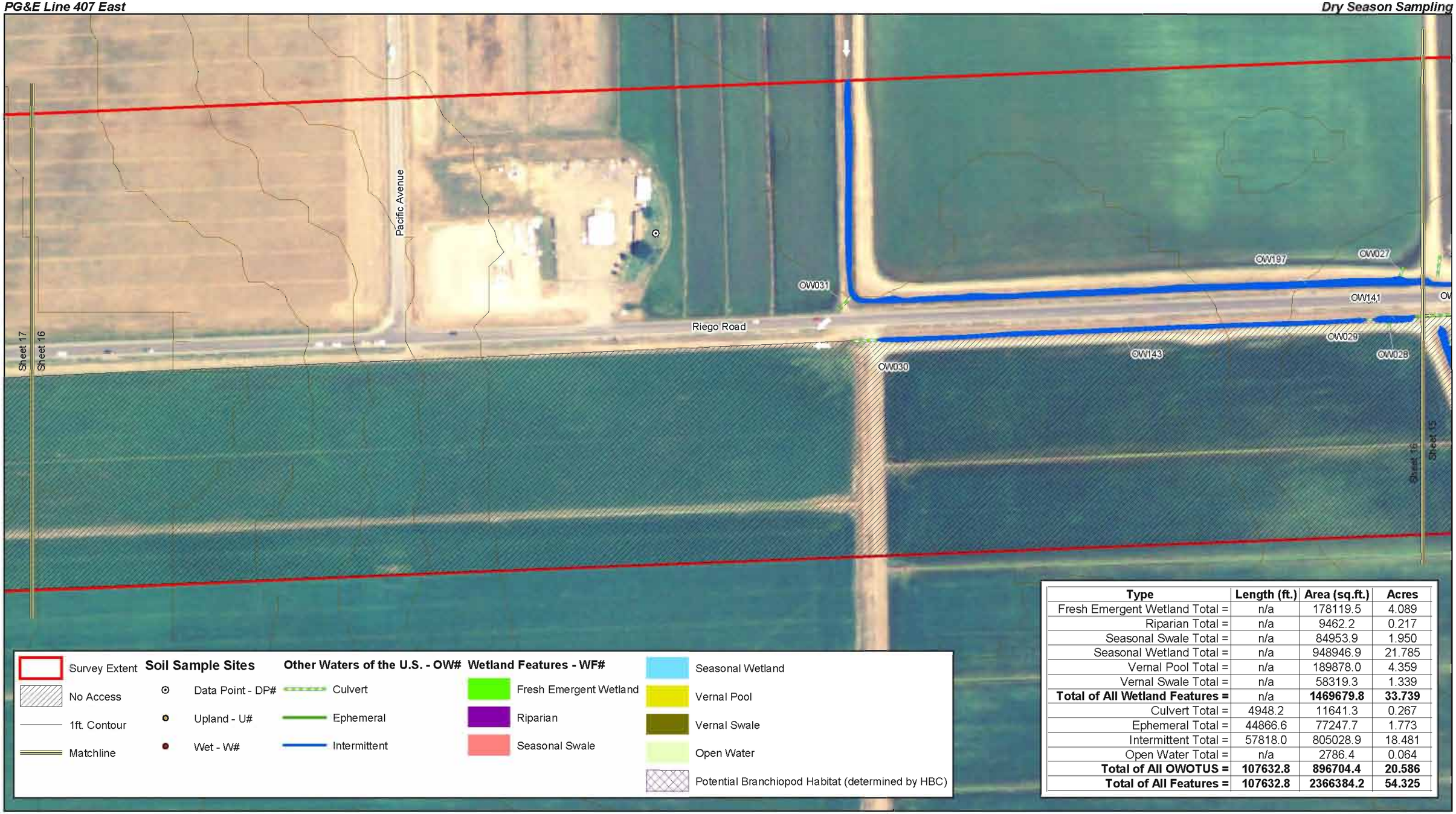

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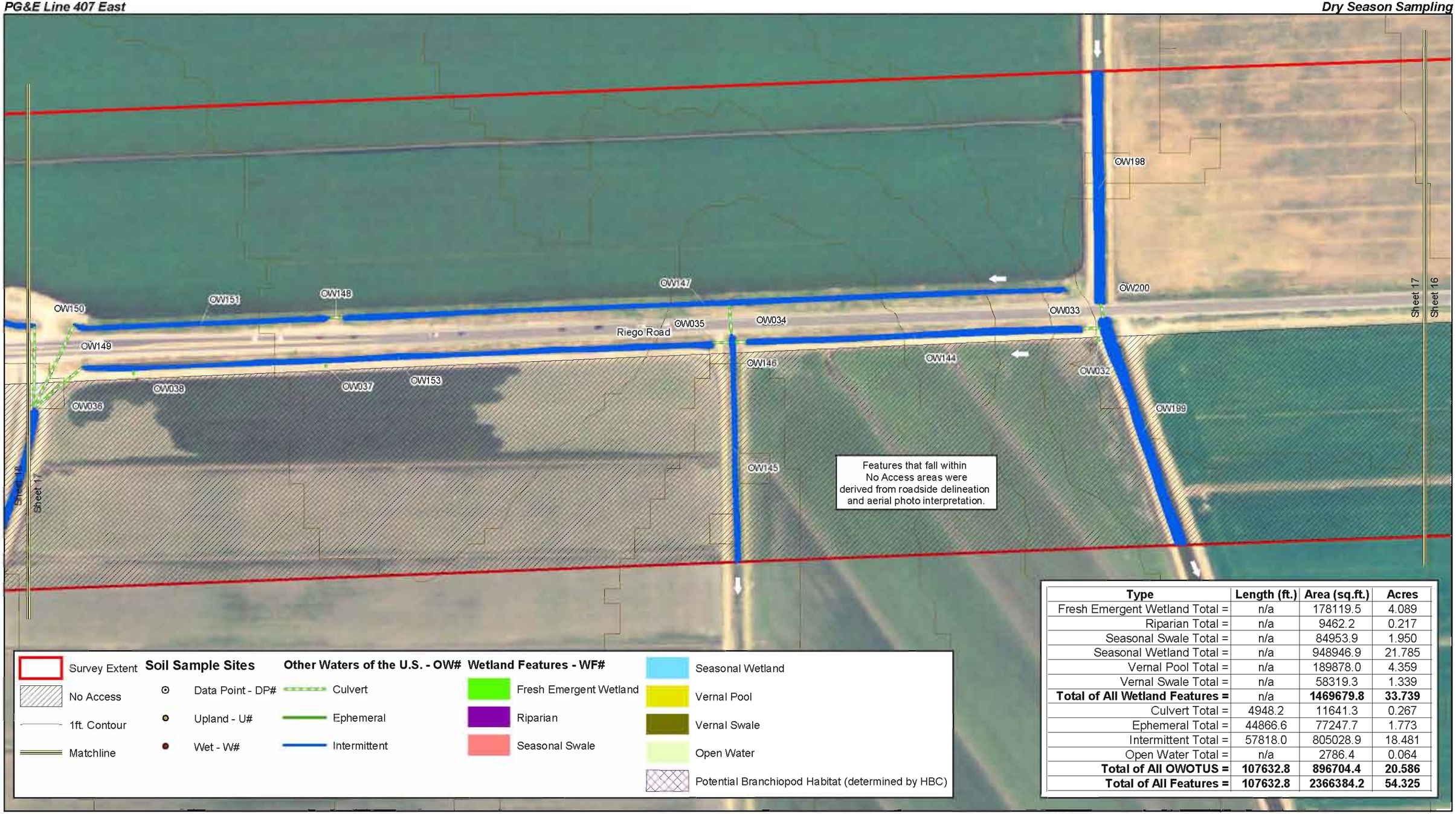

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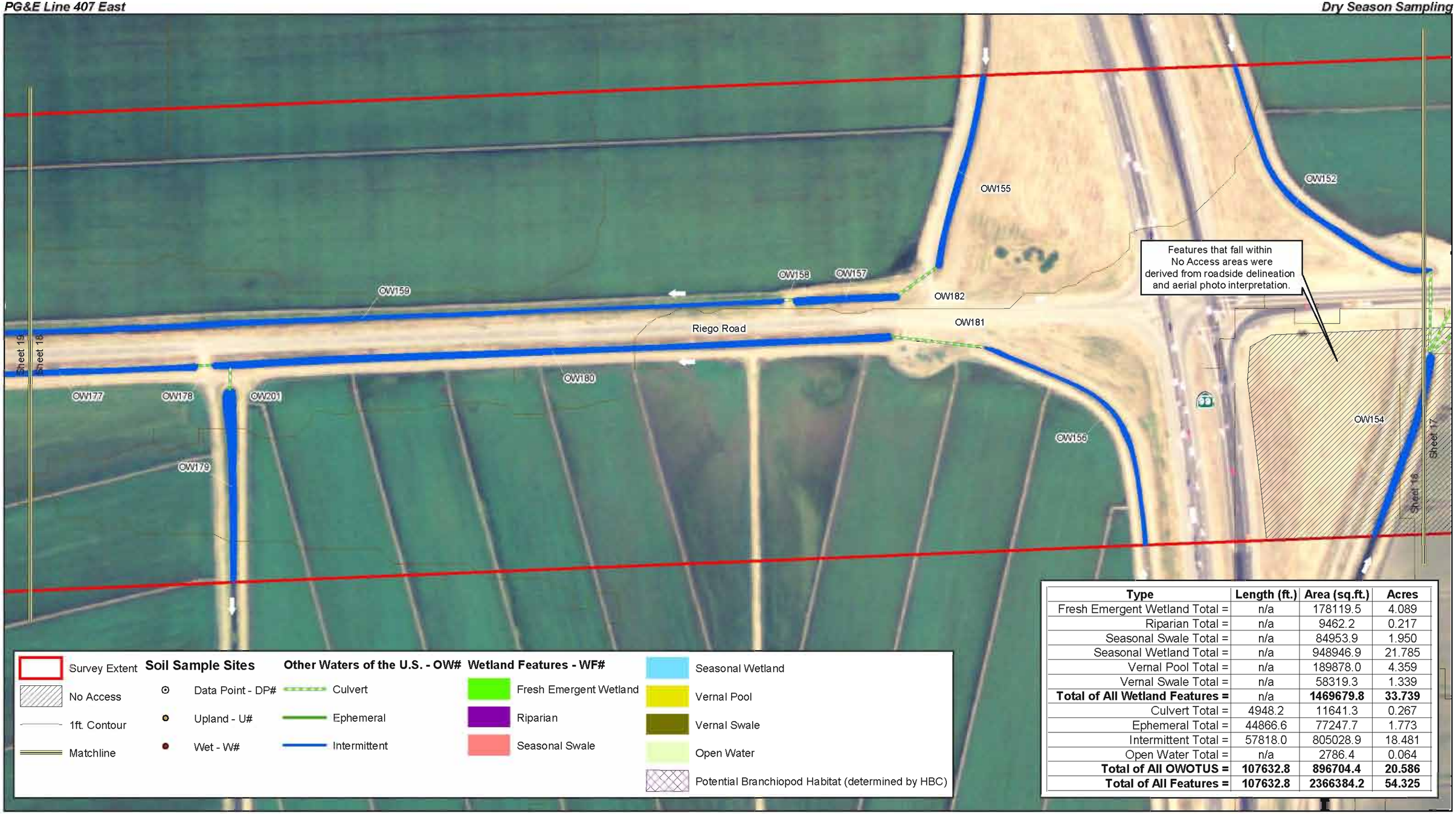

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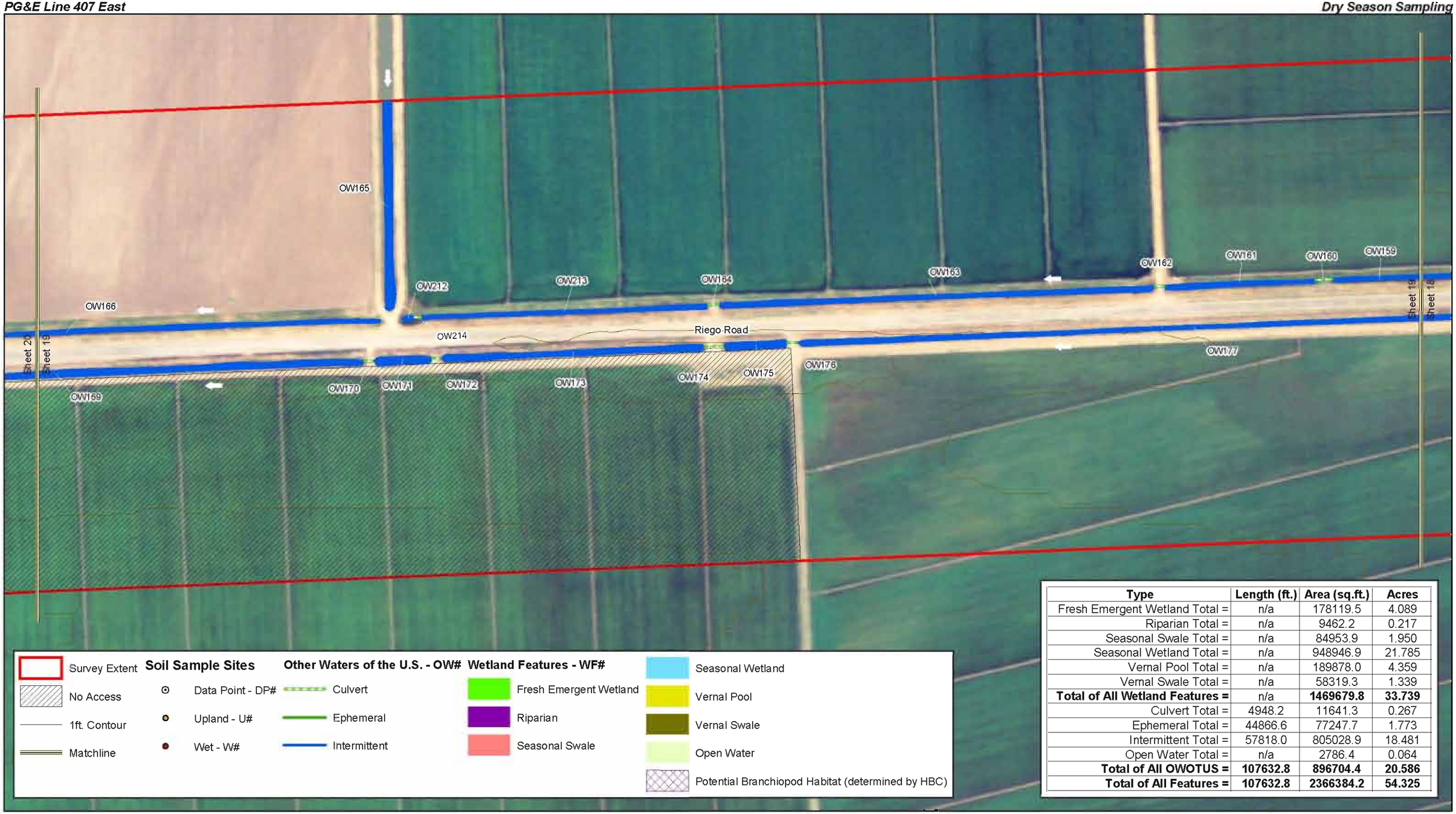

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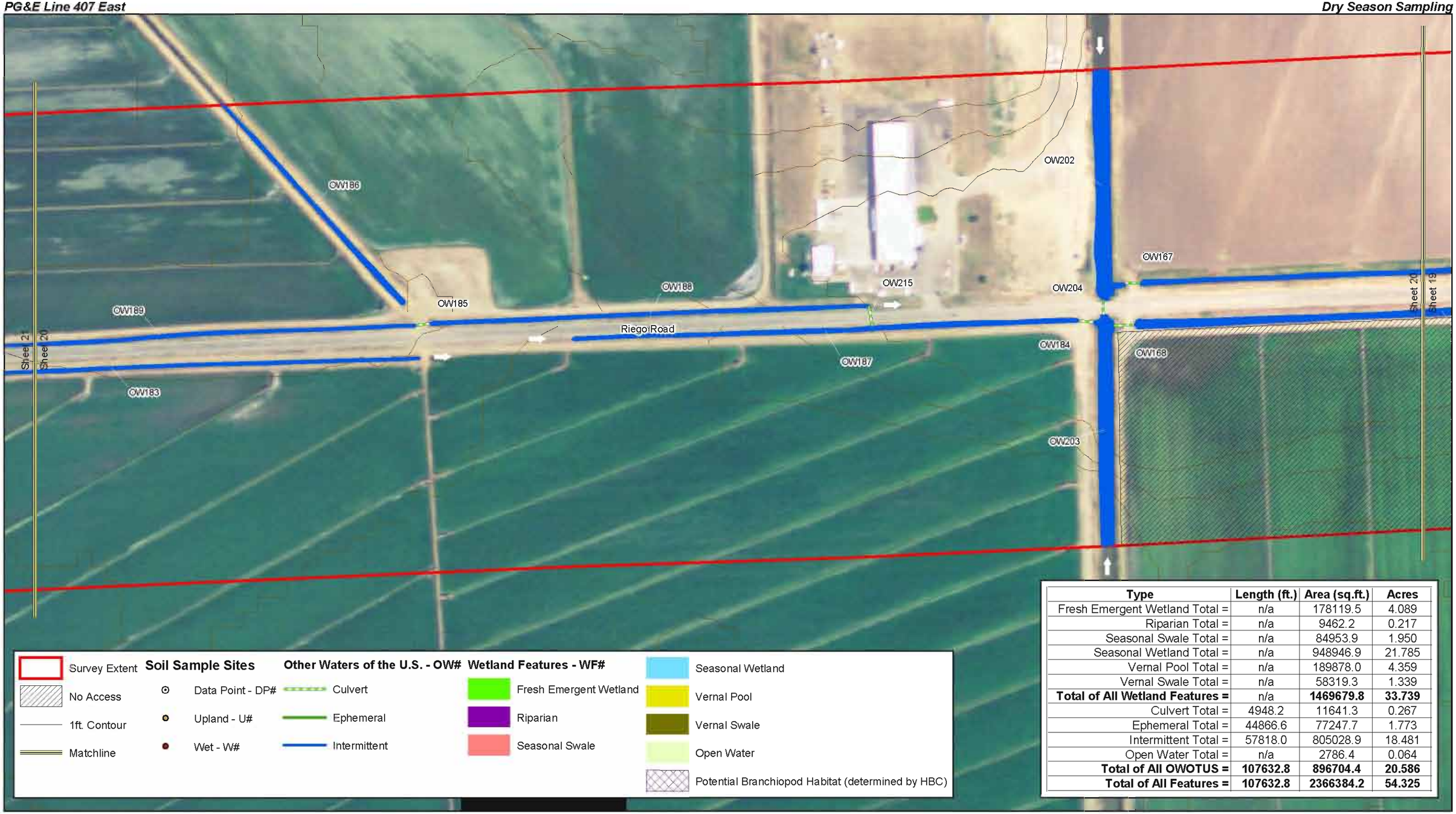

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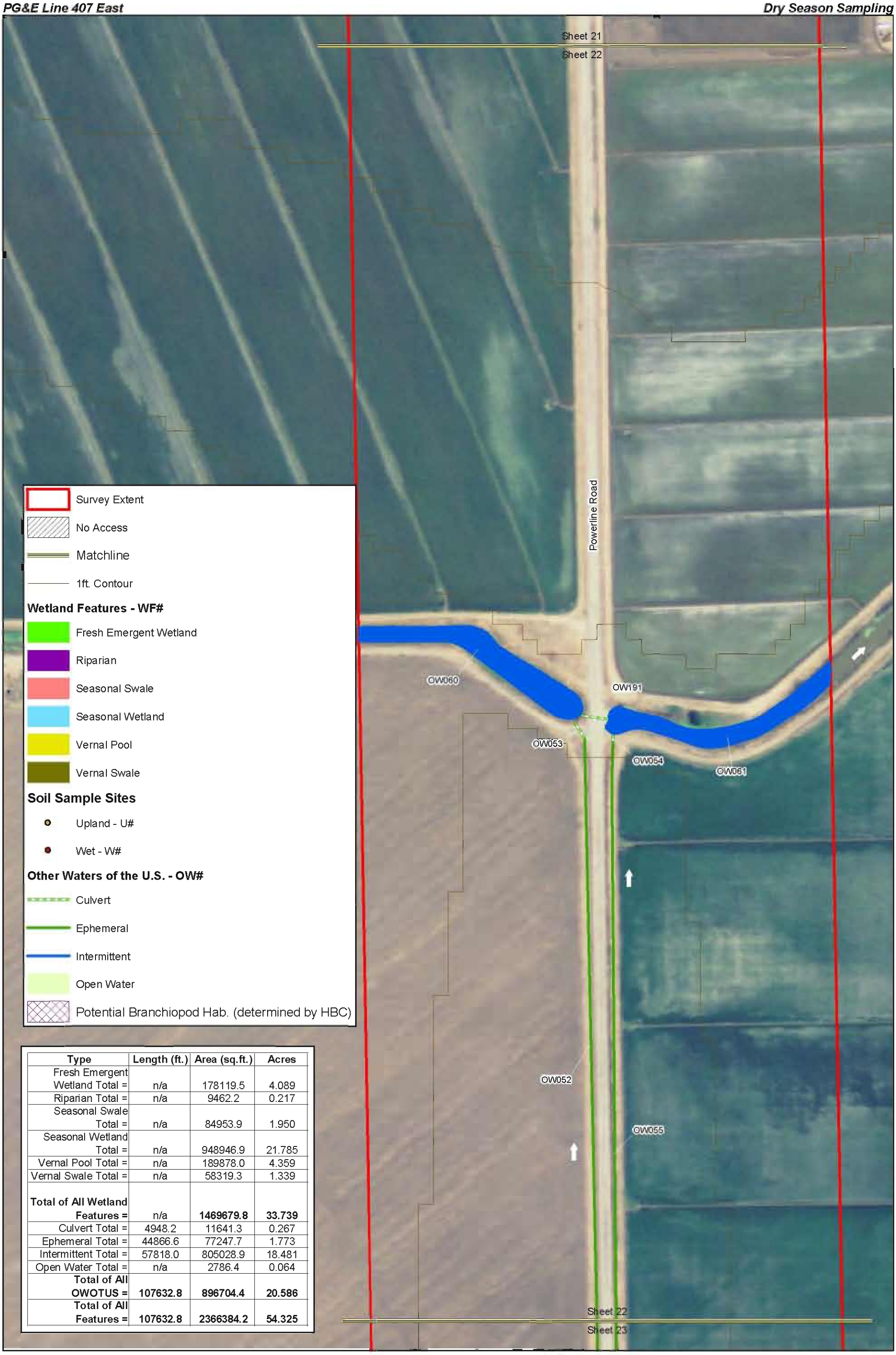

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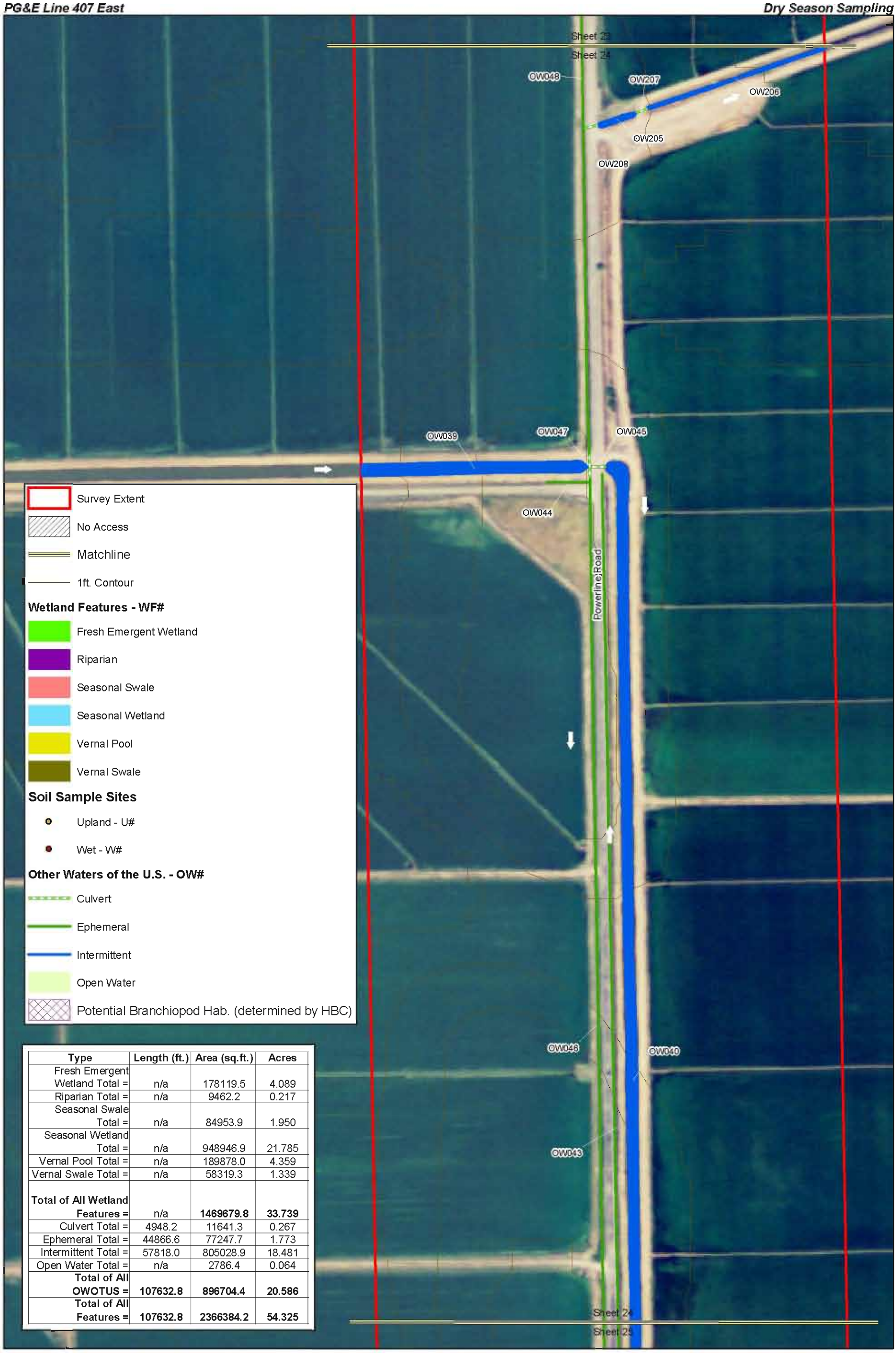

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E-10: Line 407 East Wet-Season Sampling for Branchipod

2007-2008 Wet Season Branchiopod Survey Report

for

PG&E Line 407 East Natural Gas Transmission Pipeline

Sacramento, Placer, and Sutter Counties, California

Ninety-Day Findings Report
USFWS Permit # TE-049693-1

August 2008

Prepared for:

TRC
Attn: Benjamin Hart
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Prepared by:

GALLAWAY
CONSULTING, INC.
117 Meyers Street, Suite 110, Chico, CA 95928
Phone (530) 343-8327 Fax (530)343 8312

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Attachments

Attachment A – Draft 2007 Delineation of Waters of the U.S. Maps

Attachment B – 2007-08 Wet Season Invertebrate Sampling Results Maps

Appendices

Appendix A – USFWS Approval to Conduct Surveys

Appendix B – USFWS Permit

Appendix C – USFWS Vernal Pool Data Sheets

Appendix D – Copy of CNDDB Field Survey Forms

Appendix E – Copy of GCI Field Data Sheets

Summary of Findings and Conclusions

Gallaway Consulting, Inc. performed a second wet-season vernal pool branchiopod survey for the Pacific Gas & Electric (PG&E) Line 407 East Natural Gas Transmission Pipeline survey area. Wet and dry-season samplings were conducted in 2006-2007 due to the high potential for occurrence of federally listed vernal pool branchiopods, including vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), and Conservancy fairy shrimp (*B. conservation).* However, low rainfall levels during the 2006-07 wet-season contributed to little or no ponding of the smaller and moderate sized vernal pools causing them to be devoid of invertebrates and basic taxa. Larger pools were able to pond water for sufficient periods of time to support invertebrate life history and several detections of *Linderiella occidentalis* were recorded. The 2006 dry season sampling results reported 41 separate pools on-site containing several *Branchinecta sp.* eggs; however, the 2006-07 wet-season survey was unable to confirm the dry season findings. In the anticipation that the 2007-2008 wet-season would provide adequate rainfall and ideal conditions for hatching of the eggs, the U.S. Fish and Wildlife Service requested an additional wet-season survey be conducted to confirm the results of the dry-season survey for the presence of vernal pool invertebrates. Surveys for the 2007-08 wet-season were initiated on December 13, 2007 and continued until April 14, 2008 to determine the presence or absence of federally listed vernal pool branchiopods. Within the approximately 1811.2-acre site east of State Highway 99, vernal pools, vernal swales, seasonal wetlands and seasonal swales were sampled in efforts to determine the presence of federally listed vernal pool branchiopods. Surveys of the site found *B. lynchi* within two wetland features and California Linderiella (*Linderiella occidentalis*), a non-listed species, was found in seven features on-site.

A "complete" survey comprised of one dry-season survey and two consecutive wet-season survey for the PG&E Line 407 East Natural Gas Transmission Pipeline has been performed as outlined in the U.S. Fish and Wildlife Service's *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods,* 1996.

I. Introduction

Gallaway Consulting, Inc. (GCI) performed a second wet-season survey for federally listed large vernal pool branchiopods for the Pacific Gas and Electric Company (PG&E) Line 407 East Natural Gas Transmission Pipeline (Project) located in Sacramento, Placer and Sutter counties in California's Central Valley (**Figure 1**). GCI conducted a second wet-season survey under contract with TRC Essex (Prime). Surveys were initiated on December 13, 2007 and concluded on April 14, 2008.

Study Area

The survey area for the Project encompasses an approximately 1811.2-acre corridor of rural, urban, and developed land on portions of the Verona, Rio Linda, Roseville, Citrus Heights, Taylor Monument, and Pleasant Grove United States Geological Survey (USGS) 7.5' quadrangles. Urban, commercial, and agricultural structures, as well as agricultural fields and open space, occupy the extent of the survey area. The survey area is located just west of the City of Roseville and north of Sacramento (**Figure 1**). Topography is flat to gently undulating with Project elevation ranging from 15 to 125 feet above sea level. The portion of the Survey area east of the Natomas East Main Drainage is largely comprised of gently sloping grasslands with low-density residential and commercial development and was the focus of the study. The Survey area west of the Natomas East Main Drainage is almost entirely composed of active, irrigated agricultural land used for rice production and did not receive surveys for vernal pool branchiopods.

Purpose of the Survey

During the 2006-07 wet-season survey conducted for federally listed large vernal pool branchiopods, insufficient precipitation occurred during the season to facilitate ponding of several smaller features to confirm findings of the dry-season sampling performed during the summer of 2006 by Helm Biological Consulting (Brent Helm - TE-795930-4). Therefore, the U.S. Fish and Wildlife Service (USFWS) requested a second wet-season survey be performed to establish the presence/absence peddling of federally listed vernal pool branchiopods within the Project site. In conjunction with the dry-season and wet-season sampling for the 2006-07 year, the 2007-08 wet-season survey fulfills the 2-season minimum sampling requirements of the USFWS *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods,* 1996 (Guidelines).

Following receipt of appropriate state and federal permits to install a gas pipeline, the Project may impact jurisdictional wetland features constituting suitable branchiopod habitat within the study area. To determine avoidance measures and potential mitigation necessary to offset any adverse affects to listed species, it is required federally listed vernal pool branchiopod presence/absence be determined on a pool-by-pool basis.

PG&E Line 407 **Location**

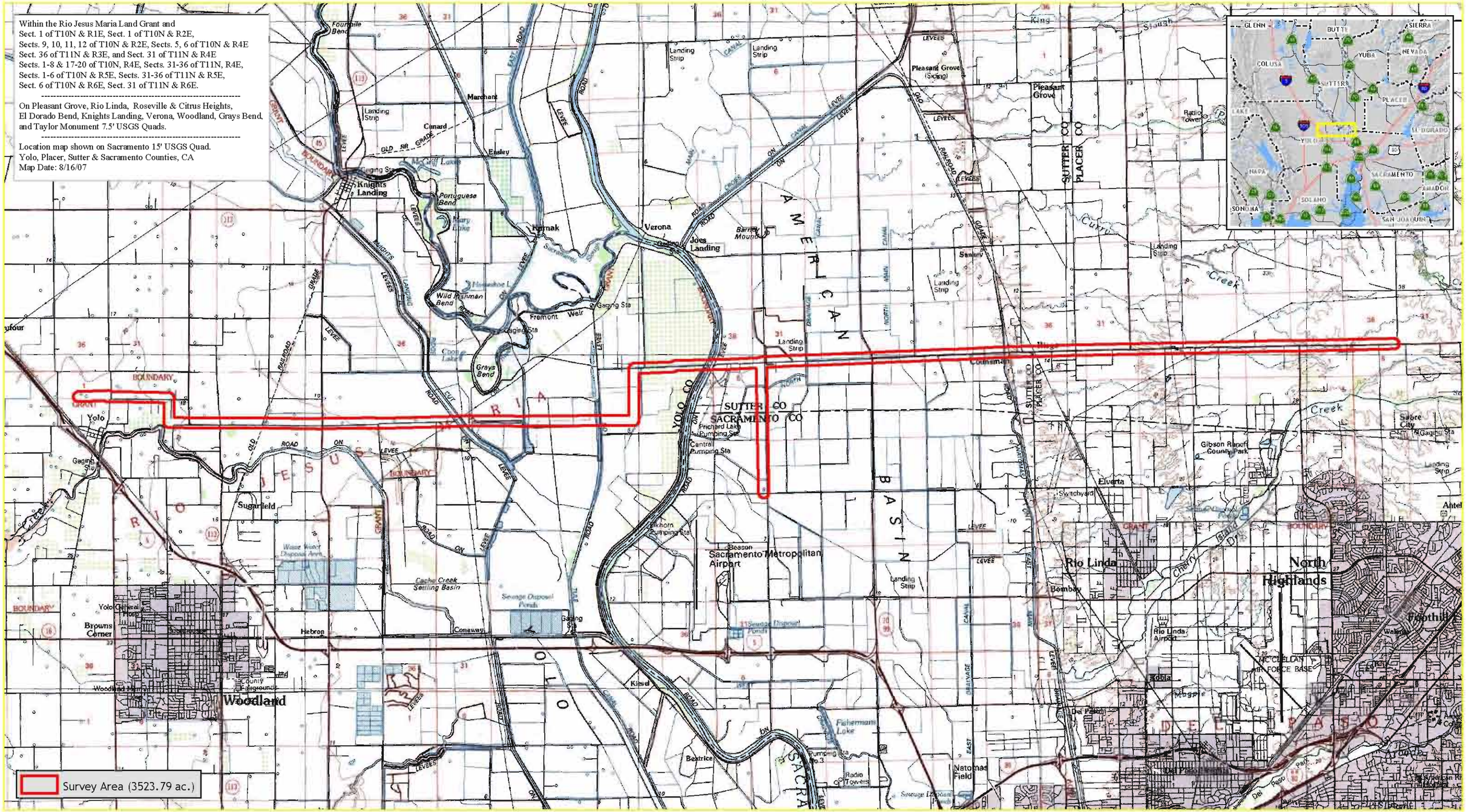

Figure 1

For the purpose of this report, the term branchiopod strictly refers to the three federally listed vernal pool branchiopod species that have the potential to occur within the site: vernal pool fairy shrimp (*Branchinecta lynchi*), Conservancy fairy shrimp (*B. conservatio*), and vernal pooltadpole shrimp (*Lepidurus packardi*). Although other branchiopods were found within the site they were not a target species of this study. Approval to conduct the survey was received from various landowners along the linear Project area upon being contacted by PG&E representative months prior to the survey. Written authorization to conduct wet-season surveys was received November 19, 2007 via e-mail from Michelle Tovar, USFWS (**Appendix A**). The following wet-season report is being submitted in accordance with the conditions of the USFWS Permit TE-049693-1 (**Appendix B**). This document follows the reporting format outlined in the Guidelines (1996).

II. Study Methods

Surveys were conducted according to the Guidelines. Upon receipt of USFWS approval to survey the site (**Appendix A**), surveys were initiated after the first seasonal storm events to determine when pools/swales were inundated over 3 cm. The study period began December 13, 2007 (although pools had not begun ponding over 3 cm) and was completed on April 14, 2007. Once inundated, pools and swales were sampled every two weeks unless no longer inundated. The site contained varying sizes of pools, some of which remained inundated for prolonged periods and others that dried down relatively quickly, or never ponded at all. Pools were evaluated during the site visits and sampled if they contained greater than 3 cm of water. At each site visit, the survey area was traversed on foot at various pullouts along the roadway. Sampling was done with a 0.5-mm mesh, long-handled D-net. A representative sample of each pool/swale's micro-habitats, including the bottom, edges and vertical water column was collected; and netted contents were either examined within the bag of the net, or transferred to a bucket and examined by portions in a 20 cm round white sorting pan. If necessary, a voucher sample of the federally listed branchiopods identified during the survey, were collected and preserved in ethanol. Only sexually mature, identifiable branchiopods were used to make positive observations regarding presence. Jody Gallaway (TE-049693-1), Trish Ladd (TE-049693-1) and Christy Dawson (TE-049693-1) performed the field surveys.

III. Project Description

Introduction

The PG&E Line 407 is part of a project to provide natural gas to communities in the Sacramento River Valley, which is an area of rapid growth. The survey area is composed of a 500-foot buffer on either side of the Project alignment. Due to the large size of the project, it will be distinguished as PG&E Line 407 West (approximately 14 miles in length) and PG&E Line 407 East (approximately 12 miles in length). The PG&E Line 407 West (West Project) will run from a tie-in point with the proposed PG&E Line 406 and existing PG&E Line 172A near Interstate 5 north of the City of Woodland to a tie-in point with the proposed PG&E Line 407 East (East Project) at the corner of Powerline and Riego roads. The East Project then splits, running south

along Powerline Road to West Elverta Road, and east along Riego Road/Baseline Road to Fiddyment Avenue. From the western tie-in, the line will run along the edges of fields and parallel a series of county roads and irrigation canals, crossing Knights Landing Ridge Cut, the Yolo Bypass, the Sacramento River, Natomas East Main Drainage, and Curry Creek before reaching the eastern tie-in (**Figure 1**). This document only pertains to the East Project survey area as the western section is composed of active agricultural fields and does not support potential branchiopod habitat.

IV. Habitat Description

Environmental Setting

A Delineation of Waters of the United States prepared by Gallaway Consulting, Inc. (GCI) in 2006 and was revised on May 3, 8, and 14, and June 21, 2007 by GCI biologists following the Supreme Court ruling in the case of *Rapanos vs. United States*, May 2007 (**Attachment A**). Within the survey area, vernal pools, vernal swales, seasonal wetlands, seasonal swales and roadside ditches were delineated that represent potential habitat for federally listed vernal pool branchiopods. In addition to the delineated wetland features, Helm Biological Consulting also sampled several areas during dry-season sampling that could potentially support branchiopods. Most wetland features occur in annual grasslands, some of which are grazed by cattle, and others are fallow or ungrazed. Man-made ditches are another common feature throughout the survey area, pooling and conveying precipitation along roadsides that were not sampled due to the constant flow of water. Active rice fields and agricultural ditches also occur within the survey area, but were not sampled as they typically hold water during the summer months which are the typical dry down periods necessary to complete the branchiopod life cycle. Following the delineation prepared by GCI, it was discovered during the 2007-08 wet-season sampling that several features on private lands where altered by the landowners either by development or grading activities and were unable to be sampled (see Results section below). One landowner refused access to several features (WF# 83-89), thus preventing sampling from occurring within that area. During the dry season sampling in 2006, several features identified as potential branchiopod habitat by Helm Biological Consulting were found to occur in the floodplain of a drainage where several fish were observed swimming in the potential features. As vernal pool branchiopods have adapted to environments absent of predatory fish, sampling of these features ceased.

Vernal Pools

Within the survey area vernal pools comprise the majority of potential branchiopod habitat. Pools vary considerably in size and depth, which greatly affected the inundation period of the pools. All vernal pools occurred in annual grasslands and typically had grass covered bottoms. Due to a low rainfall year in 2006-07 and the limited amount of precipitation during the later months of the 2007-08 wet-season, smaller pools were either dry upon inspection or only briefly ponded. Larger, deeper pools ponded water for sufficient periods to support vernal pool shrimp life history and *B. lynchi* was identified in two vernal pools (WF# 91 and 92) that were

connected during high ponding events (**Attachment B3**). *L. occidentalis* was also detected in WF# 91 and 92 as well as in vernal pools WF# 44 and 45 (**Attachments B1 & B2**).

Vernal Swales

Vernal swales within the survey area were typically shallow depressions conveying water to lower-lying areas forming standing pools. Swales were often dry at survey visits, though at times did support basic taxa; however, no vernal swales ponded water for a long enough period to support vernal pool branchiopod life cycle.

Seasonal Wetlands

Seasonal wetlands within the survey area varied greatly in size and depth. These features differed from vernal pools in the fact they typically would pond water for longer periods of time inducing the growth of plant species typical of seasonal wetlands. One large seasonal wetland (WF# 48) was conveying water via culverts to the south side of Riego Road were the majority of the water pooled in WF # 44 and 45 (found to contain *L. occidentalis*) or entered an intermittent drainage (OW# 088). *Linderiella occidentalis* was also found to occur within three seasonal wetlands: WF# 22, HBC4 and HBC6A.

Seasonal Swales

These features varied in size throughout the study area. Seasonal swales are depressions on a slope that typically convey water to seasonal wetlands where water pools for longer periods of time. Seasonal swales contain wetland plants but often do not contain standing water for significant periods of time.

V. Survey Results

Sampling Locations

All sampling was conducted within the approximately 1811.2-acre survey site illustrated in **Attachment A**. **Attachment B** depicts the 2007-08 wet-season sampling results by displaying the features found to contain *B. lynchi* and/or *L. occidentalis*. Please refer to **Attachment A** and **Appendix E** for the maps and corresponding data sheets prepared for the 45 features sampled. As previously mentioned sampling discontinued or was not initiated for several of the features due to restricted access and/or altered features. During the 2007-08 wet-season survey, the following delineated wetland features were not sampled:

- Restricted or denied access: WF# 68, 69, 70, 71, 73, 74, 75, 77, 83-89, 106;
- Did not pond sufficiently: WF# 28, 32, 33, 63, 81;
- Recently tilled or disturbed by development: WF# 1, 3-14, 16, 29/30, 58, 77, 79, 80;
- Flowing water: WF# 33, 48/49, 55, 56, 111, 114, and all "other waters";
- HBC 1, 2, 2A, 3 are in floodplain of WF18 that supported predatory fish, discontinued sampling;

- Seasonal wetlands in recently disked fallow agricultural fields (WF# 95-105) and all of the irrigation ditches as they contained water during the summer months and were not inundated at the time of the wet-season survey;

Species Identified and Population Size

One species of federally listed vernal pool branchiopods was detected within the survey area. *Branchinecta lynchi* was identified in two vernal pools (WF# 91 and 92) that connected during high ponding events with population numbers in the 10's. *Linderiella occidentalis* was also found swimming with *B. lynchi* in WF #91 and 92 as well as in WF# 44, 45, 22, HBC4, HBC6A with population numbers ranging from the 10's to 100's. *Branchinecta conservatio* was not identified within the Project site during the two consecutive wet-season sampling.

Non special status invertebrate species encountered in wetland features on the site included copepods, ostracods, corixids, notonectids, dyticid adults and larvae, hydrophilid adults and larvae, ephemoptera, trichoptera, gastropods, zygopterans, and several types of dipteran larvae.

VI. Conclusions and Determinations

The majority of the precipitation events during the 2007-08 wet-season occurred in the months of January and February. March and April contributed very little precipitation late in the season thus accelerating the drying of most wetland features. The majority of on-site features ponded sufficient amounts of water to support basic vernal pool taxa life cycles; however, only one species of federally listed vernal pool branchiopod was detected. *Branchinecta lynchi* was identified with population numbers estimated in the 10's within two conjoining wetland features. *Linderiella occidentalis* was also found swimming with *B. lynchi* in the two pools, as well as five other pools and had population numbers ranging from the 10's to 100's.

Though previously conducted dry-season sampling found *Branchinecta* eggs in 41 features within the site and *L. occidentalis* in 21 features, a second wet-season survey was unable to confirm *Branchinecta* sp. presence in all of the features identified in the dry-season sampling. The majority of the *Branchinecta* eggs found during the dry-season sampling occurred in active rice fields that are continuously cultivated and were not inundated during the wet-season survey period. In addition to the active rice fields, dry-season sampling also found high occurrences of *Branchinecta* eggs in irrigation ditches, roadside ditches and large wetland features all of which contained flowing water. During the 2007-08 wet-season survey several of the wetland features had been recently disked by landowners and did not support the hydrology previously present on-site and were not sampled.

As branchiopod eggs are highly resilient and disperse via several methods including flowing water and waterfowl, it's expected that the largest density of eggs will accumulate at the lowest point of a flowing water body or in areas where waterfowl tend to amass (i.e. rice fields). Though it is practicable for *Branchinecta* eggs to be present on-site, eggs will not typically hatch until the appropriate environmental conditions (water temperature, depth, salinity, sufficient oxygen, etc) exist to successfully complete the species life cycle (Ericksen & Belk, 1999).

Therefore, it is likely the environmental stimuli necessary to terminate the egg's dormancy period may not be present within this portion of the survey area.

A "complete" survey of the site has been performed due to the completion of two consecutive wet-season surveys, one dry-season survey, and the identification of one of the five federally listed branchiopods during the wet-season survey, per the USFWS Guidelines.

Study Area Photographs

Seasonal wetland (WF# 59). Photo taken by TL on 3/16/08 facing north.

Vernal Pool (WF # 39). Photo taken by JG on 1/28/09 facing southwest.

Potential branchiopod habitat (HBC12). Photo taken by TL on 3/6/08 facing northeast.

Vernal pool (WF# 41). Photo taken by JG on 1/11/08 facing southeast.

Vernal pool (WF# 82). Photo taken by JG on 1/11/08 facing north.

Seasonal wetland area in the vicinity of HBCB. Photo taken by TL on 1/11/08 facing south. Water is flowing south into WF# 018.

Vernal pool (WF# 45) contains *L. occidentalis*. Photo taken by TL on 1/28/08 facing southeast. Other water #88 is located just beyond vernal pool.

VII. References

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Statement of Surveyors

"*I certify that the information in this survey report and attached exhibits fully and accurately represents my work*".

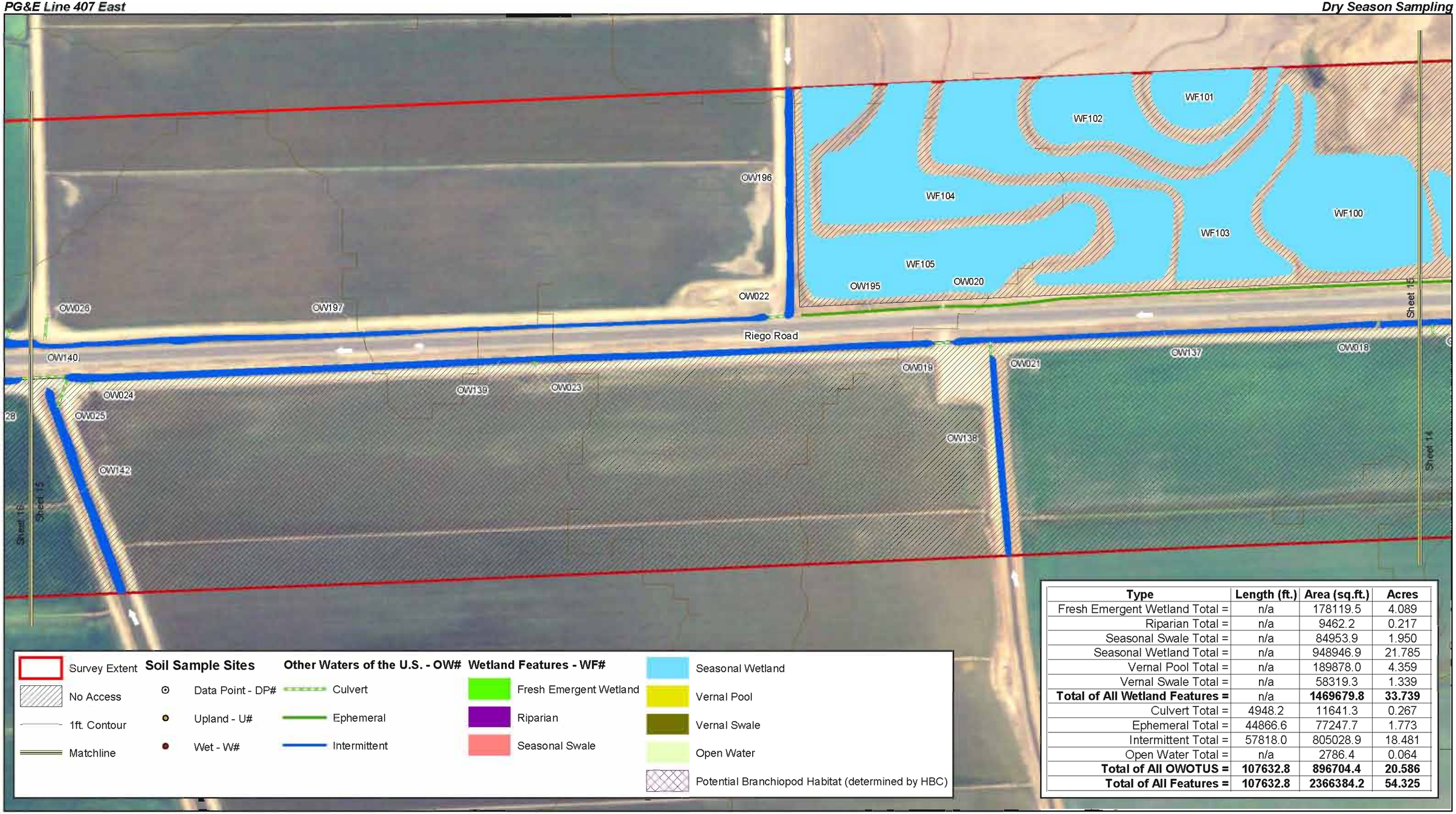
_____ Jody Gallaway (#TE-049693-1)

_____ Trish Ladd (#TE-049693-1)

_____ Christy Dawson (#TE-049693-1)

Attachment A

Draft 2007 Delineation of Waters of the U.S. Maps



Type	Length (ft.)	Area (sq.ft.)	Acres
Fresh Emergent Wetland Total =	n/a	178119.5	4.089
Riparian Total =	n/a	9462.2	0.217
Seasonal Swale Total =	n/a	84953.9	1.950
Seasonal Wetland Total =	n/a	948946.9	21.785
Vernal Pool Total =	n/a	189878.0	4.359
Vernal Swale Total =	n/a	58319.3	1.339
Total of All Wetland Features =	n/a	**1469679.8**	**33.739**
Culvert Total =	4948.2	11641.3	0.267
Ephemeral Total =	44866.6	77247.7	1.773
Intermittent Total =	57818.0	805028.9	18.481
Open Water Total =	n/a	2786.4	0.064
Total of All OWOTUS =	**107632.8**	**896704.4**	**20.586**
Total of All Features =	**107632.8**	**2366384.2**	**54.325**

N

The information contained in this figure shall be considered preliminary until written verification by the USACE
Survey Extent derived from 500 ft buffer of roadway
Features that fall within No Access areas were derived from roadside delineation and aerial photo interpretation
Survey Dates July 21, 24 - 28, Aug 10 & 25 2006/Surveyors JG,SI,EA
Date of Aerial Feb 2005 (NAIP)/Contours derived from USGS DEM
Map Date Aug 29, 2006/Revisions

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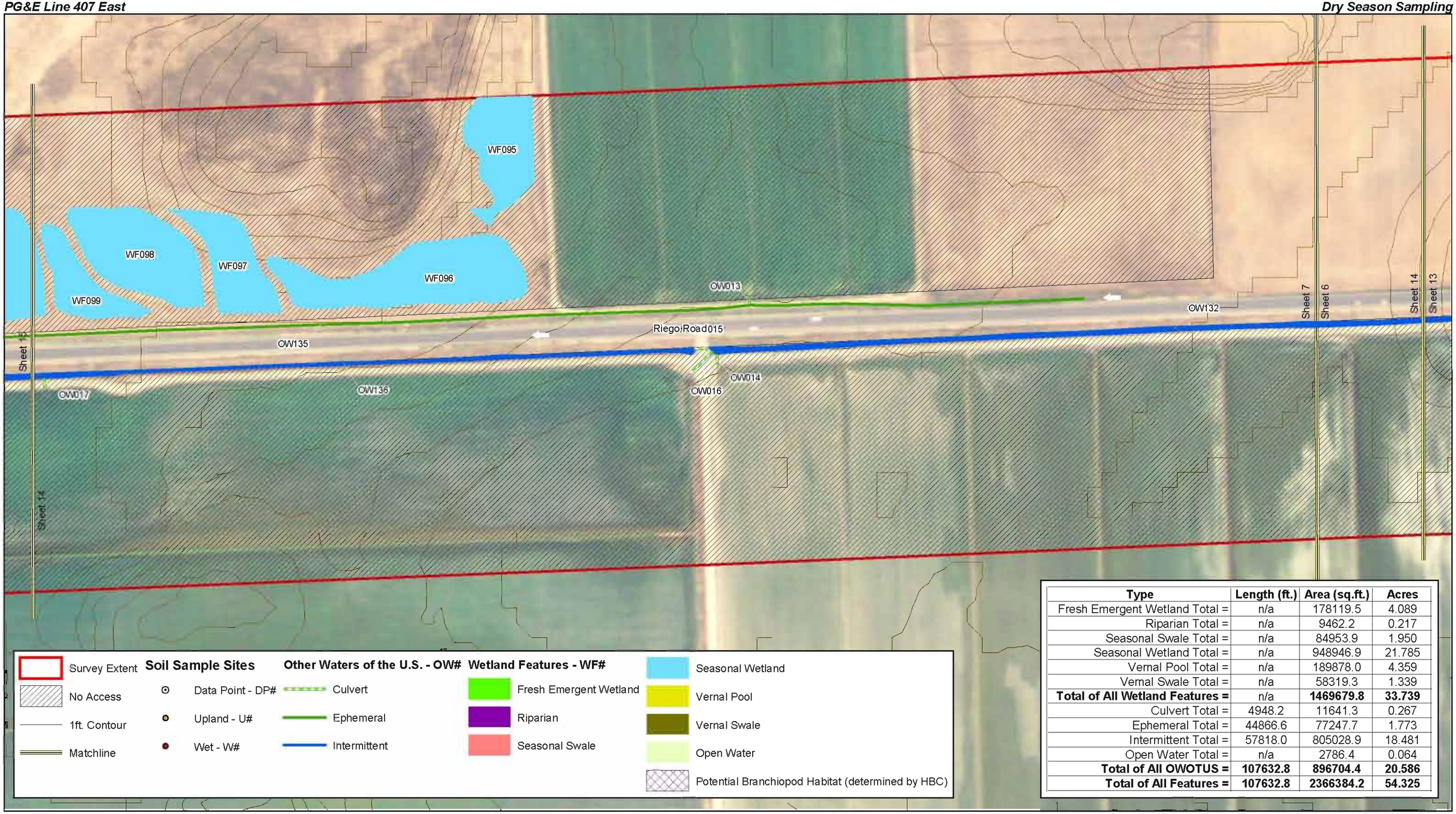

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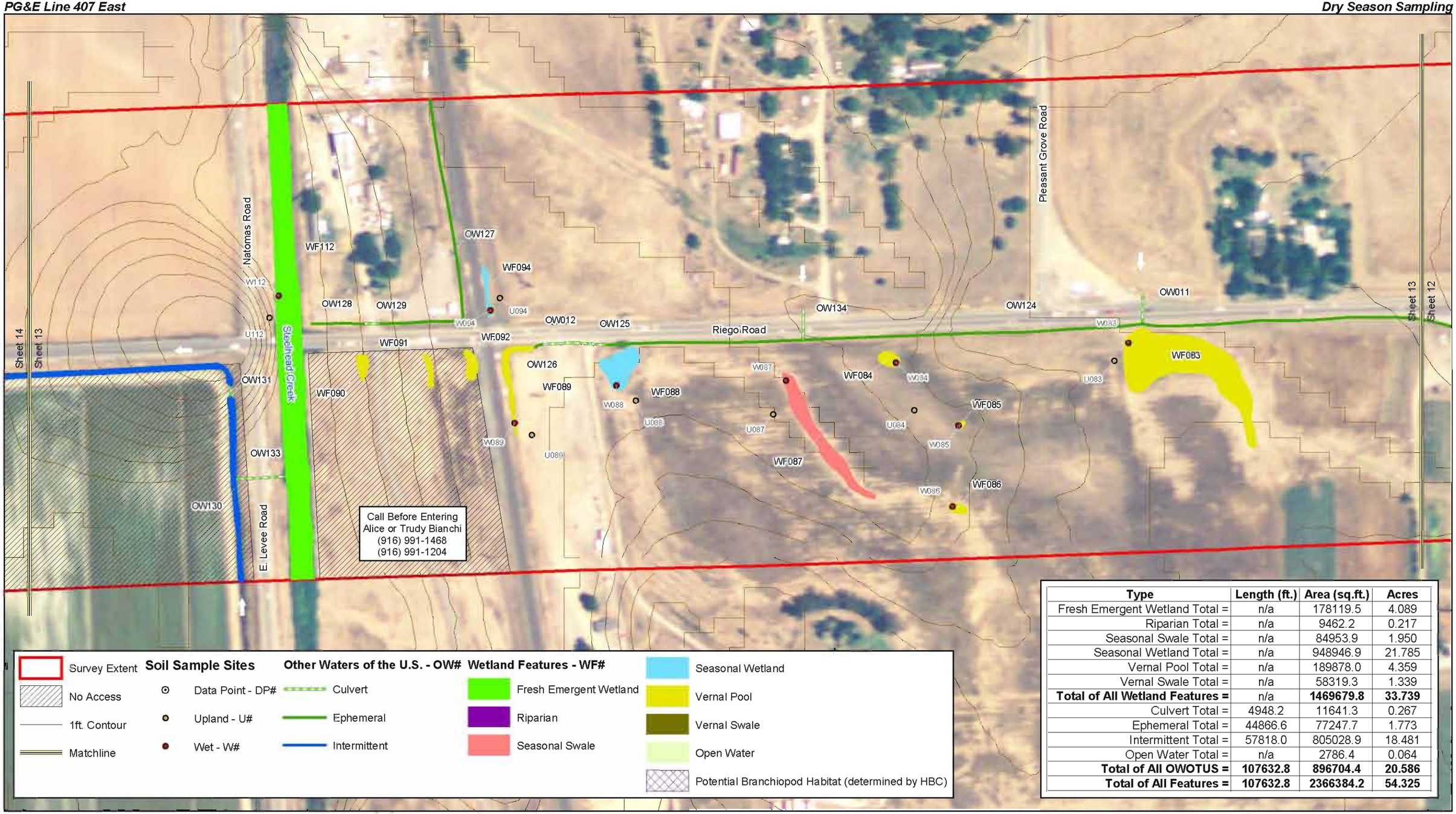

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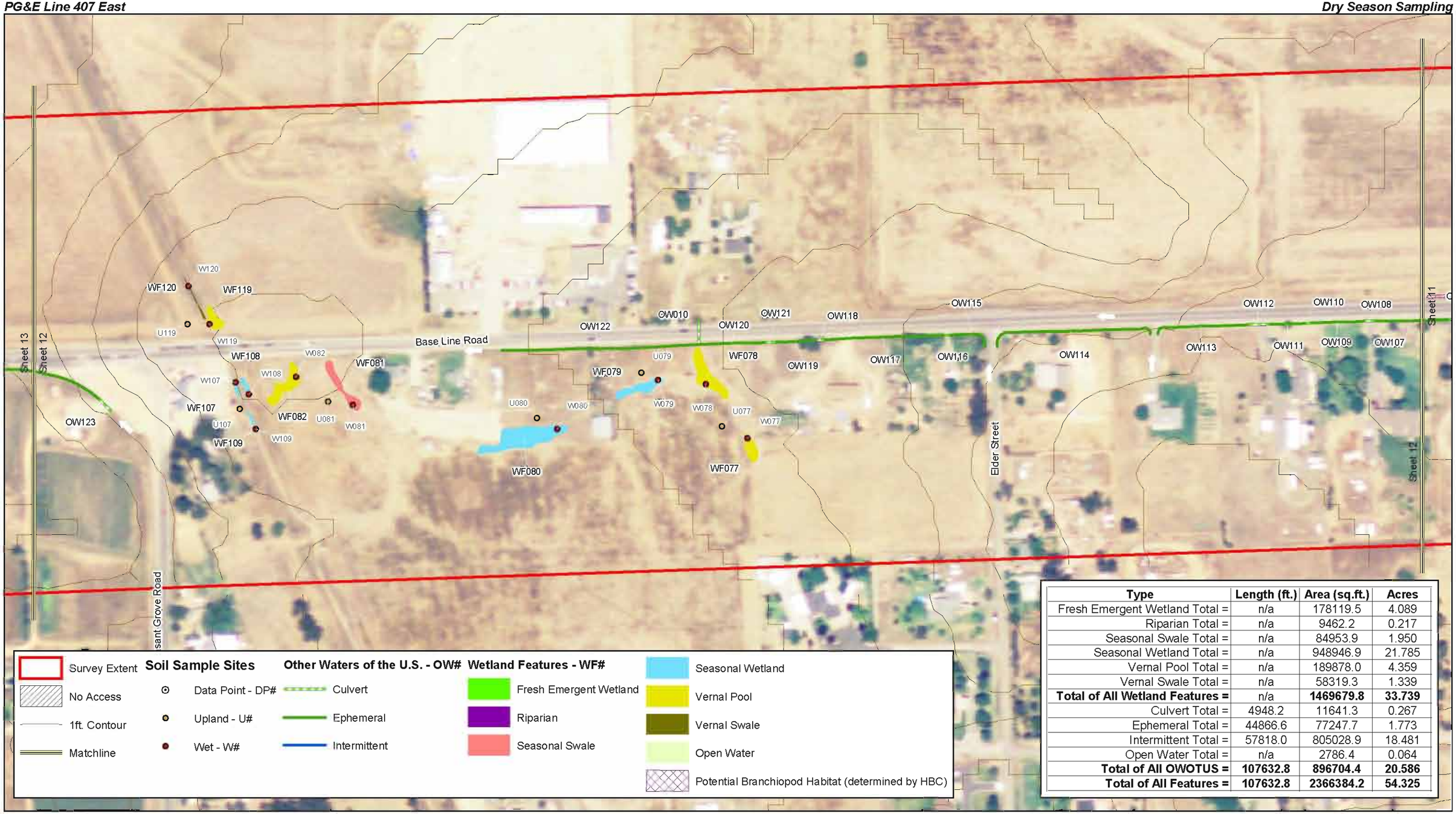

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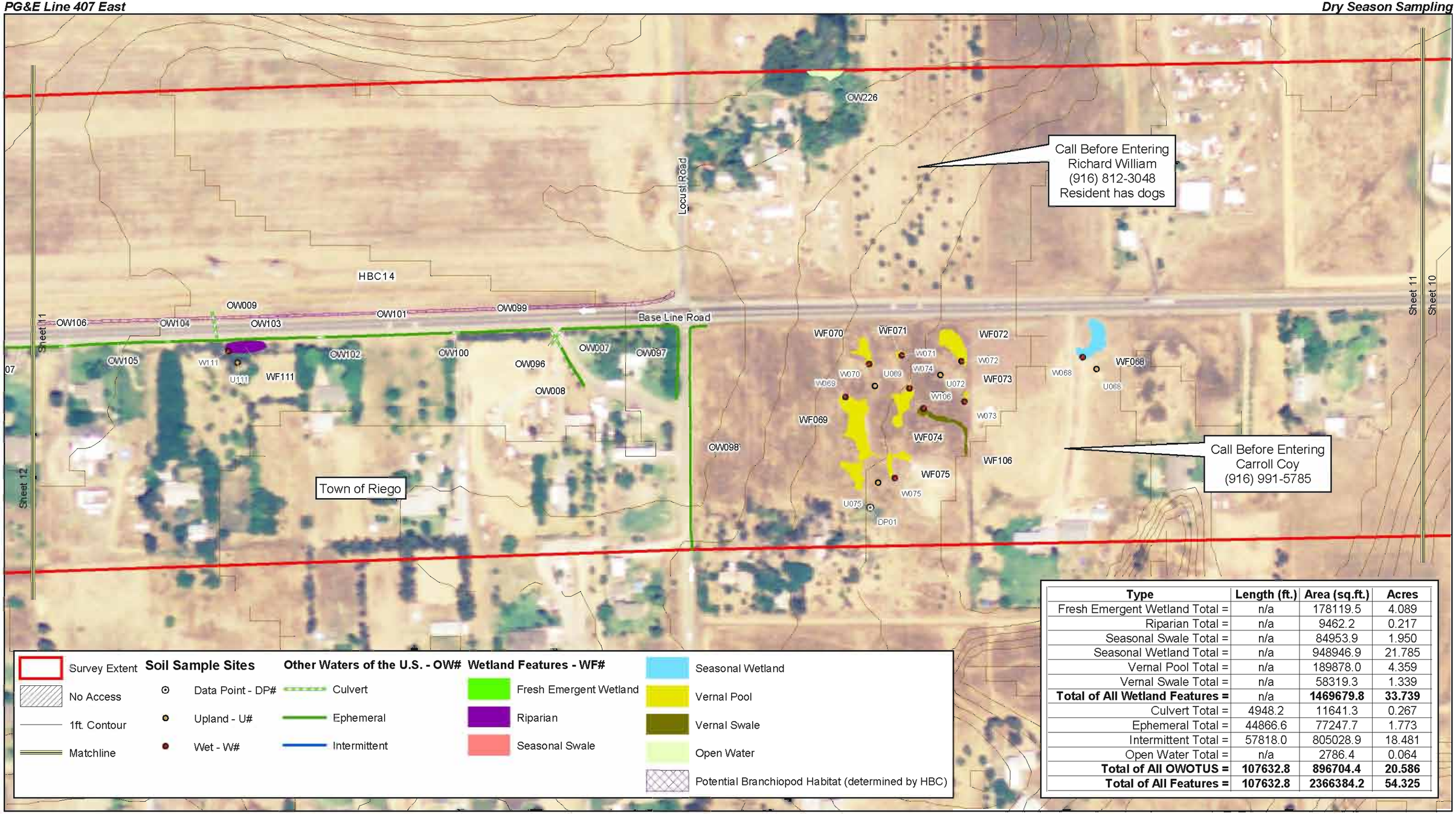

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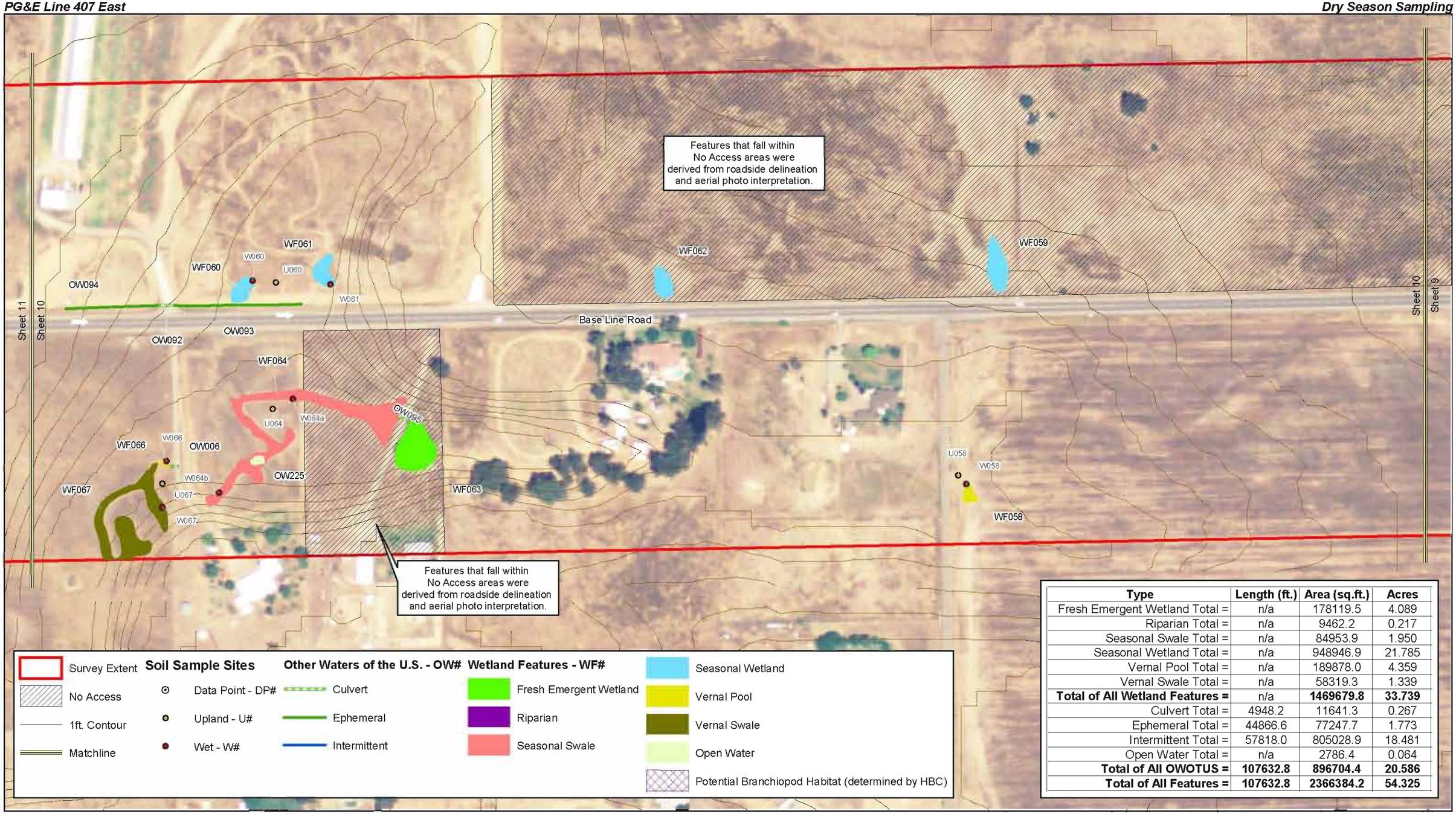

Type	Length (ft.)	Area (sq.ft.)	Acres
Fresh Emergent Wetland Total =	n/a	178119.5	4.089
Riparian Total =	n/a	9462.2	0.217
Seasonal Swale Total =	n/a	84953.9	1.950
Seasonal Wetland Total =	n/a	948946.9	21.785
Vernal Pool Total =	n/a	189878.0	4.359
Vernal Swale Total =	n/a	58319.3	1.339
Total of All Wetland Features =	n/a	**1469679.8**	**33.739**
Culvert Total =	4948.2	11641.3	0.267
Ephemeral Total =	44866.6	77247.7	1.773
Intermittent Total =	57818.0	805028.9	18.481
Open Water Total =	n/a	2786.4	0.064
Total of All OWOTUS =	**107632.8**	**896704.4**	**20.586**
Total of All Features =	**107632.8**	**2366384.2**	**54.325**

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Map Date: Aug. 29, 2006/Revisions

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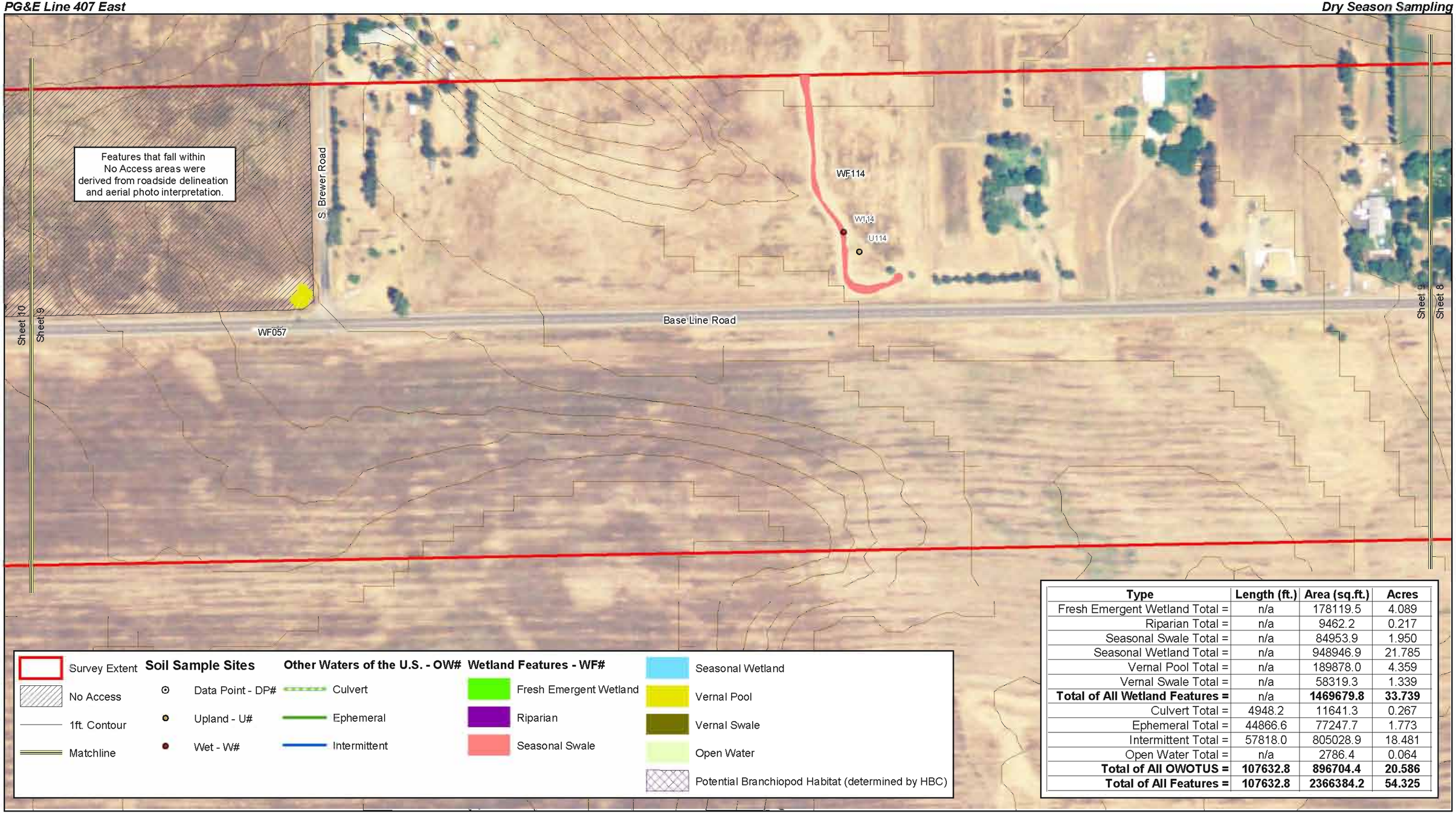

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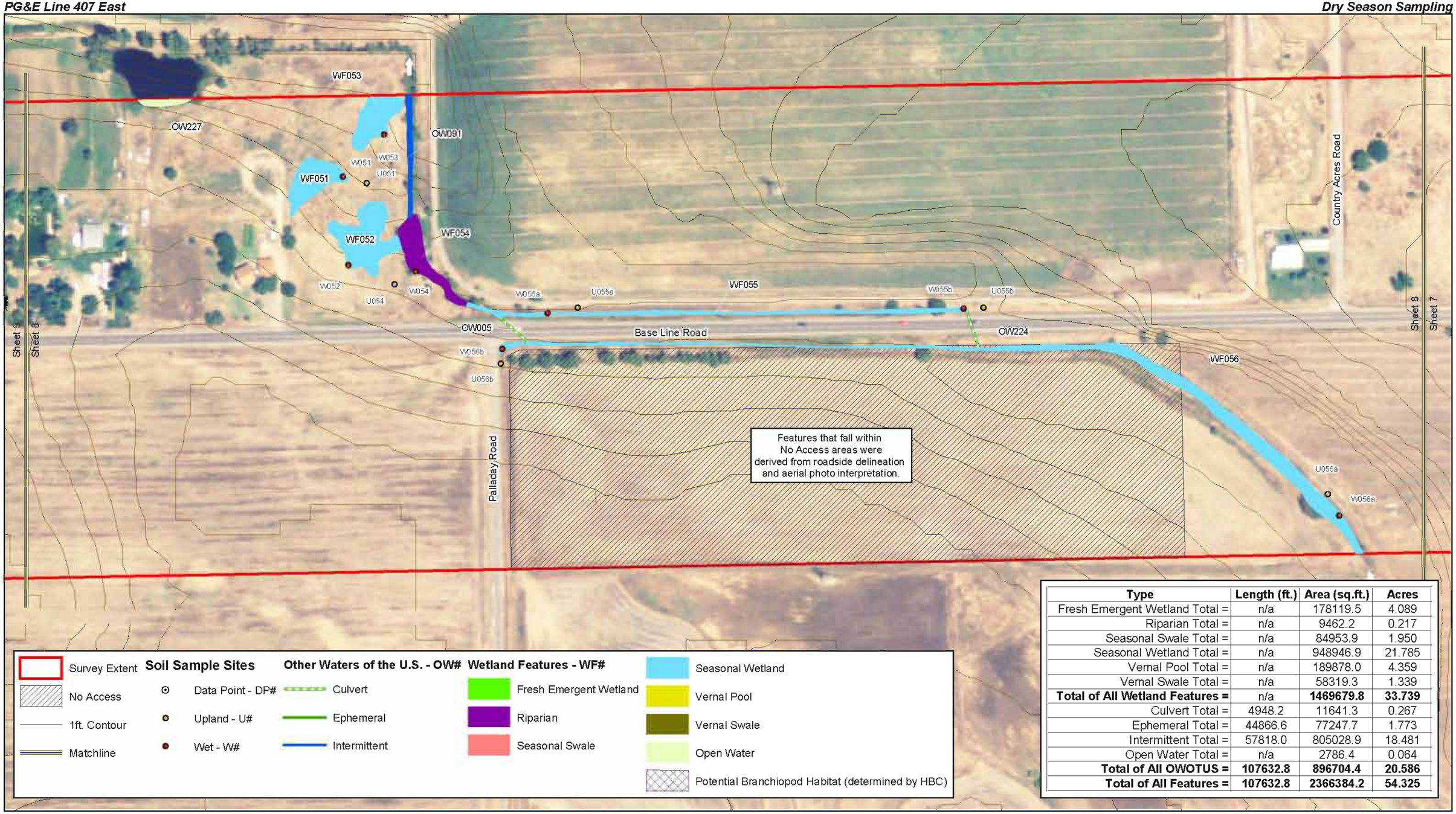

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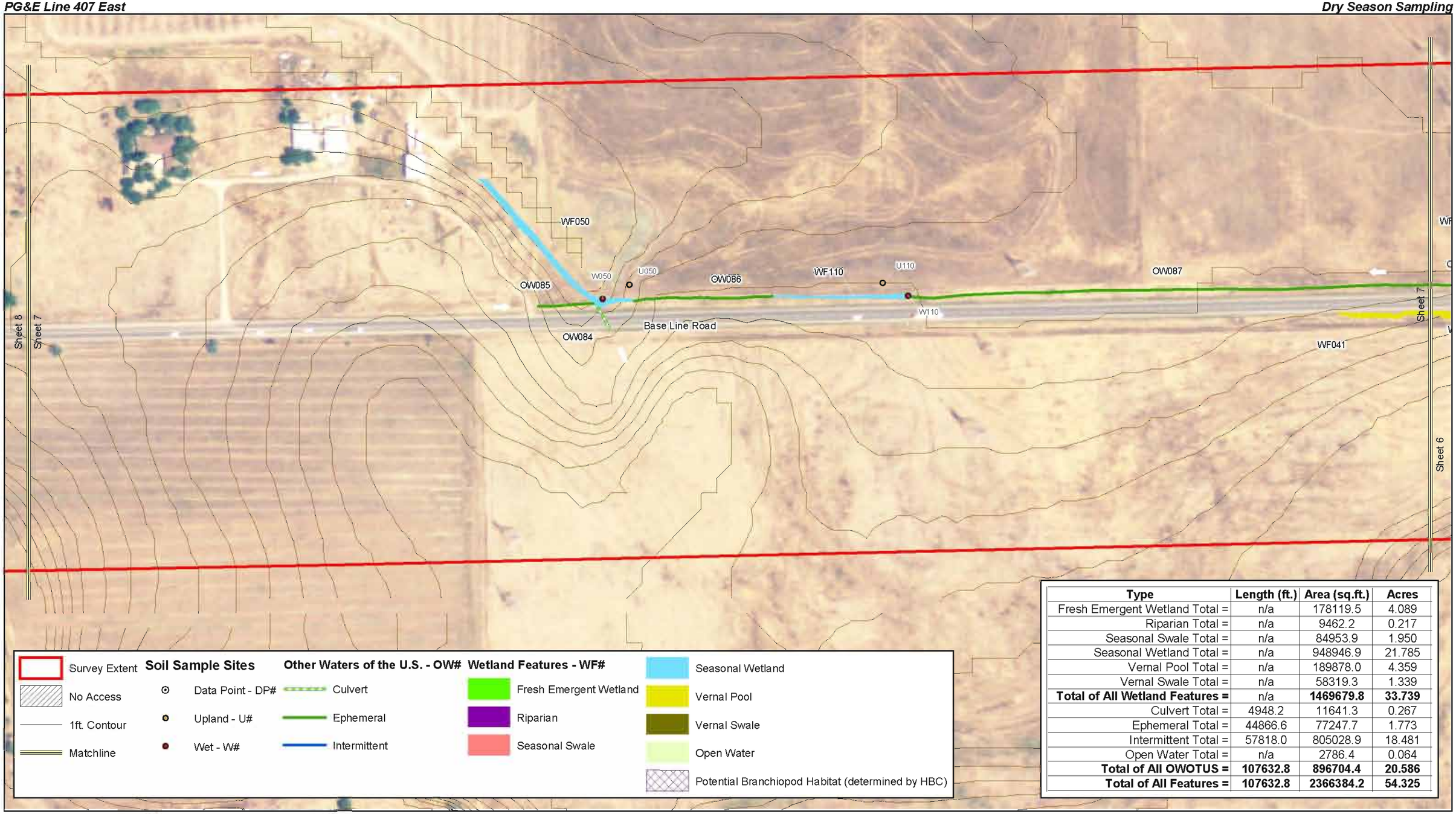

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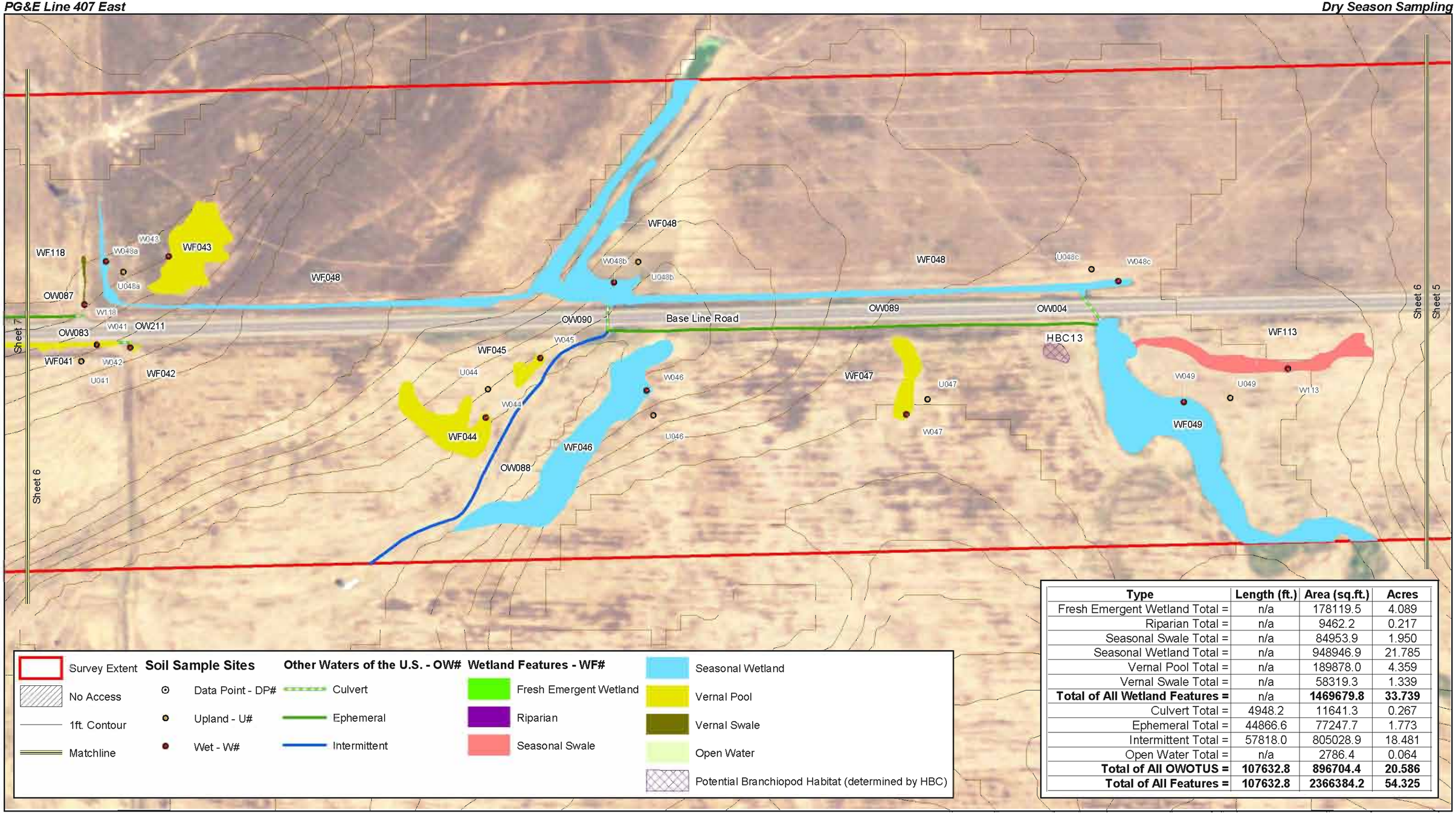

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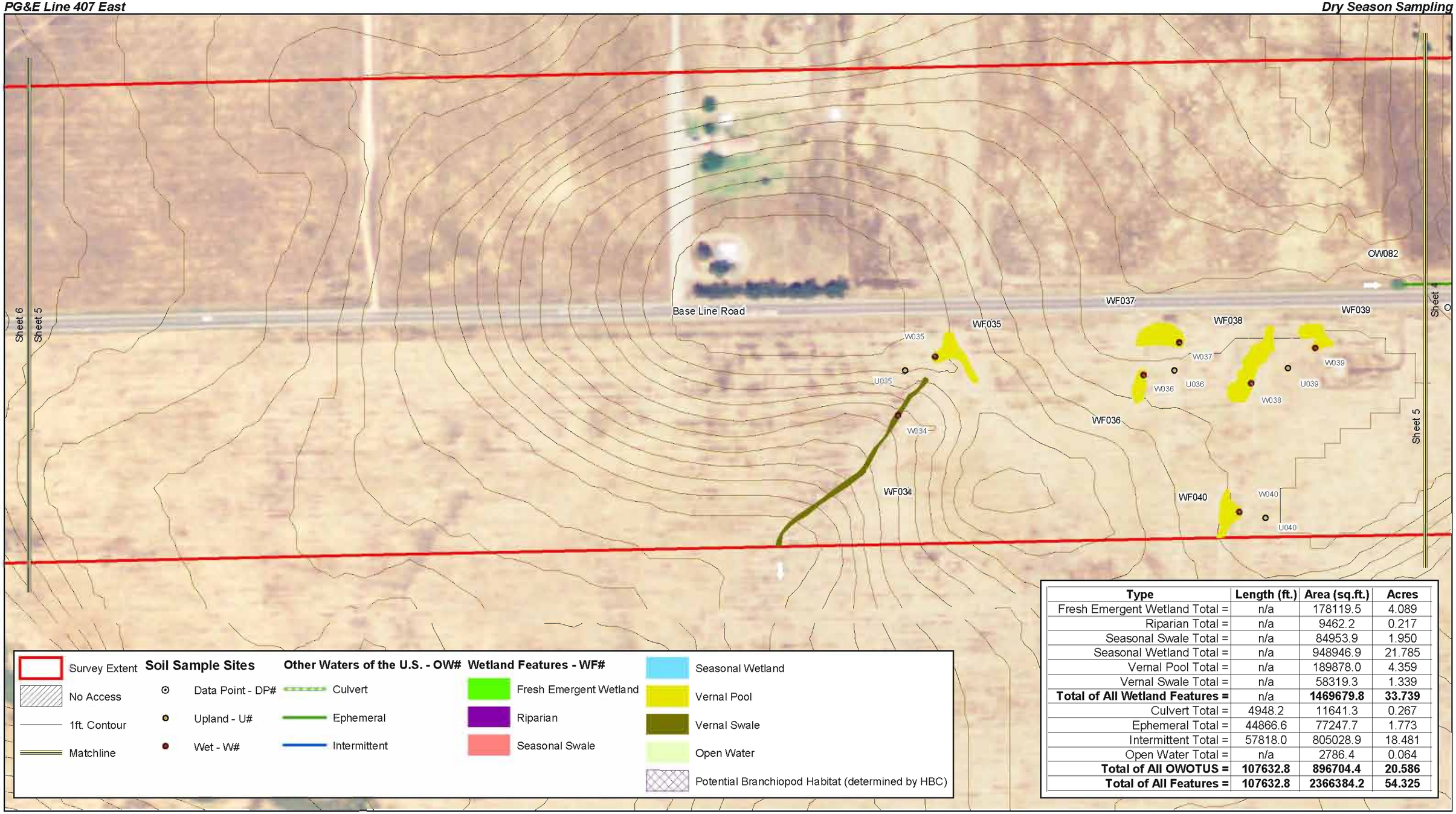

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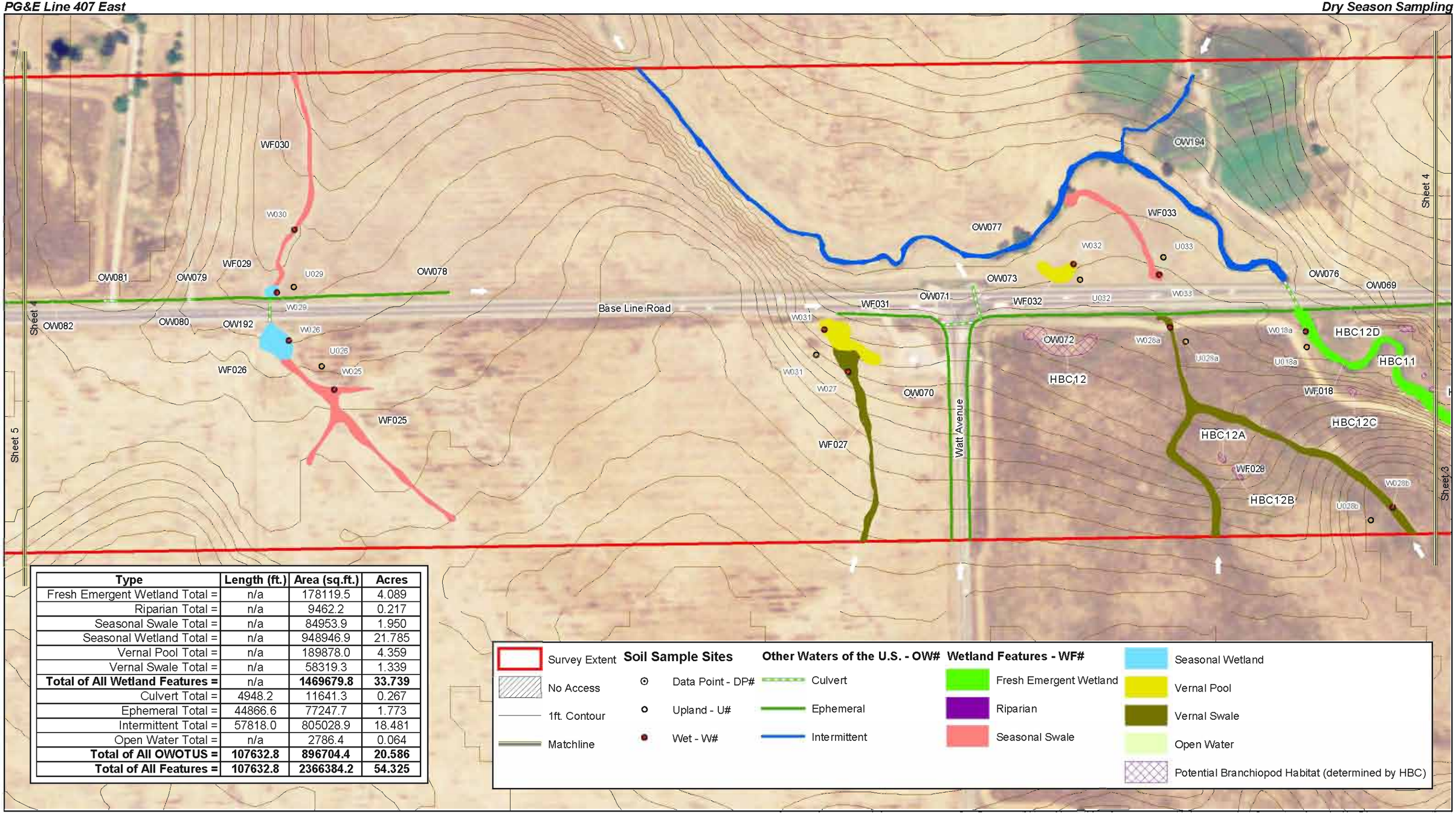

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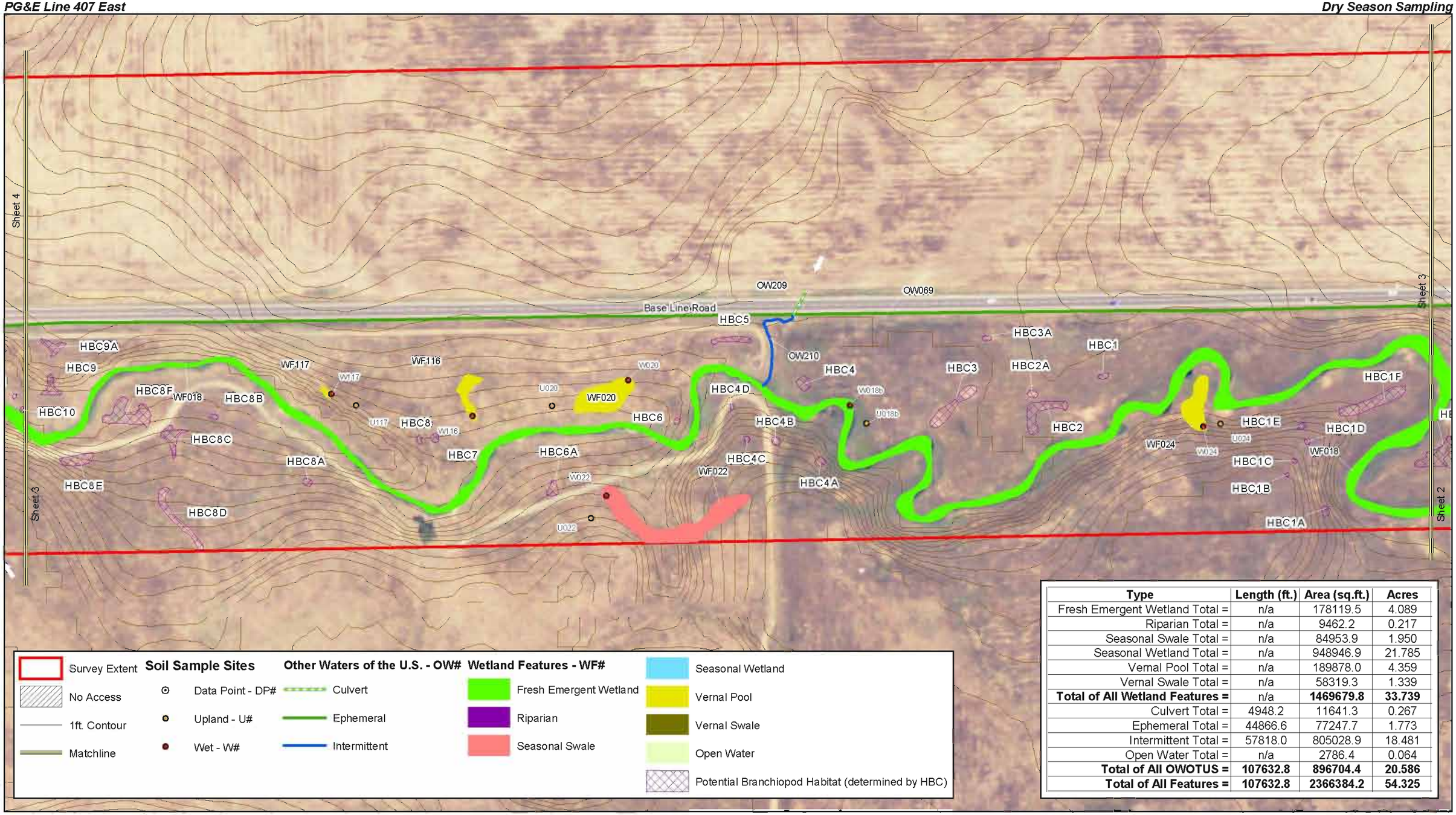

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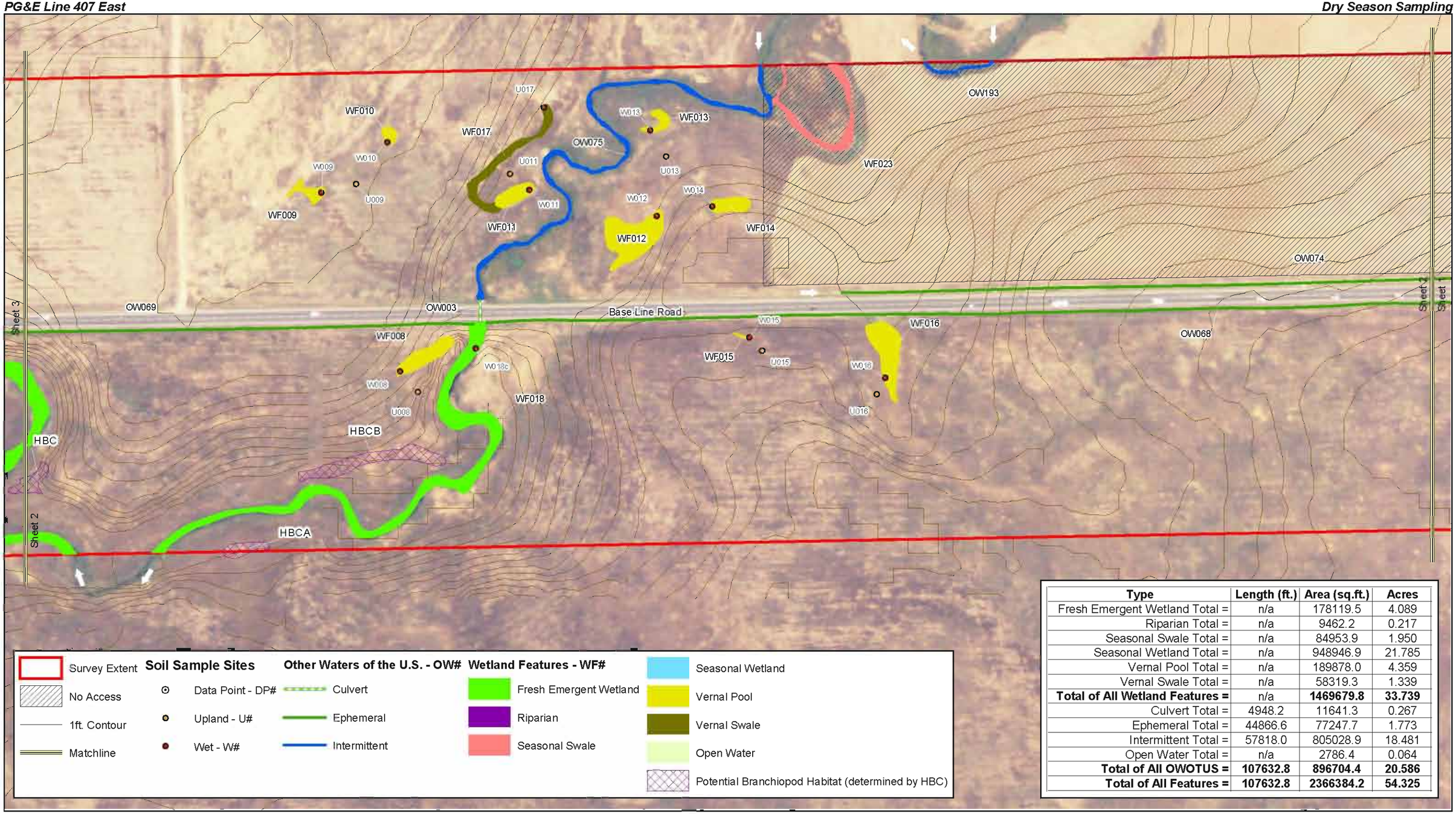

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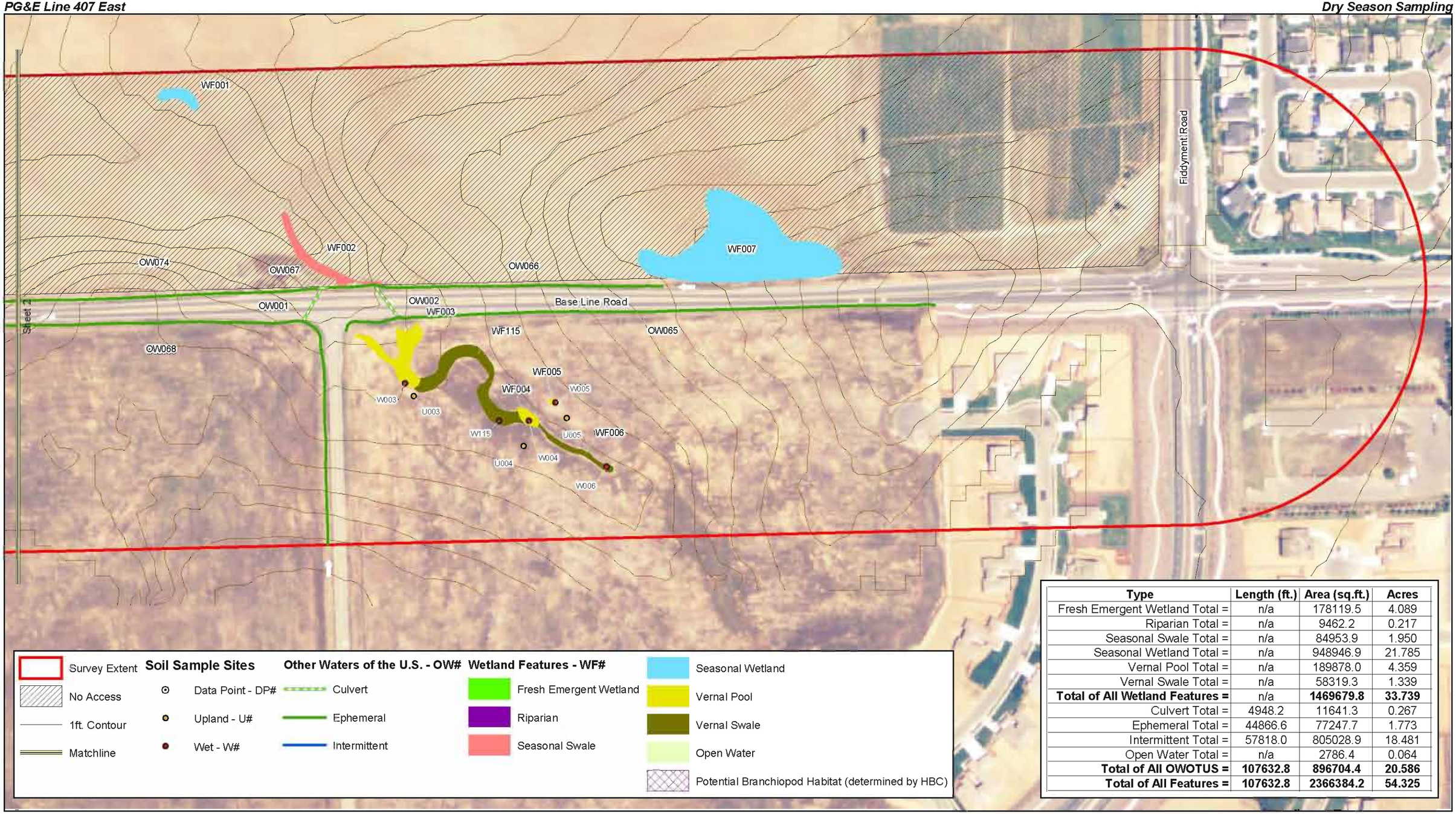

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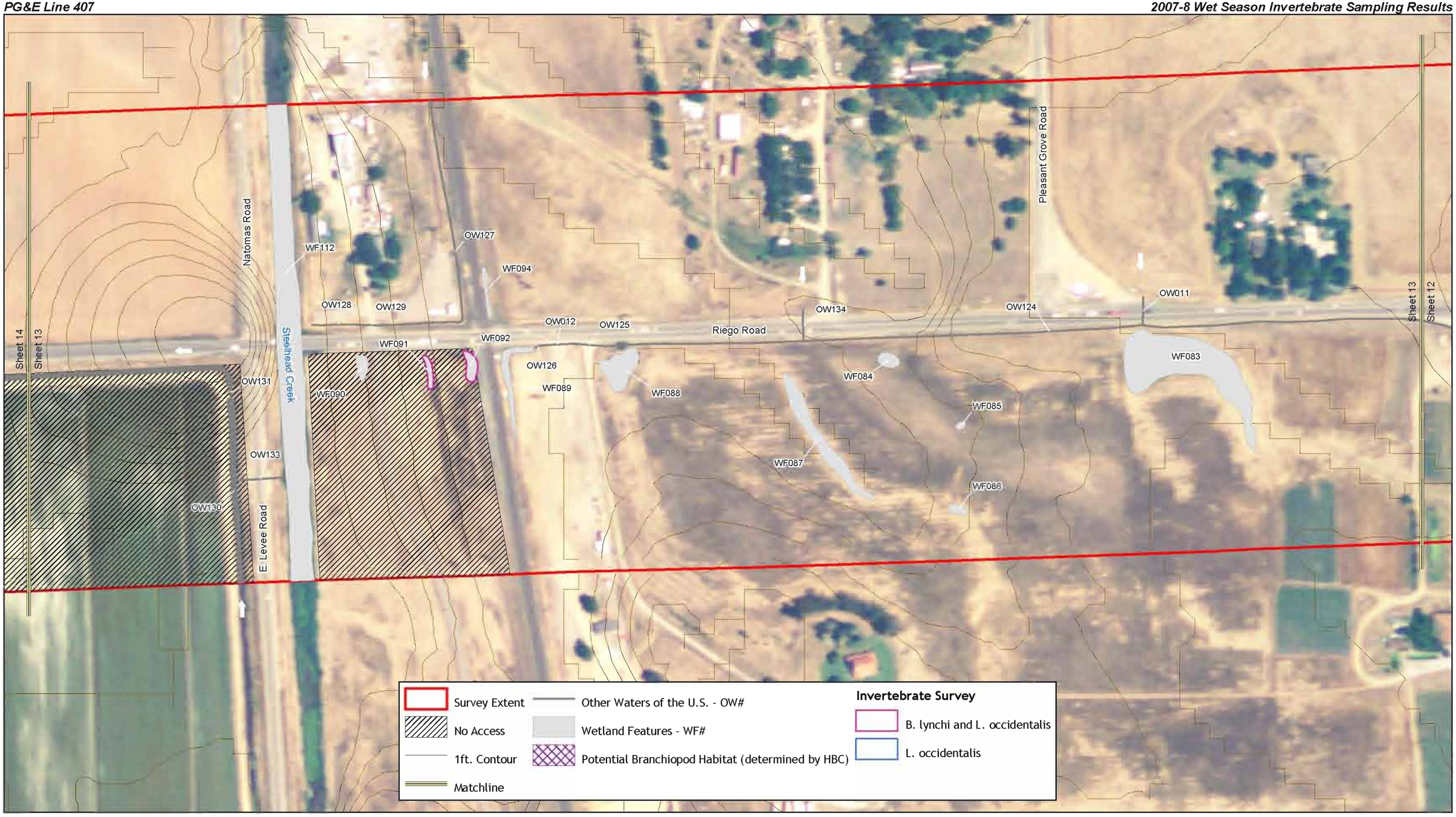
GALLAWAY CONSULTING, INC.

Attachment B

2007-08 Wet Season Invertebrate Sampling Results Maps



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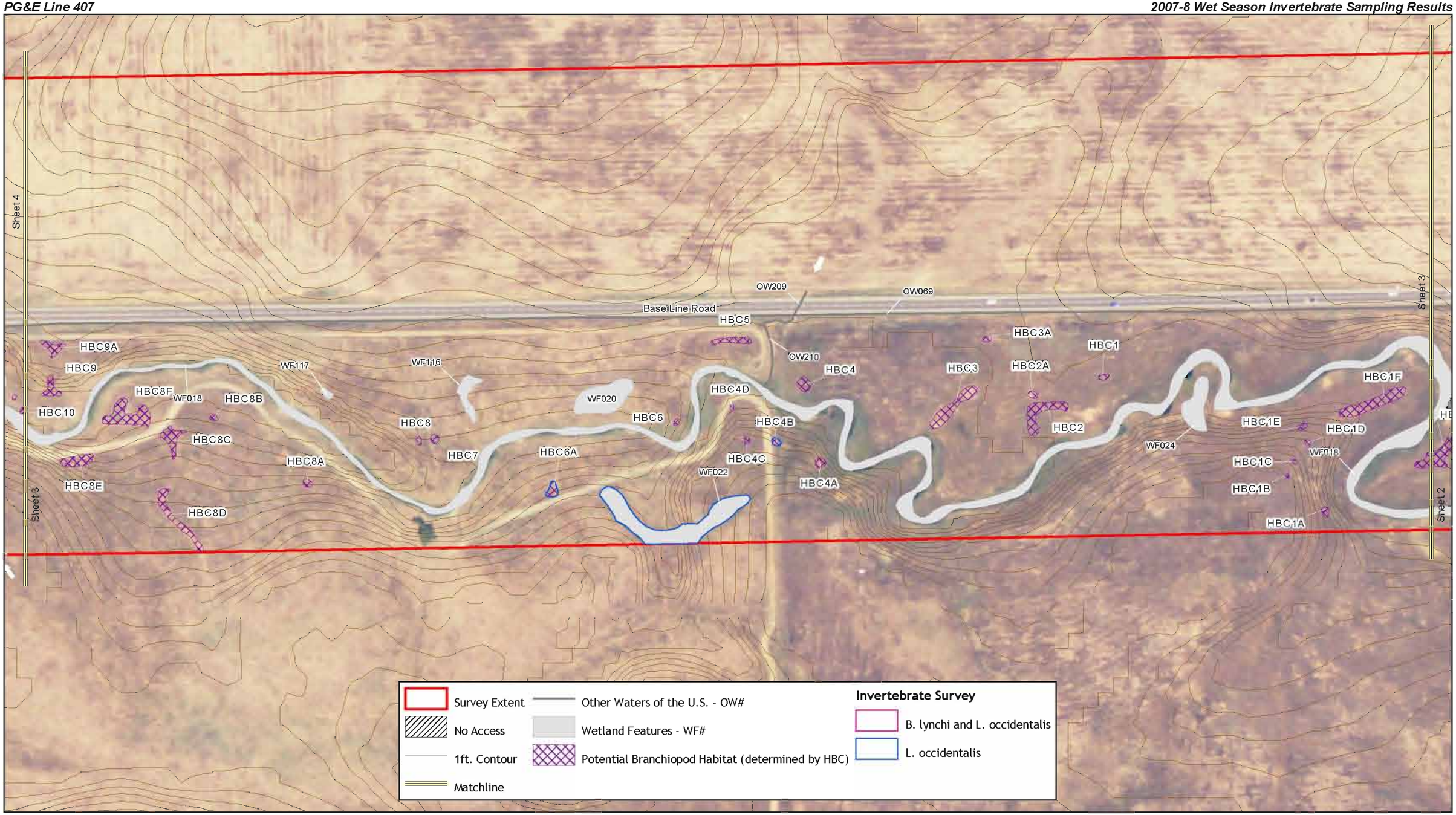

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0 200 400 Feet

GALLAWAY CONSULTING, INC.

Appendix A

USFWS Approval to Conduct Surveys

Trish Ladd

From: Christy Dawson
Sent: Tuesday, November 20, 2007 10:43 AM
To: Jody Gallaway; Trish Ladd
Subject: FW: Wet season brachiopod authorization for [redacted] and the PG&E 123 site

Christy Dawson
Project Manager/Senior Biologist
Gallaway Consulting, Inc.
117 Meyers Street, Suite 110
Chico, CA 95928
Phone: 530.343.8327
Cell: 530.864.4874
Fax: 530.343.8312
christy@gallawayconsulting.net

From: Michelle_Tovar@fws.gov [mailto:Michelle_Tovar@fws.gov]
Sent: Monday, November 19, 2007 4:46 PM
To: Christy Dawson
Cc: Jana_Milliken@fws.gov; David_Kelly@fws.gov [redacted]
Subject: Wet season brachiopod authorization for [redacted] and the PG&E 123 site

Ms. Christy Dawson,

By this email message, you are authorized to conduct wet-season surveys of listed vernal pool crustaceans per the conditions of permit TE-049693-0, at the [redacted] and the PG&E site located in Butte, Sacramento, Placer and Sutter Counties, California, as specified in your November 15, 2007 electronic message to our office. **Please note**: that the wet season is fast approaching and we recommend surveyors be out to the site during the first inundation of pools to ensure surveys are done according to the guidelines.

[redacted] by rural residential, agricultural buildings, agricultural fields, and open land. Sampling is proposed in approximately 140 pools/swales mainly occurring along the western portion of the site in which the property owners have proposed to establish a mitigation bank.

[redacted] The proposed project involves development of the northern portion of the property and the southern portion of the property will be preserved and utilized for on-site mitigation. Sampling is proposed for approximately 400 vernal pools/swales and 46 seasonal wetlands/swales.

<u>The PG&E Line 123 / Line 407 (phase 1) / Metro Air Park Distribution Feeder Main</u> site located in Sacramento, Sutter and Placer counties. The survey area for the project encompasses an approximately 1811.2 acres corridor of rural , urban, and developed land in portions of Verona, Rio Linda, Roseville, Citrus Heights, Taylor Monument, and Pleasant Grove. Sampling is proposed for approximately 91 wetland features.

Please remember to have all biologists carry a copy of their permit while doing the work, and to follow the terms and conditions of the permit and the survey protocol, including the reporting requirements. Please include the recovery permit numbers and all persons involved in the reports of the results of surveys, and the date of this

authorization, to help ensure that we correctly record the fulfillment of the reporting requirement under this authorization.

We appreciate that you send separate copies of the report(s) at the time of any formal or informal consultation under section 7 of the Endangered Species Act with the Fish and Wildlife Service. Please let us know if the surveys are not performed as authorized, or if they are done by a different permittee under a separate authorization. Also include a summary of what surveys were authorized, who was authorized, when the surveys were done, and who did the surveys in your annual report for each recovery permit involved with this survey authorization.

Sincerely,
Michelle Tovar

Michelle Tovar
Fish & Wildlife Biologist
Endangered Species Division
U.S. Fish & Wildlife Service
2800 Cottage Way, Suite W2605
Sacramento, Ca 95825-3901
(916)-414-6646

Appendix B
USFWS Permit

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

3-201
(1/97)

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

JODY M. GALLAWAY
115 MEYERS STREET SUITE 120
CHICO, CA 95928
U.S.A.

2. AUTHORITY-STATUTES
16 USC 1539(a)
16 USC 1533(d)

REGULATIONS (Attached)
50 CFR 17.22
50 CFR 17.32

50 CFR 13

3. NUMBER
TE049693-1 AMENDMENT

4. RENEWABLE
☒ YES
☐ NO

5. MAY COPY
☒ YES
☐ NO

6. EFFECTIVE
12/11/2006

7. EXPIRES
08/17/2009

8. NAME AND TITLE OF PRINCIPAL OFFICER (if #1 is a business)

9. TYPE OF PERMIT
THREATENED AND ENDANGERED SPECIES

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. Further conditions of authorization are contained in the attached Special Terms and Conditions.

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS
ANNUAL REPORT DUE: 1/31

ISSUED BY	TITLE	DATE
Sylvia Bellmomin for	ENDANGERED SPECIES PROGRAM MANAGER	12/11/2006

SPECIAL TERMS AND CONDITIONS
Jody M. Gallaway

1. This permit was previously issued on August 18, 2005. The terms and conditions set forth in that permit are hereby superseded by this amendment.

2. Acceptance of this permit serves as evidence that the permittee understands and agrees to abide by the General Conditions for Native Endangered and Threatened Wildlife Species Permits," 50 CFR Part 13, 50 CFR 17.22 (endangered wildlife), and/or 50 CFR 17.32 (threatened wildlife), as applicable (copies attached). In addition, the permittee must have all other applicable State and Federal permits prior to the commencement of activities authorized by this permit.

3. The permittee is authorized to take (harass by survey and collect and sacrifice) the Conservancy fairy shrimp (*Branchinecta conservatio*), the longhorn fairy shrimp (*Branchinecta longiantenna*), the vernal pool fairy shrimp (*Branchinecta lynchi*), and the vernal pool tadpole shrimp (*Lepidurus packardi*) in conjunction with surveys for the purpose of enhancing their survival, as specified in the permittee's October 4, 2006, permit request, in accordance with the conditions stated below.

4. Permitted activities are restricted to the following geographic areas in California:

   Butte, Glenn, Tehama, Shasta, Sacramento, Placer, and Sutter Counties.

   Proposals to conduct sampling activities for the above listed species shall be submitted in writing to the Recovery Permit Coordinator at the U.S. Fish and Wildlife Service's (Service) Sacramento Fish and Wildlife Office (SFWO), 2800 Cottage Way, W-2605, Sacramento, California 95825 (telephone: 916-414-6600; fax: 916-414-6710).

   The proposals shall include, as appropriate: (a) an explanation of the purpose of the study and a clear description of methods, including the names of field personnel and the number and dates of surveys; (b) the number of vernal pools or number of acres proposed to be surveyed; (c) the number of individuals proposed to be collected; (d) the name of the individual who will be completing the soil processing and/or preliminary vernal pool branchiopod cyst identification; (e) a map (at a minimum, a 1:24,000 scale U.S. Geological Survey (USGS) topographical map) depicting the location of the survey site(s); (f) the assessor's parcel number (APN) for the site (if possible); and (g) geographic information system (GIS) data depicting the survey site or global positioning system (GPS) coordinates (if possible). Information may be submitted electronically if pre-arranged with the Recovery Permit Coordinator.

   The permittee shall not commence activities authorized by this permit in a new area or in a previously authorized site at a new time until permission is received from the SFWO. If the permittee is denied authorization to survey at the requested location(s), including previously authorized sites, a request for reconsideration may be submitted to the

Endangered Species Program Manager, at the Service's California/Nevada Operations Office (CNO), 2800 Cottage Way, Room W-2606, Sacramento California, as provided in 50 CFR 13.29. The procedures specified in 50 CFR 13.29(b) must be followed.

5. Authorized individuals:

Only individuals on the attached List of Authorized Individuals (List) are authorized to conduct activities pursuant to this permit. The List, printed on Service letterhead, may identify special conditions or circumstances under which individuals are authorized to conduct activities and must be retained with these Special Terms and Conditions. Each named individual shall be responsible for compliance with the terms and conditions of this permit.

To request changes to the List, the permittee shall submit written requests to the Recovery Permit Coordinator at the SFWO. Two copies of the request shall be submitted at least 30 days prior to the requested effective date. The request shall be signed and dated by the permittee and include:

a. The name of each individual to be appended to the List;

b. The resume/qualifications statement of each person to be appended to the List, detailing their experience with each species and type of activity for which authorization is requested;

c. The names and phone numbers of a minimum of two references; and

d. The names of the individuals to be deleted from the List.

Note: This procedure is for personnel changes only. For requests to renew/amend this permit, a complete application must be submitted to the Endangered Species Program Manager, at the CNO.

6. Taking of the Conservancy fairy shrimp, the longhorn fairy shrimp, the vernal pool fairy shrimp, and the vernal pool tadpole shrimp (hereafter collectively referred to as vernal pool branchiopods):

The permittee is authorized to harass by survey and collect voucher specimens of the vernal pool branchiopods (both hatched individuals and eggs) within the geographic boundaries specified above, and the time limitation specified in the permit, provided that:

a. The permittee must implement all of the actions included in the attached *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (Guidelines), dated April 19, 1996. The Guidelines will be updated periodically and the permittee must follow the most recent Guidelines after receipt of such.

Any deviation from these Guidelines shall first be approved verbally or in writing by the SFWO.

b. As specified in the Guidelines, sampling/collecting of hatched individuals or eggs is not authorized at any specific location until the permittee obtains approval from the SFWO.

Note: The sampling and preservation of voucher specimens from locations that have been previously surveyed will not be authorized, except in cases where the adequacy of the earlier survey work is in doubt or otherwise should be repeated as determined by the Service.

c. The number of voucher specimens authorized to be collected and preserved is limited as follows:

No more than 20 hatched individuals of each species from each vernal pool (or swale) per sampling visit or less than 10 percent of the subpopulation in the vernal pool (or swale) during the sampling visit, whichever is the lesser amount.

d. The permittee is authorized to collect an unquantifiable number of vernal pool branchiopod eggs contained within soil samples taken following the most recent Guidelines. The total amount of soil samples each calendar year shall not exceed a ratio of 1 liter per each 10 square meters (approximately 1 percent at 1 centimeter deep) of estimated vernal pool surface area surveyed.

e. The permittee shall provide the Recovery Permit Coordinator at the SFWO with a 90-day report containing all of the survey information specified in the Guidelines no more than 90 calendar days after completing the last field visit of the season at each project site. Use the appropriate Vernal Pool Data Sheet, where applicable, as the reporting form. The following statement shall be signed by all surveyors: "I certify that the information in this survey report and attached exhibits fully and accurately represents my work." The date of signature and the surveyor's permit number shall be included. Information may be submitted electronically if pre-arranged with the Recovery Permit Coordinator.

f. The permittee shall disinfect sampling and field gear as follows:

i. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each survey site.

ii. Boots, nets, traps, etc. must be scrubbed with 70 percent alcohol (i.e., isopropyl or ethanol) or 3 to 6 percent sodium hypochlorite solution and

thoroughly rinsed with clean tap water between survey sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland.

iii. In remote locations, clean all equipment as described above upon return to the lab or base camp. Elsewhere, when washing machine facilities are available, remove nets from poles and wash with bleach on the delicates cycle, within a protective mesh laundry bag.

iv. Used cleaning materials (liquids, etc.) shall be disposed of safely at the lab. Used disposable gloves shall be retained for safe disposal in sealed bags.

g. If the permittee observes California tiger salamanders (*Ambystoma californiense*) during the course of field surveys, the locations shall be listed as UTM coordinates in the 90-day report referenced under condition number 5(e) above. Any salamander adults, larvae, and eggs accidentally netted shall be released immediately to minimize stress to the organism, and numbers of each life stage netted shall be in all survey reports.

7. The number of individuals allowed to be incidentally injured or killed during permitted activities is 10 individuals of each vernal pool branchiopod species (and an unquantifiable number of eggs) in any calendar year.

a. Any incidental injury or killing must be reported within 3 working days to the CNO and the SFWO.

b. In the event that the number of individuals allowed to be incidentally injured or killed is exceeded during the performance of permitted activities, the permittee must:

i. Immediately cease the activity resulting in injury or death until reauthorized by the CNO, which may, after analysis of the circumstances of mortality or injury, revoke or amend this permit.

ii. Immediately notify the CNO (telephone: 916-414-6464; fax: 916-414-6486) and the SFWO. The permittee must follow-up such verbal notification in writing to each office.

iii. With the written notification, the permittee is to provide a report of the circumstances that led to the injury or mortality. A description of the changes in protocols that will be implemented to reduce the likelihood of such injury or mortality from happening again should be included, if appropriate. A copy of this report shall also be sent to the California Department of Fish and Game (CDFG), Habitat Conservation Planning

Branch, 1416 Ninth Street, Sacramento, California 95814 (telephone: 916-653-4875).

c. The appropriate parts of any dead specimen shall be preserved in accordance with standard museum practices. Before expiration of the permit, all preserved specimens will be properly labeled and deposited with one of the designated depositories. The permittee shall supply the depository with a copy of this permit to validate that the specimens supplied to the museum were taken pursuant to a permit.

8. The permittee is authorized to salvage all vernal pool branchiopod carcasses to be provided to one of the designated depositories.

9. Designated depositories:

The California Academy of Sciences, Golden Gate Park, San Francisco, California; the Los Angeles County Museum of Natural History, Los Angeles, California; the Bohart Museum, University of California, Davis, California; the SFWO; or any other institution designated in writing by the SFWO.

10. California Natural Diversity Database forms shall be completed, as appropriate, for each listed species addressed herein and submitted to the Wildlife Habitat Data Analysis Branch, CDFG - WHDAB, 1807 13th Street, Suite 202, Sacramento, California 95814 (also accessible online at: http://www.dfg.ca.gov/whdab/html/ animals.html), with copies submitted to the SFWO. Copies of the form can be obtained from the CDFG at the above address (telephone: 916-324-3812). Each form sent to the CDFG shall have an accompanying 1:24,000 scale USGS map of the site (or an exact scale photocopy of the appropriate portion(s) of the map).

All reports or other documents that include information gathered under the authority of this permit (e.g., reports prepared by consulting firms for their clients) shall reference this permit. Copies of such documents shall be provided to the SFWO upon their completion. Draft documents, raw/field data, and other information resulting from work conducted under the authority of this permit shall be submitted to the Service upon request.

11. Annual reports:

a. An annual report of activities shall be submitted to the Recovery Permit Coordinator at the SFWO by January 31, following each year this permit is in effect. The report shall be in the following format: (i) an introduction section addressing reasons and objectives for taking the species; (ii) a methodology section addressing data collection and analysis procedures; (iii) a results section that provides the data collected, including the number of individuals incidentally killed (include dates, locations, circumstances of take, and depository receiving the preserved specimens), and information on any other federally listed species

detected while conducting activities authorized under this permit; and (iv) a conclusion section that specifically provides recommendations for recovery of the species. If no activities took place over the course of a year, indication of such shall be submitted as an annual report. Information may be submitted electronically if pre-arranged with the Recovery Permit Coordinator.

b. The 90-day survey reports prepared in accordance with the Guidelines may be submitted as the annual report, and any recovery recommendations can be attached. If the 90-day reports have been previously submitted to meet the required 90-day deadline for submission of reports for each project site, the permittee shall submit as an annual report a letter that includes any recovery recommendations, the date that the 90-day report was submitted, and its exact title.

12. Failure to comply with reporting requirements may result in the non-renewal or suspension/revocation of this permit.

12/11/06
Date

for Endangered Species Program Manager

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1888

LIST OF AUTHORIZED INDIVIDUALS
TE-049693-1.1

1. Individual authorized to independently conduct activities pursuant to this permit:

   Jody M. Gallaway, Christy Dawson, and Trish Ladd.

   Supervised individuals may conduct activities pursuant to this permit only under the direct, on-site supervision of an independently authorized individual listed above.

03 March 2008
Date

E. Tattersall
Eric Tattersall, Acting Division Chief
Endangered Species Program

This List is only valid if it is dated on or after the permit issuance date.

Appendix C

USFWS Vernal Pool Data Sheets

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no _X_ yes

Required color slides and/or photographs for the project site are included: ____ no __X_ yes

Date: __2/8/08_ Time: ____13:00_____ County: __Sutter ___ Quad: _Pleasant Grove___

Collector(s): __J. Gallaway, T. Ladd __ Permit #: TE-049693-1___

Site/Project Name: _PG&E Line 407_____ Pool #: __91_____

Township: _10N_____ Range: ___5E____ Section: __1___

38º45'03.75"N__lat. / 121º29'33.8"W _long.

Temperature: Water: ___13____ °C Air: ___18___ °C

Pool Depth:
at time of sampling: __32____cm
estimated maximum: _32____cm

Surface Area:
at time of sampling: ___15__m x ___6__m
estimated maximum: ___15__m x __6___m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep other_____
  light moderate heavy
- land use of habitat: *Vacant area. Located between raised gravel road and railroad track.*

Notes:
WF 92 had surface connection to WF 91 along Riego Road. Both WF 91 and 92 were completely dry during sampling on 2/22/08.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *Branchinecta lynchi*- reproductive males and females (10's),
Linderiella occidentalis- reproductive males and females (100's)
(note reproductive status)

Notostracans: N/A
(note reproductive status)

Species Observations (Optional):

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

N/A

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ____ no _X_ yes

Required color slides and/or photographs for the project site are included: ____ no __X_ yes

Date: __2/8/08_ Time: ____13:00_____ County: __Sutter ___ Quad: _Pleasant Grove___

Collector(s): __J. Gallaway, T. Ladd __ Permit #: TE-049693-1___

Site/Project Name: _PG&E Line 407_____ Pool #: __92_____

Township: _10N_____ Range: ___5E____ Section: __1___

38º45'03.75"N__lat. / 121º29'33.8"W _long.

Temperature: Water: ___13____ °C Air: ___18___ °C

Pool Depth:
at time of sampling: __32____cm
estimated maximum: _32____cm

Surface Area:
at time of sampling: ___15__m x ___6__m
estimated maximum: ___15__m x __6___m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep other_____
  light moderate heavy
- land use of habitat: *Vacant area. Located between raised gravel road and railroad track.*

Notes:
WF 92 had surface connection to WF 91 along Riego Road. Both WF 91 and 92 were completely dry during sampling on 2/22/08.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observations: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *Branchinecta lynchi*- reproductive males and females (10's),
Linderiella occidentalis- reproductive males and females (100's)
(note reproductive status)

Notostracans: N/A
(note reproductive status)

Species Observations (Optional):

Cladocerans:	yes	no
Conchostracans:	yes	no
Copepods:	yes	no
Ostracods	yes	no
Fish	yes	no
Frogs	yes	no
Salamanders	yes	no
Waterfowl	yes	no
Other (specify) _____		

Insects: (adult or larvae)

Anisoptera:	yes	no
Zygoptera:	yes	no
Hydrophilidae:	yes	no
Dytiscidae:	yes	no
Corixidae:	yes	no
Notonectidae:	yes	no
Belostomatidae:	yes	no
Other (specify) _____		

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species	# Individuals	Accession/Catalog #	Pool #

N/A

Appendix D

Copy of CNDDB Field Survey Forms

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 02/08/2008

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Branchinecta lynchi*

Common Name: Vernal pool fairy shrimp

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 10's Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: N/A Number _____ Museum / Herbarium

Reporter: Gallaway Consulting, Inc.
Address: 117 Meyers Street Suite 110
Chico, CA 95928
E-mail Address: trish@gallawayconsulting.net
Phone: (530) 343-8327

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
100	50			

☑ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Sutter Landowner / Mgr.: unknown- permission aquired by Caltrans
Quad Name: Pleasant Grove Elevation: 40
T 10N R SE Sec 1, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): USGS topo
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 38degrees 45'03.75"N lat / 121degrees29'33.8"W long

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Vacant area located between a raised gravel road with Steelhead Creek to the west, railroad tracks to the east and Riego Road bordering the north.

Plant species in wetland features: Eryngium castrense, Plagiobothrys stipitatus var. micranthus and Blennosperma nanum

Other rare taxa seen at THIS site on THIS date: Linderiella occidentalis
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Railroad tracks, canal, residential housing with agricultural fields

Visible disturbances: Roadside trash in vernal pools

Threats: N/A

Comments: Found in two pools that connected during high precipitation events. Heavily vegetated with water depths averaging 32 cm, dried quickly following two weeks without rain in February 2008.

Determination: *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): Erickson & Belk
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Appendix E

Copy of GCI Field Data Sheets

Only Available in Hard Copy

E-11: Line 407 West Valley Elderberry Longhorn Beetle Survey

Valley Elderberry Longhorn Beetle Survey

PG&E Line 407 West Natural Gas Transmission Pipeline
Yolo and Sutter Counties, California

August 2007

Prepared for:

TRC
Attn: Benjamin Hart
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Prepared by:

GALLAWAY
CONSULTING, INC.
117 Meyers Street, Suite 110, Chico, CA 95928
Phone (530) 343-8327 Fax (530)343 8312

Valley Elderberry Longhorn Beetle Survey

PG&E Line 407 West Natural Gas Transmission Pipeline
Yolo and Sutter Counties, California

August 2007

Prepared for:

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Attn: Benjamin Hart
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Appendix A – PG&E Line 407 West Natural Gas Transmission Pipeline VELB Survey Summary.

PG&E Line 407 West Natural Gas Transmission Pipeline
Yolo and Sutter Counties, California

July 2007

Summary of Findings and Conclusions

On May 8 and 14, 2007, Gallaway Consulting, Inc. conducted an elderberry (*Sambucus mexicana*) stem count and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) survey within the PG&E line 407 West Natural Gas Transmission Pipeline biological survey area (BSA). The valley elderberry longhorn beetle (VELB) is federally listed as threatened and the US Fish and Wildlife Service (USFWS) has designated critical habitat for this species. Although designated critical habitat for VELB does not occur within the BSA, suitable VELB habitat does occur and was surveyed. Surveys focused on classifying the number of elderberry stems measuring ≥1 inch at ground height, and documenting the presence of VELB.

We detected emergence holes on 43% (10 out of 23 bushes) of mapped elderberry bushes occurring within the BSA. Only clean-cut holes of the proper size and shape were considered to be evidence of VELB habitation. No adult beetles were observed during surveys. The physical condition of the elderberry plants varied from poor to good with overall vegetative condition being good.

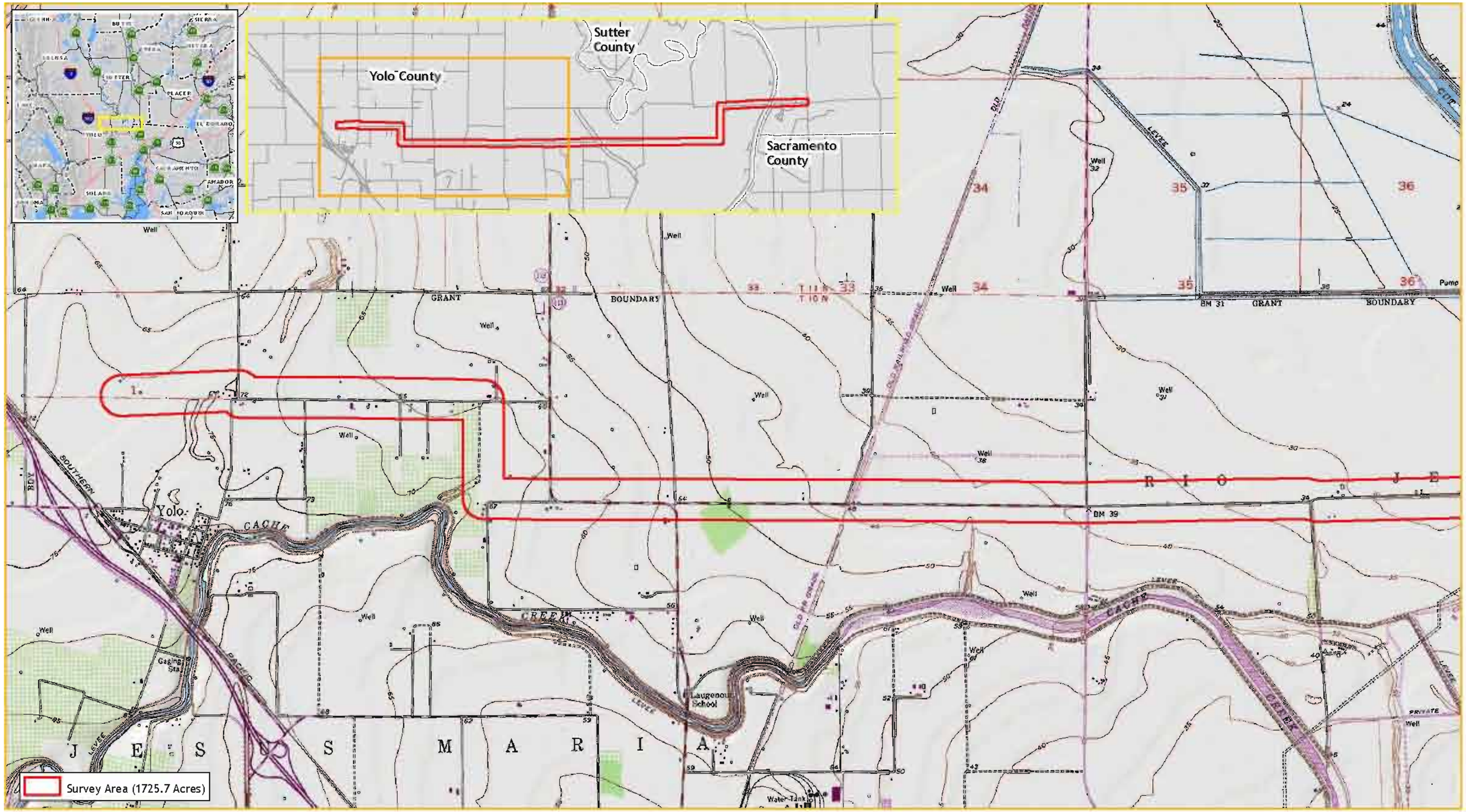
The USFWS considers complete avoidance of elderberry bushes to occur when all project activities remain at a distance greater than 100 feet from existing bushes. Proposed construction activities will occur within 100 feet of elderberry plants and potentially within the minimum 25-foot buffer required by the USFWS. Construction activities that cannot avoid VELB habitat when these buffers are applied will require appropriate mitigation, as set forth in the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999). Section 7 consultation will be required and the U.S. Army Corps of Engineers (USACE) will initiate consultation with the USFWS.

I. Introduction

PG&E is planning to construct the Line 407 West Natural Gas Transmission Pipeline Project (Project) to address the need for additional natural gas supply to serve on-going residential and commercial growth in the greater Sacramento River Valley region within Yolo and Sutter Counties. Line 407 West is one of three natural gas transmission pipeline segments that are planned for construction between 2009 and 2012 to supply natural gas to the region. The project includes approximately 13.5 miles of 30-inch-diameter pipeline operating at 975 pounds per square inch gauge (psig) and transporting up to 180,000,000 cubic feet of natural gas per day between existing Line 172A and the tie-in with proposed Line 407 East near the intersection of Powerline and Riego roads in Sutter County. Line 407 West will run east from Line 172A throughan area rich in agricultural production, and will cross Knights Landing Ridge Cut, the Yolo Bypass, Tule Canal, a number of unnamed irrigation canals, and the Sacramento River.

Gallaway Consulting, Inc. (GCI) performed an elderberry stem count and valley elderberry longhorn beetle (VELB) survey within the Project biological survey area (BSA) in Yolo and Sutter Counties, California (**Figure 1**). Surveys were conducted on May 8 and 14, 2007 and were focused on classifying the number of elderberry stems measuring $\geq$1 inch at ground height, and documenting the presence of VELB emergence holes.

The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is federally listed as threatened and critical habitat has been designated by the USFWS. The beetle is endemic to riparian systems along the margins of rivers and streams, and in adjacent grassy savannas in California's Central Valley. The VELB feed on two species of elderberry including blue elderberry (*Sambucus mexicana*) and red elderberry (*Sambucus racemosa*). The adult female beetle deposits eggs in the crevices of the bark of living plants. The larvae bore into the pith of the larger elderberry stems where the majority of the animal's life span is spent. Following pupation in the spring, the adult beetle emerges, creating a hole in the bark of the stem or branch. Adults feed on foliage and are present from March through early June. Because the adult stage is short lived, survey techniques focus on the presence of emergence holes for evidence of VELB. Emergence holes have been observed in shoots or branches with diameters as small as 0.5 inches (13 mm) but are more common in older, larger branches (DWR 2000). Exit holes are circular or slightly oval and are usually 7-10 mm in diameter. The VELB is the only insect species known to inhabit live elderberry wood and/or make exit holes of a similar size and shape in the Central Valley (USFWS 1991). The VELB is known to occur throughout the California Central Valley and its associated foothills from the valley floor up to 3,000 feet of elevation.



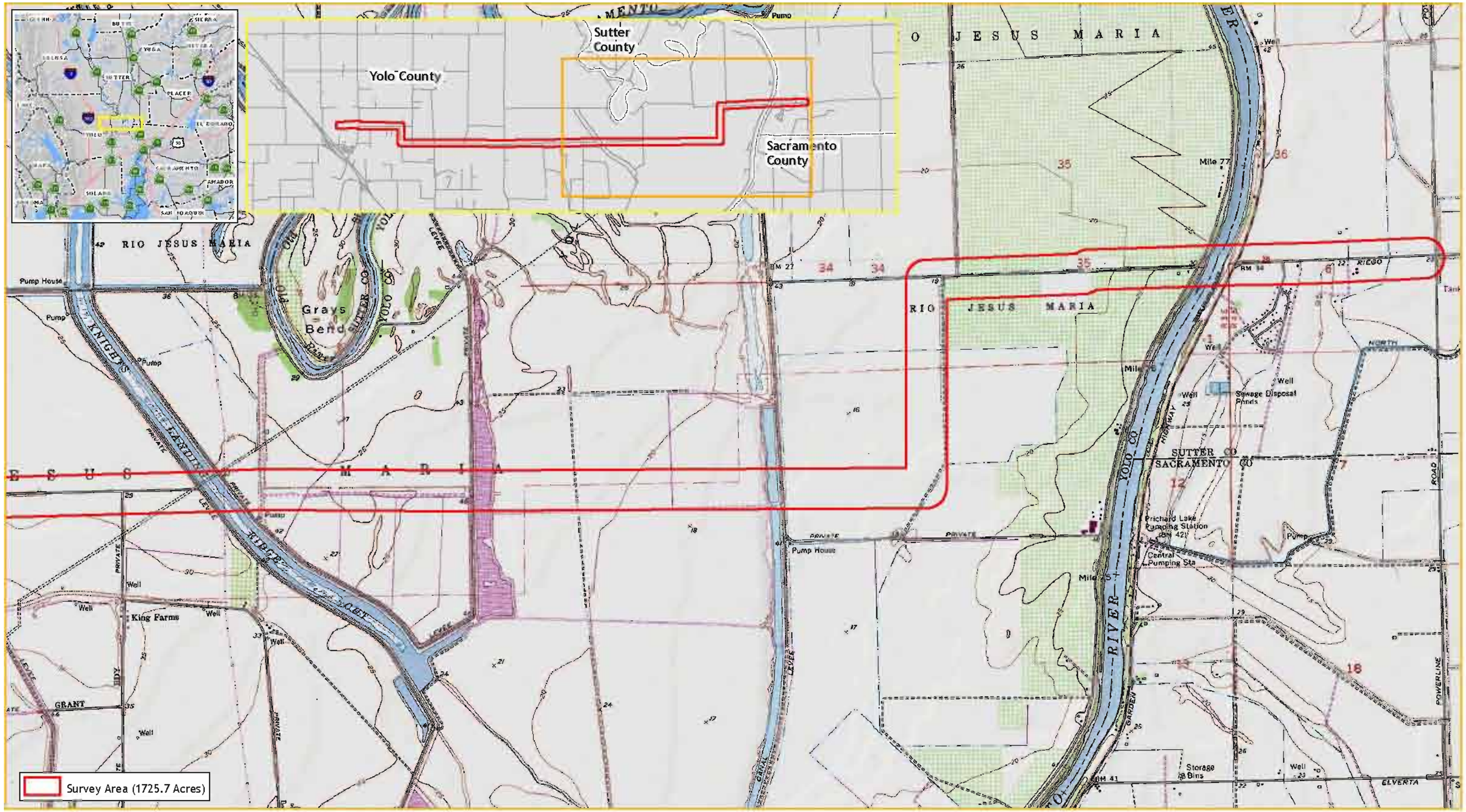
Within the Rio Jesus Maria Land Grant and
Sect 1 of T10N & R1E, Sect 1 of T10N & R2E,
Sects 9, 10, 11, 12 of T10N & R2E, Sects 5, 6 of T10N & R4E
Sect 36 of T11N & R3E, and Sect 31 of T11N & R4E
On El Dorado Bend, Knights Landing, Verona, Woodland,
Grays Bend, and Taylor Monument 7.5' USGS Quads
Map Date 6/29/07

Miles

0 0.5 1

GALLAWAY CONSULTING, INC.

Figure 1a



Within the Rio Jesus Maria Land Grant and
Sect 1 of T10N & R1E, Sect 1 of T10N & R2E,
Sects 9, 10, 11, 12 of T10N & R2E, Sects 5, 6 of T10N & R4E
Sect 36 of T11N & R3E, and Sect 31 of T11N & R4E
On El Dorado Bend, Knights Landing, Verona, Woodland,
Grays Bend, and Taylor Monument 7.5' USGS Quads
Map Date 6/29/07

Miles

0 0.5 1

GALLAWAY CONSULTING, INC.

Figure 1b

II. Study Methods

Survey Area

The study area encompasses a 1725.75-acre corridor of rural, urban, and developed land in portions of Grays Bend, Woodland, Verona, and Taylor Monument USGS 7.5'quadrangles (**Figure 1**). Topography is flat due to historical farming and grading practices with project elevation ranging from 15-125 feet above sea level. Rural residential, agricultural structures, and agricultural fields occupy the extent of the study area.

Field Techniques

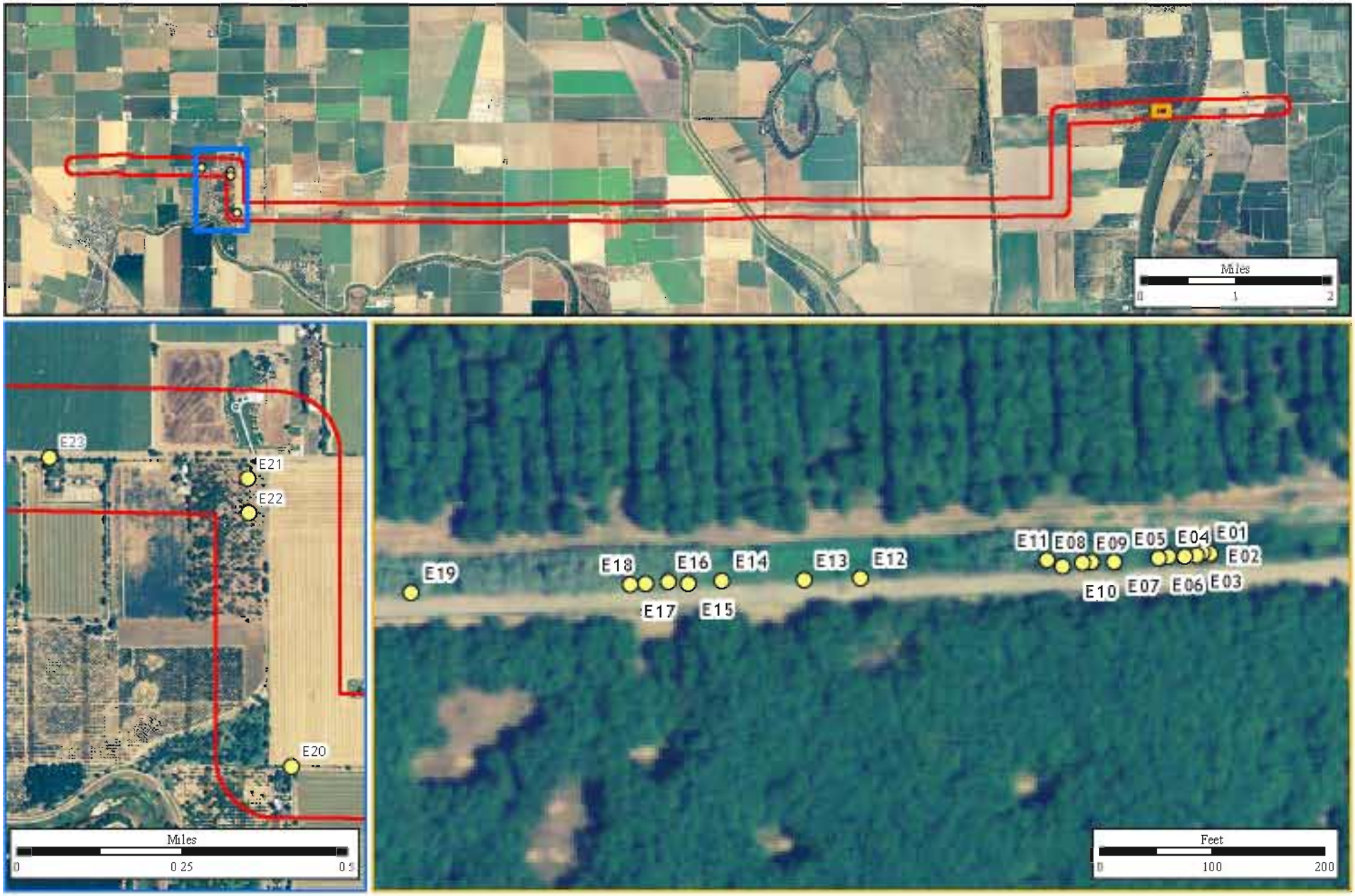
Efforts focused on classifying the number of elderberry stems measuring ≥1 inch at ground height, and documenting the presence of VELB emergence holes. For the purposes of the survey, riparian habitat was defined as habitat occurring within 25-feet of the waterway. A bush was defined as an assemblage of individual elderberry plants, including discrete bush-like groups with multiple shoots/stems/trunks, or larger discrete clumps. Stems of mapped elderberry bushes measuring ≥1 inch at ground height were quantified and examined for evidence of the VELB by scanning the foliage, trunk and branches for exit holes. Binoculars were sometimes used to scan the external canopy of larger, denser stands, while the trunks and branches were checked with the unaided eye.

All holes with the following characteristics were assumed to be VELB emergence holes: 1) recent (i.e. current-year), clean-cut with fresh, light colored wood inside; 2) old (i.e. not made this year), but clean-cut and undamaged, wood inside discolored; 3) partly healed (i.e. hole partially closed by growth); and 4) healed (i.e. hole completely occluded resembling an opening closed by a drawstring), cut-out circle usually still obvious in the bark. Old holes, or holes that were substantially eroded and/or enlarged by other insects, rot, or birds were not counted. Only holes in good condition and of the proper size and shape (i.e., clean-cut, circular or slightly oval, and 7-10 mm in diameter) were recorded as VELB exit holes.

III. Results

Elderberry stem counts and VELB surveys were conducted within the BSA on May 8 and 14, 2007 by Brooks Taylor, biologist, and Elena Alfieri, botanist. Twenty-three elderberry bushes occur within the BSA. Twenty-two elderberry bushes were evaluated for the potential presence of VELB, and one bush (**E23**) was not evaluated for potential presence of VELB due to its location within a homeowners yard. **Figure 2** depicts the location of elderberry bushes in relation to the Project area. Of these 23 bushes, 19 occurred along a canal adjacent to the Sacramento River in riparian habitat and four shrubs were within upland areas, one was inaccessible. Also, the survey area is not within designated critical habitat for VELB.

PG&E Line 407 West **Elderberry Bush Occurrences**



Elderberry surveying by EA, BT
Aerial Feb 2005 (NAIP)
Map Date June 27, 2007

GALLAWAY CONSULTING INC.

Figure 2

Emergence holes were detected on a total of 10 elderberry shrubs within the BSA.

Out of 78 stems ≥1" in diameter at ground height counted, 64% were 1-3", 22% were 3-5" and 14% were >5". Surveys were conducted during the period of adult emergence (March – early June); although, no adult beetles were observed. The physical condition of the elderberry plants varied from poor to good. **Table 1** summarizes the results of the survey. A complete survey summary is presented in **Appendix A**.

Table 1. Number of Elderberry Stems and Emergence Holes Found within the PG&E Line 407 West Natural Gas Transmission Pipeline BSA.

Location (Percent of total)		Number and size class of elderberry stems ≥1" at ground height for all bushes			Total number of VELB emergence holes detected	Total number of elderberry bushes with VELB emergence holes	Percent (%) of elderberry bushes with VELB emergence holes
Riparian	Non-riparian	1-3"	3-5"	>5"			
19	N/A	38	16	11	10	10	53%
N/A	4	12	1	0	0	0	0%

IV. Conclusions and Determinations

In the Sacramento Valley, VELB is closely associated with blue elderberry, which is an obligate host for beetle larvae. The VELB appear to be attracted to "stressed" or unhealthy elderberry bushes (Kellner 1986). Stressed bushes have more yellow in the leaves and have leaves that fall earlier in the year than healthy bushes. Kellner (1986) found that elderberry bushes containing VELB holes appeared to be less healthy and have less foliage than trees without emergence holes.

Besides exhibiting a preference for "stressed" elderberry, VELB prefers bushes with stems of a certain size class. Exit holes have been found more frequently in trunks or branches that are 5 to 20 cm (2-8 in) in diameter (Kellner 1986), or at least 1.0 inch or greater at ground height (USFWS 1999) and less than one meter off the ground (Collinge *et al.* 2001). Research also shows that exit holes more consistently occur in clumps or stands than in isolated bushes (Collinge *et al.* 2001). In two different studies, occurrence frequencies in elderberry by VELB ranged from 20-50% along the American River (USFWS 1984), to usually less than 20% along the Sacramento River (Jones and Stokes 1985). Within the BSA, VELB occurred in 43% of all elderberry bushes surveyed.

Since the spatial distribution of VELB is often minimal (USFWS 1991), the beetle has been assumed to be a poor disperser (Collinge *et al.* 2001). Due to low dispersing ability and naturally low population densities (USFWS 1984), the beetles are thought to be more vulnerable to impacts from habitat fragmentation (USFWS 1999). Thus, non-fragmented stands of elderberry are essential for dispersal corridors for the species and may be necessary to maintain long-term gene flow over large areas.

Threats to the survival of VELB include the alteration and fragmentation of suitable habitat from urban and recreational development. Insecticide use and vegetation control practices may also impact beetle populations (USFWS 1999). In addition, Huxel (2000) postulated that the introduced, invasive Argentine ant (*Linepithema humile*) may exclude or displace populations of VELB from otherwise suitable habitat.

The proposed construction activities will occur within 100 feet of some elderberry plants onsite. Per USFWS 1999 Guidelines, when construction does occur within 100 feet of elderberry plants, where possible a minimum buffer of 25 feet from drip line will be implemented and strictly adhered to and the USFWS will be consulted. Since construction may occur within 25 feet of several elderberry plants impacts to one or several of the plants may occur, and mitigation will be required as set forth in the Guidelines. Section 7 consultation will be required and the U.S. Army Corps of Engineers (USACE) will initiate consultation with the USFWS. All areas to be avoided during construction will be fenced and flagged, and contractors and work crews will be briefed on the need to avoid damaging elderberry during construction and the possible penalties for not complying with these requirements. In areas where elderberry bushes cannot be avoided, they will be transplanted to a suitable area and re-planted along with additional elderberry seedling and associate plantings as described in **Table 2** if required by the USFWS. If construction impacts are of a brief enough duration and the USFWS approves, it may be possible to temporarily remove bushes from direct impact areas and replace them once trenching and installation of the pipeline is complete. Associated native plant and elderberry seedling planting ratios may be required even if impacts to elderberry bushes are temporary.

Table 2. Minimization Ratios Based on Location (Riparian vs. Non-riparian), Stem Diameter of Affected Elderberry Plants at Ground Level, and Presence or Absence of Exit Holes.

Location	Stems (maximum diameter at ground level)	Exit Holes on Shrub Y/N (quantify)[1]	Elderberry Seedling Ratio[2]	Associated Native Plant Ratio[3]
Non-riparian	stems >=1" & =<3"	No:	1:1	1:1
		Yes:	2:1	2:1
Non-riparian	stems >3" & <5"	No:	2:1	1:1
		Yes:	4:1	2:1
Non-riparian	stems >=5"	No:	3:1	1:1
		Yes:	6:1	2:1
Riparian	stems >=1" & <=3"	No:	2:1	1:1
		Yes:	4:1	2:1
Riparian	stems > 3" & < 5"	No:	3:1	1:1
		Yes:	6:1	2:1
Riparian	stems >=5"	No:	4:1	1:1
		Yes:	8:1	2:1

[1] All stems measuring one inch or greater in diameter at ground level on a single shrub are considered occupied when exit holes are present anywhere on the shrub.

[2] Ratios in the Elderberry Seedling Ratio column correspond to the number of cuttings or seedlings to be planted per elderberry stem (one inch or greater in diameter at ground level) affected by a project.

[3] Ratios in the Associated Native Plant Ratio column correspond to the number of associated native species to be planted per elderberry (seedling or cutting) planted.

Mitigation Guidelines

Elderberry bushes impacted as a result of this project will require mitigation consistent with the 1999 *USFWS Conservation Guidelines for Valley Elderberry Longhorn Beetle* (Guidelines). According to the Guidelines, complete avoidance (i.e., no adverse effects) may be assumed when a 100-foot buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level. As a protective measure, all bushes within the project area should be fenced during the course of construction, and clean-up, to prevent disturbance. The USFWS must be contacted if encroachment within the 100-foot buffer is expected, and Section 7 Federal Endangered Species Act consultation is required if elderberry bushes will be disturbed as a result of project activities.

If complete avoidance of elderberry plants is not possible, transplantation may be necessary as prescribed by the Guidelines. However, at the discretion of the USFWS, a plant that would be extremely difficult to move because of access problems may be exempted from transplantation (USFWS 1999). Planting of additional seedlings or cuttings may be required under the mitigation guidelines, depending upon the absence or percentage of elderberry plants with emergence holes found in the project area.

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Appendix A

PG&E Line 407 West Natural Gas Transmission Pipeline
VELB Survey Summary

Number of Elderberry Stems and Emergence Holes for Elderberry Bushes in the PG&E Line 407 West Natural Gas Transmission Pipeline, Yolo and Sutter Counties, California.

Stand ID	Location	Exit Holes on Shrub	Number of Stems			Date Surveyed	Surveyor
		Y/N	1-3"	3-5"	>5"		
1	Riparian	N	4	2	0	5/14/2007	BT
2	Riparian	Y(old)	0	0	1	5/14/2007	BT
3	Riparian	N	3	0	0	5/14/2007	BT
4	Riparian	Y	6	0	1	5/14/2007	BT
5	Riparian	N	2	0	0	5/14/2007	BT
6	Riparian	Y	2	0	1	5/14/2007	BT
7	Riparian	Y	6	3	1	5/14/2007	BT
8	Riparian	N	3	2	0	5/14/2007	BT
9	Riparian	Y	2	1	1	5/14/2007	BT
10	Riparian	Y	2	2	1	5/14/2007	BT
11	Riparian	Y	2	2	2	5/14/2007	BT
12	Riparian	N	1	0	0	5/14/2007	BT
13	Riparian	N	2	0	0	5/14/2007	BT
14	Riparian	N	1	0	0	5/14/2007	BT
15	Riparian	Y	0	0	1	5/14/2007	BT
16	Riparian	N	1	1	0	5/14/2007	BT
17	Riparian	N	1	0	0	5/14/2007	BT
18	Riparian	Y	1	0	0	5/14/2007	BT
19	Riparian	Y	1	3	1	5/14/2007	BT
20	Upland	N	3	0	0	5/14/2007	BT
21	Upland	N	3	0	0	5/14/2007	BT
22	Upland	N	6	1	0	5/14/2007	BT
23*	Upland	*	*	*	*	5/14/2007	BT

* This bush was not evaluated due to its location in a private backyard.

E-12: Line 406/407 Biological Assessment

Biological Assessment
for the
Pacific Gas and Electric Company
Line 406 and Line 407 Pipeline Project

Yolo, Sutter, Sacramento, and Placer Counties, California

May 2008

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Attachment A: Photo Exhibit
Attachment B: PG&E Best Management Practices Manual
Attachment C: USFWS and CNDDB Records
Attachment D: USFWS Comment Letter
Attachment E: Field Survey Reports

EXECUTIVE SUMMARY

Pacific Gas and Electric Company (PG&E) is planning to construct the Line 406 and Line 407 Pipeline Project (project) in California's Central Valley in Yolo, Sutter, Sacramento, and Placer counties to provide greater capacity and service reliability to the existing natural gas transmission and distribution pipeline system and to extend natural gas service to planned residential and commercial developments in the region. This project involves the construction of approximately 40 miles of new 30-inch-diameter and approximately 2.5 miles of 10-inch-diameter natural gas transmission pipeline that will be constructed in three phases: Line 406, Line 407 West, and Line 407 East/Powerline Distribution Feeder Main.

Numerous sensitive and special-status species protected by the Federal Endangered Species Act, the Migratory Bird Treaty Act, and the Natomas Basin Habitat Conservation Plan may exist within the project action area, and may be impacted by project construction activities. Project effects to special-status species and their habitats can be minimized or avoided with the implementation of the recommended construction practices and avoidance measures outlined in this report.

Project construction will result in temporary effects to approximately 455 acres of land including nonnative grasslands, rice fields, irrigated row and field crops, orchards, oak and riparian woodlands, freshwater emergent wetlands, seasonal wetlands and swales, vernal pools and swales, and developed or ornamental habitats. The construction of five permanent structures (pressure limiting, pressure regulating, and metering stations, and main line valve lots) will permanently remove approximately 0.7 acre of grassland habitat and approximately 0.4 acre of agricultural habitat. Approximately 2 acres of orchards will be permanently affected where a 30-foot-wide permanent easement centered on the pipeline will be maintained by PG&E to keep the area free of deep-rooted vegetation for safety purposes. Orchard trees will not be allowed to be replanted in this area. All other project effects will be temporary and all disturbed areas will be restored to preconstruction conditions following installation of the pipeline.

The following determinations have been made for federally listed species, critical habitat, and Essential Fish Habitat with the potential to occur in the project action area:

- Conservancy fairy shrimp (*Branchinecta conservatio*): The proposed project may affect but is not likely to adversely affect the federally endangered Conservancy fairy shrimp.

- Vernal pool fairy shrimp (*Branchinecta lynchi*): The proposed project may affect but is not likely to adversely affect the federally threatened vernal pool fairy shrimp.

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*): The proposed project may affect but is not likely to adversely affect the federally threatened valley elderberry longhorn beetle.

- Vernal pool tadpole shrimp (*Lepidurus packardi*): The proposed project may affect but is not likely to adversely affect the federally endangered vernal pool tadpole shrimp.

- Green sturgeon (*Acipenser medirostris*): The proposed project may affect but is not likely to adversely affect the federally threatened green sturgeon.

- California Central Valley steelhead (*Oncorhynchus mykiss*): The proposed project may affect but is not likely to adversely affect the federally threatened California Central Valley steelhead.

- Critical habitat for the California Central Valley steelhead: The proposed project may affect but is not likely to adversely affect critical habitat for the California Central Valley steelhead.

- Central Valley spring-run chinook (*Oncorhynchus tshawytcha*): The proposed project may affect but is not likely to adversely affect the federally threatened Central Valley spring-run chinook.

- Critical habitat for the Central Valley spring-run chinook: The proposed project may affect but is not likely to adversely affect critical habitat for the Central Valley spring-run chinook.

- Sacramento River winter-run chinook (*Oncorhynchus tshawytcha*): The proposed project may affect but is not likely to adversely affect the federally endangered Sacramento River winter-run chinook.

- Critical habitat for the Sacramento River winter-run chinook: The proposed project may affect but is not likely to adversely affect critical habitat for the Sacramento River winter-run chinook.

- Essential Fish Habitat for chinook salmon: The proposed project may affect but is not likely to adversely affect Essential Fish Habitat for chinook salmon.

- California tiger salamander (*Ambystoma californiense*): The proposed project is likely to adversely affect the federally threatened California tiger salamander.

- Giant garter snake (*Thamnophis gigas*): The proposed project is likely to adversely affect the federally threatened giant garter snake.

- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*): The proposed project may affect but is not likely to adversely affect the candidate for federal listing western yellow-billed cuckoo.

- Bald eagle (*Haliaeetus leucocephalus*): The proposed project may affect but is not likely to adversely affect the federally de-listed bald eagle.

1. INTRODUCTION

Pacific Gas and Electric Company (PG&E) has identified the need for additional natural gas supply to meet load growth from existing customers and new development planned in California's Central Valley within Placer, Sutter, Sacramento, and Yolo counties. To meet this demand, PG&E is planning to construct the Line 406 and Line 407 Pipeline Project (project). This project involves construction of a new natural gas transmission pipeline that will connect PG&E's existing Lines 400 and 401 in Yolo County and existing Line 123 in Placer County, and a new distribution feeder main that will supply natural gas to developments in northern Sacramento County. The project will consist of three main segments: Line 406, Line 407 West, and Line 407 East/Powerline Distribution Feeder Main (DFM).

On behalf of PG&E, TRC prepared this Biological Assessment (BA) to determine to what extent the proposed action may affect any of the federally threatened, endangered, proposed, candidate, or special-status species, critical habitat, Essential Fish Habitat (EFH), or other species protected by the Natomas Basin Habitat Conservation Plan that may occur in the project action area (the project action area is defined in detail in Section 3 below). The purpose of this BA is to review existing resource information; to summarize the results of the field surveys performed in the project area; to determine if species or their habitats addressed in this BA are likely to be adversely affected by construction, operation, or maintenance of the project; and to describe impact avoidance and minimization measures that would reduce or avoid potential adverse project effects to these species and their habitats. This BA has been prepared according to the legal requirements set forth under Section 7 of the federal Endangered Species Act (FESA) (16 U.S.C. 1536 [c], C.F.R. Sec. 402.12), and presents technical information upon which later determinations regarding project effects will be developed for compliance with the California Environmental Quality Act (CEQA).

Rare plant and wetland delineation surveys were conducted by CH2M HILL and Garcia and Associates (GANDA) for the Line 406 project segment. Gallaway Consulting, Inc. (Gallaway) conducted rare plant, valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and wetland delineation surveys in the Line 407 East and West segments. Gallaway conducted wet-season surveys and Brent Helm conducted dry-season surveys for vernal pool invertebrates in the Line 407 East project segment (no suitable habitat was found in other project segments). TRC conducted a habitat assessment for special-status fish species and EFH for all project segments. PG&E biologists conducted reconnaissance-level surveys for amphibian, reptilian, avian, and mammalian species for all project segments. These surveys are described in detail in Section 4 of this report.

2. PROJECT DESCRIPTION

PROJECT LOCATION AND REGIONAL CONTEXT

The proposed Line 406 and Line 407 Pipeline Project is located in California's Central Valley north of the City of Sacramento, and runs from just north of the town of Esparto east to the City of Roseville. It encompasses a distance of approximately 42 miles within the Esparto, Madison, Woodland, Verona, Grays Bend, Taylor Monument, Rio Linda, Citrus Heights, Pleasant Grove,

and Roseville U.S. Geological Survey (USGS) 7.5-minute quadrangles. Land use in the area is predominantly agricultural, though a number of new residential and commercial developments are planned for construction in close proximity to the project. The project area includes Sections 10-12 of Township (T) 10N, Range (R) 1W; Sections 1-3 and 7-10 of T10N, R1E; Section 1 of T10N, R3E; Section 6 of T10N, R4E; Section 36 of T11N, R3E; Sections 31-36 of T11N, R4E; and Sections 31-36 of T11N, R5E (see Figure 1).

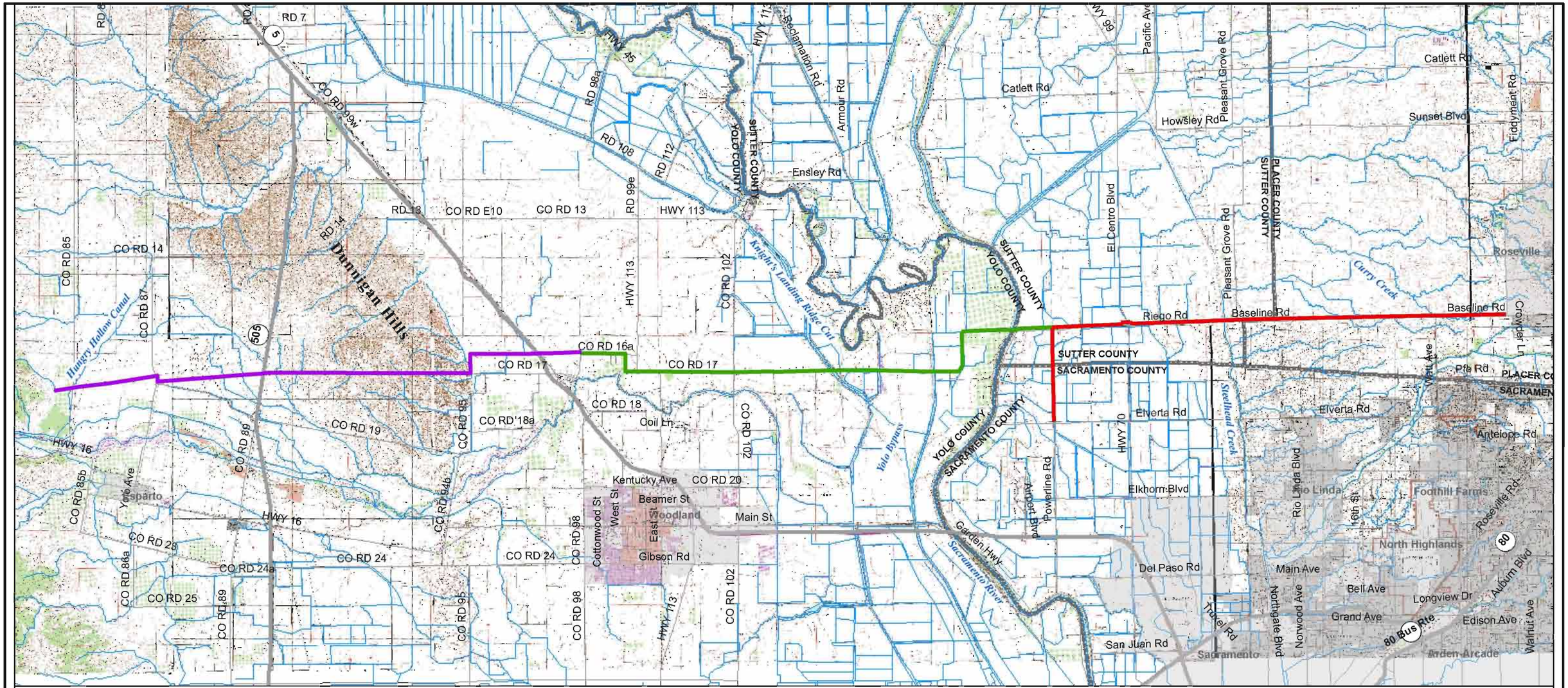
The project area ranges in elevation from approximately 15 - 250 feet, and consists of flat to rolling hill topography (see Attachment A for photos of the project area). The climate in the project area is moderate, with average temperatures ranging seasonally from approximately 33 to 97 degrees Fahrenheit (deg. F), and an average precipitation of approximately 41 inches. The Sacramento River runs north to south through the project area. West of the Sacramento River, row and grain crops, orchards, and annual grasslands in the Dunnigan Hills dominate the landscape, with limited rural development scattered throughout. East of the Sacramento River, the Natomas Basin encompasses an area of agricultural land dominated by rice production. The East Main Drainage Canal (Steelhead Creek) runs along the eastern edge of the Natomas Basin, and separates rice crops to the west from annual grasslands and rural development to the east. Large residential and commercial developments are planned for portions of Sutter County within the Natomas Basin and in the western parts of Placer County that will significantly modify a landscape currently dominated by agricultural use and nonnative annual grasslands.

PROJECT COMPONENTS

The project will consist of approximately 40 miles of 30-inch-diameter pipeline and approximately 2.5 miles of 10-inch-diameter pipeline, and will be constructed in three phases. Line 406 will be approximately 14 miles long and will connect existing Lines 400 and 401 with existing Line 172A in Yolo County. Line 407 West will be approximately 13.5 miles long and will connect Line 172A with future Line 407 East near the junction of Powerline Road and Riego Road in Sutter County. Line 407 East will be approximately 12 miles long and will connect Line 407 West with existing Line 123 in Placer County. The Powerline Road DFM will consist of approximately 2.5 miles of 10-inch-diameter pipeline that will extend south from the connection of Lines 407 East and 407 West down Powerline Road to West Elverta Road. This DFM will supply planned development in northern Sacramento County and will be constructed in conjunction with Line 407 East. These pipeline segments are described in more detail below.

Line 406

The Line 406 project area consists of nonnative grasslands and agricultural lands comprised predominantly of row crops and orchards. The topography of this segment is generally flat with the exception of approximately 4 miles through the Dunnigan Hills, where the topography consists of rolling nonnative grassland hills with a maximum elevation of 250 feet. There are no major rivers that will be crossed by the Line 406 segment, though this segment will cross Hungry Hollow Canal, Goodnow Slough, Acacia Canal, and other smaller irrigation canals and ditches that run perpendicular to the alignment. Scattered oak (*Quercus* spp.) and eucalyptus (*Eucalyptus globulus*) trees that exist in this segment may provide nesting habitat for avian species such as



Line 406 and Line 407 Pipeline Project Figure 1 Overview Map

Line 406
Line 407 West
Line 407 East
Highway
Major Road
Hydrology
County Boundary
Incorporated Area

N W E S

0 4 8 Miles

Scale 1:160,000

BACK PAGE OF FIGURE 1

the Swainson's hawk (*Buteo swainsoni*) that are known to occur in the project area from California Natural Diversity Database (CNDDB) records and field surveys.

Line 407 West

The Line 407 West project segment will span agricultural land made up of row crops and orchards, and will cross three large waterways, including Knights Landing Ridge Cut, the Yolo Bypass, and the Sacramento River. Two conservation areas are also crossed by this segment: the River Ranch Conservation Bank and the Natomas Basin Conservancy. The topography of this segment is flat.

The Yolo Bypass is a flood-control system that covers approximately 93 square miles of land along the west bank of the Sacramento River. This bypass was designed to manage floodwaters from the Sacramento River over a broad floodplain, and shifts annually with the seasons between agricultural production and carrying Sacramento River overflow. The Sacramento River and Yolo Bypass provide important habitat for numerous federally and state-listed fish species, including California Central Valley steelhead (*Oncorhynchus mykiss*), Central Valley fall- and late-fall-run chinook (*Oncorhynchus tshawytscha*), Central Valley spring-run chinook, and Sacramento River winter-run chinook. Some of these species may occasionally stray into Knights Landing Ridge Cut, which connects the Sacramento River and Yolo Bypass, especially during high flows. Additionally, riparian habitat adjacent to these larger waterways may provide nesting and foraging opportunities for avian species such as Swainson's hawk, northern harrier (*Circus cyaneus*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

Line 407 East and Powerline Road DFM

The Line 407 East project segment will cross agricultural land and nonnative grassland, and will also include the Powerline Road DFM that will run entirely through rice fields. These segments are located in Sutter, Sacramento, and Placer counties, and will cross numerous irrigation canals. Additionally, Line 407 East will cross two small intermittent waterways, Steelhead Creek, and Curry Creek.

The Line 407 East segment will be constructed in an area that is planned for major business, industrial, and residential development, including the Sutter Pointe Specific Plan area and the Placer Vineyards Specific Plan, and portions of the line will be constructed in a future landscape buffer adjacent to Riego Road and Baseline Road. Vernal pools in the grasslands of Line 407 East may provide habitat for the Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lapidurus packardi*), and western spadefoot toad (*Spea hammondii*).

Rice fields are located within the Natomas Basin in the western portion of the Line 407 East segment and along the Powerline Road DFM segment, and provide important habitat for the giant garter snake (*Thamnophis gigas*) (GGS) and avian species such as the white-faced ibis (*Plegadis chihi*) that may utilize rice fields for nesting and foraging. Irrigation canals in this project segment may provide basking and foraging habitat for the northwestern pond turtle (*Clemmys marmorata marmorata*).

Additional Project Components

The project will include the construction of additional appurtenances necessary for operation of the four pipeline segments. Five fenced, aboveground pressure limiting, pressure regulating, metering, and main line valve stations will be constructed along Line 406 and Line 407 to ensure that proper pressures are maintained in the transmission system and to reduce the pressure of the gas before delivering it to the distribution pipeline system. These stations will consist of the following:

- The Capay Metering Station will be constructed at the connection of Lines 400 and 401 and Line 406, and will have four sides of approximately 134 feet, 142 feet, 209 feet, and 285 feet in length.

- The Yolo Junction Pressure Limiting Station will be constructed at the connection of Line 406 and Line 172A near Interstate 5 (I-5), and will cover an area of approximately 100 feet by 127 feet.

- The Riego Road Regulating Station will be constructed within a yard measuring approximately 100 feet by 100 feet at the intersection of Riego and Powerline roads.

- The Powerline Road Pressure Regulating Station, near the corner of Powerline Road and West Elverta Road along the Powerline Road DFM, will be constructed in a yard measuring approximately 40 feet by 102 feet.

- The Baseline Road Pressure Limiting Station will be constructed at the connection of Line 407 and Line 123 at Baseline Road and Watt Avenue and will be approximately 84 feet by 145 feet.

Other components necessary to the operation of the pipeline include aboveground line markers and electrolysis test stations.

GENERAL CONSTRUCTION METHODS

Right-of-Way

The 30-inch-diameter pipeline will be constructed within a 100-foot-wide right-of-way (ROW). The ROW will consist of 50 feet of temporary construction workspace and 50 feet of permanent easement. The 10-inch-diameter DFM will be constructed in a 60-foot-wide ROW. The DFM ROW will consist of 25 feet of temporary construction workspace and 35 feet of permanent easement. These rights-of-way will typically provide sufficient space for trenching, pipe stringing, and welding operations, and a passing lane for construction vehicles to pass ongoing construction operations without leaving the ROW. Additional workspace may be required in some places as described below. In certain areas where sensitive environmental or land-use issues are determined to exist, the ROW will be narrowed to avoid these features.

The permanent ROW will be allowed to return to its previous land use following restoration of the workspace in all areas except in a small area of orchard where a 30-foot-wide swath centered

on the pipeline will be kept clear of deep-rooted vegetation (such as orchard trees) for safety purposes.

Pipeline Construction

The natural gas pipeline will be designed to comply with all applicable regulations and ordinances—most notably, California Public Utilities Commission General Order 112E, which incorporates, in its entirety, Department of Transportation (DOT) Code of Federal Regulations (CFR) 49 part 192, "Transportation of Natural or Other Gas by Pipeline: Minimum Federal Safety Standards." Guidelines will be prepared to assist the contractor in the installation of the pipeline and provide quality assurance measures for inspections. All aspects of construction, commissioning, and acceptance testing will be inspected by professional pipeline inspectors. The pipeline installation procedure is a sequence of the following seven operations, described in chronological order.

Clearing and Grading

Clearing and grading operations involve preparation of the ROW, including vegetation removal, debris disposal, and land leveling. Limited grading is anticipated because of the level topography of most of the project area. PG&E will typically strip and salvage topsoil from the entire ROW. Erosion controls will be installed as needed immediately following initial disturbance of the soils and will be maintained throughout construction to contain excavated material within the approved temporary use areas. Methods from PG&E's *Water Quality Construction Best Management Practices Manual* (Attachment B) will be used in construction and maintenance of erosion control and grading activities.

Trenching

Trenching will be accomplished with either a bucket-wheel ditching machine or conventional track-mounted excavators, beginning with removing the topsoil and segregating it on the edge of the ROW for replacement following construction. The excavated subsoil will be maintained in a separate windrow, or linear pile, to be used as trench backfill following installation of the pipe. The trench will be approximately 8 feet deep and typically 4 feet wide in order to maintain a typical minimum of 4 to 5 feet (typically 5 feet in agricultural areas) of cover over the pipe.

Stringing

Stringing operations involve trucking lengths of pipe (joints) to the ROW and positioning the pipe along the ROW with a crane or sideboom, parallel to the centerline of the trench. Temporary gaps in the strung pipe will be maintained for access, as needed.

Pipe Installation

Pipe installation operations involve bending, welding, joint coating, and lowering-in of the pipe. Once bent (if necessary), the pipe joints will be welded together as continuous segments next to the trench. Each weld will be visually inspected and radiographically tested. Prior to lowering-in, the pipe coating will be electronically tested to confirm that it is intact, and will be repaired as

necessary. The excavated trench bottom will be filled with select fine material (fines) to provide bedding for the pipe. Sideboom tractors will be used to lower the welded pipe segments into the trench. Inspections will be made to ensure that the trench is deep enough, the bottom is free of damaging debris, the pipe is properly placed, all bends conform to the trench, and that the external coating is not damaged.

Backfilling

Backfilling the trench involves replacing the excavated subsoil into the trench and re-spreading the topsoil to return the surface to its original grade. In non-agricultural areas, the topsoil may be mounded slightly over the trench to accommodate any future settling of the trench backfill. Backfilling will typically occur within 72 hours of pipeline installation to minimize potential impacts to wildlife that may fall into the trench. At the conclusion of each day's trenching activity, the end of the trench will be left ramped at an approximate 2 to 1 slope to allow any wildlife that may have gotten into the trench to escape. Since bores are done by different crews than the trenching, and on separate schedules, a short portion of the trench will be left open at these and other tie-in locations until work by both crews is complete. A similar wildlife escape ramp will be maintained at these bore sites until all crews have completed their work.

The trench will be backfilled using the material originally excavated from the trench. In rocky areas, a padding machine will be used to sift the fines from the trench spoil windrow. In locations where the originally excavated material is not suitable, granular backfill material from approved borrow sites may be required. All disturbed sites will be restored to original or future grade, with allowance for settling. The criteria for determining potential settling will be based on soil texture, coarse fragment content, and relative compaction.

Hydrostatic Testing

The new pipeline will be strength tested by means of a hydrostatic test. The pipeline will be filled with water pressurized to approximately 1.5 times the operating pressure and held for a minimum of eight hours. Following testing, the pipe is typically flushed to remove dirt and other debris. Test water intake and discharge will be performed in accordance with all applicable regulations and permit requirements. Test water will be discharged at a rate or in a manner that minimizes erosion, using an appropriate energy dissipater.

Restoration

The permanent easement and temporary use areas will be restored. All construction material and debris will be removed and disposed of at appropriate permitted landfills. All work areas will be graded and restored to as close to preconstruction contours as is feasible. PG&E will prepare and implement a postconstruction erosion control and ROW restoration plan.

Additional Construction Considerations

Construction in Rice Fields

Pipeline construction is planned through approximately 7 miles of rice fields in the Natomas Basin, which provide habitat for the federally threatened GGS. Construction in rice fields can

pose significant scheduling challenges because of the active period of the GGS and the flooding regime necessary for rice production. The construction window in GGS habitat set by the U.S. Fish and Wildlife Service (USFWS) is May 1 through October 1, while rice fields are frequently flooded by May 1 or shortly thereafter and may not be harvested until the end of September. To construct the pipeline in the rice fields during the active farming period, the ROW will need to be isolated from the adjacent fields and not flooded. This will be achieved by constructing temporary earthen isolation berms to segregate the active rice fields from the ROW. Ideally, installation of the berms would be performed by the farmers during normal field-preparation activities around late March or early April to avoid disturbance of rice farming activities after the fields have been laid out for the growing season. However, this timing is likely to be prior to the authorized construction season for giant garter snake. Depending on the weather, harvest timing, and property owner cooperation, construction of the berms may be split into two parts to address this scheduling challenge, as described in the following sections.

Fall ROW Isolation

The ROW may be isolated after rice harvest in the fall prior to construction (i.e., September and early October prior to construction the following May) to resolve the scheduling challenge. The edge of the pipeline ROW through rice fields will be adjacent to field edges or canals. The berms may be constructed by pushing up soil from adjacent areas, as is traditionally done, or by using the topsoil removed from the ROW to form them. Where irrigation flows must be maintained across the ROW, rigid culverts will be installed across the full width of the ROW as part of the preconstruction work. Sand bags will be used to seal around the ends of the culvert, thereby isolating the flowing water from the work area while the crossing is trenched.

By having the ROW isolated the prior fall, pipeline construction can begin on May 1 (or as soon as the field is sufficiently dry) without interfering with the rice field preparation, planting, and flooding schedule.

Spring ROW Isolation

If it is not feasible to isolate the ROW in the fall prior to construction, PG&E will work with the farmers to install the berms during their normal field preparation in the spring. If the farmers are not willing or able to install the berms prior to May 1, PG&E may request that they delay field flooding until the berms are installed, or PG&E may request special authorization from the USFWS to have the construction contractor install berms prior to May 1.

All temporary isolation berms and rigid culverts installed to segregate the ROW from flooded rice fields will be removed after the fields have been drained in late August or September following construction.

Dewatering

The portion of the project east of the Sacramento River runs through the Natomas Basin, which has a relatively high water table, and construction activities in this portion of the project are likely to encounter groundwater. Additionally, numerous water features surround the project in the form of irrigation ditches, canals, and creeks, which will require boring or drilling to cross

them with minimal impact. Dewatering will be performed in compliance with the Central Valley Regional Water Quality Control Board General Order for Dewatering and Other Low Threat Discharges to Surface Waters.

Waterbody and Road Crossing Procedures

Specific crossing methods have been identified for most of the water features and roads that will be crossed by Lines 406 and 407. Where water features are open cut, PG&E will employ dry-crossing techniques (flumed or dam and pump around) where water is present. Where feasible and warranted to avoid impacts to resources, bore or horizontal directional drilling (HDD) techniques will be employed (these methods are described in detail below). Table 1 outlines the crossings that will be required for the project.

Major crossings include Interstate Highway 505 (I-505), I-5, Knights Landing Ridge Cut, the two levees of the Yolo Bypass, the Sacramento River, State Route (SR) 70/99, Steelhead Creek/East Levee Road/Western Pacific Railroad, Curry Creek, and sensitive vernal pool complexes in western Placer County. All of these major crossings will be horizontally directionally drilled. Smaller features such as roads, irrigation ditches, canals, creeks, vernal pools, and other natural wetland features will be crossed using conventional open cut or bore techniques, as described in more detail below.

Open Cut

For crossings where it is feasible and all required permits have been obtained, PG&E plans to open cut features such as county roads and smaller irrigation ditches and canals. When water is flowing, water features that are open cut will likely require a dam-and-pump-around setup where the workspace to be trenched is kept dry during construction and water is pumped around the workspace. Open-cut crossings will be trenched, the pipe installed, and the trench backfilled in one day where possible. If open-cut construction of a county road cannot be completed in one day, the trench will be covered with plates during non-working hours until construction is complete.

If construction in a waterway is to take place after May 1 in GGS habitat, workspaces are typically required by the USFWS to remain dry for a minimum of 15 consecutive days prior to excavation or fill, and preconstruction surveys for the snake are typically required before construction can begin.

Bores

Traditional bores are used for crossing short distances (approximately 300 feet maximum) under roadways or smaller waterways. They involve digging a bore pit on one side of the crossing and a receiving pit on the other. The bore pit is excavated to a depth equal to the required depth of the pipeline. A boring machine is then lowered to the bottom of the bore pit and placed on tracks or similar supports. The boring machine cuts a shaft under the crossing using a cutting head mounted on an auger. The auger typically rotates in a casing, or oversized section of pipe, and removes the cuttings of the bore into the bore pit. Once the bore is complete, the pipeline is then pushed through the casing and tied into the other segments of trenched pipeline.

Table 1: Water Feature and Road Crossings

Feature Name or Type [1]	Project Segment/ Crossing #	Proposed Crossing Method [2]	Wetland Feature #/ Wetland Map #
Hungry Hollow Canal	Line 406/#1	Open Cut	Hungry Hollow Canal/ L406 Map 3A
County Road (CR) 85	Line 406/#2	Open Cut	n/a
CR 87	Line 406/#3	Open Cut	n/a
CR 88A	Line 406/#4	Open Cut	n/a
Unnamed Drainage Canal	Line 406/ #5	Open Cut	Unnamed Canal 1/ L406 Map 3D
Unnamed Drainage Canal	Line 406/ #6	Open Cut	Unnamed Canal 2/ L406 Map 3E
Interstate 505/ CR 90A/ Unnamed Drainage Canal	Line 406/#7	Horizontal directional drill (HDD)	Unnamed Canal 3/ L406 Map 3E
Goodnow Slough	Line 406/#8	Open Cut	Goodnow Slough/ L406 Map 3F
Seasonal Wetland Swale/ Erosional Channel	Line 406/#9	Open Cut	Seasonal Wetland Swale #2/ L406 Map 3H
CR 17	Line 406/#10	Open Cut	n/a
CR 96/ Acacia Canal	Line 406/#11	Open Cut	Acacia Canal/ L406 Map 3K
CR 97F/ Interstate 5/ CR 99W/ Railroad	Line 406/#12	HDD	n/a
CR 97	Line 406/#13	Open Cut	n/a
CR 98	Line 407 West/#1	Open Cut	n/a

Feature Name or Type [1]	Project Segment/ Crossing #	Proposed Crossing Method [2]	Wetland Feature #/ Wetland Map #
CR 16A	Line 407 West/#2	Open Cut	n/a
State Route (SR) 113	Line 407 West/#3	Bore	n/a
CR 100	Line 407 West/#4	Open Cut	n/a
CR 101	Line 407 West/#5	Open Cut	n/a
CR 102	Line 407 West/#6	Bore	n/a
CR 17	Line 407 West/#7	Open Cut	n/a
Knights Landing Ridge Cut/ Riparian Wetland/ Unnamed Drainage Canal	Line 407 West/#8	HDD	OW08, OW07, WF121w, OW01/ L407 Map 14
West Levee Yolo Bypass/ Unnamed Irrigation Canal	Line 407 West/#9	HDD	OW19, OW06/ L407 Map 16
East Levee Yolo Bypass/ Tule Canal	Line 407 West/#10	HDD	OW05/ L407 Map 18
Unnamed Drainage Canal in Farm Field	Line 407 West/#11	Open Cut	OW13/ L407 Map 22
Unnamed Drainage Canal at CR 16	Line 407 West/#12	Open Cut	OW14/ L407 Map 23
Unnamed Drainage Canal at CR 16	Line 407 West/#13	Open Cut	OW15/ L407 Map 23
Sacramento River	Line 407 West/#14	HDD	OW22/ L407 Map 25
Riego Road	Line 407 West/ #15	Open Cut	n/a
Unnamed Drainage Canal at Riego Rd.	Line 407 West/#16	Open Cut	NJ04/ L407 Map 26

Feature Name or Type [1]	Project Segment/ Crossing #	Proposed Crossing Method [2]	Wetland Feature #/ Wetland Map #
Powerline Road/ Unnamed Irrigation Canal	Line 407 West/#17	Bore	OW46/ L407 Map 27
Riego Road/ Unnamed Drainage Canal	Powerline Road Distribution Feeder Main (DFM)/#1	Bore	OW122/ L407 Map 27
North Drainage Canal	Powerline Road DFM/#2	HDD	OW44/ L407 Map 28
Unnamed Irrigation Canal at Powerline Road	Powerline Road DFM/#3	Bore	OW38/ L407 Maps 29,30
Unnamed Drainage Canal at Powerline Road	Powerline Road DFM/#4	Open Cut	OW134/ L407 Map 31
Unnamed Irrigation Canal at Powerline Road	Powerline Road DFM/#5	Bore	OW31/ L407 Map 33
West Elverta Road	Powerline Road DFM/#6	Bore	n/a
Unnamed Irrigation Canal at Riego Road	Line 407 East/#1	Bore	OW120/ L407 Map 36
North Drainage Canal	Line 407 East/#2	Bore	OW131/ L407 Map 36
Unnamed Irrigation Canal at Riego Road	Line 407 East/#3	Bore	OW110/ L407 Map 37
SR 70/99/ Unnamed Drainage Canals	Line 407 East/#4	HDD	OW104, OW101/ L407 Map 38
North Main Canal	Line 407 East/#5	Bore	OW129/ L407 Map 39
Pacific Avenue	Line 407 East/#6	Open Cut	n/a

Feature Name or Type [1]	Project Segment/ Crossing #	Proposed Crossing Method [2]	Wetland Feature #/ Wetland Map #
Unnamed Drainage Canal at Riego Road	Line 407 East/#7	Open Cut	OW128/ L407 Map 40
Unnamed Drainage Ditch at Riego Road	Line 407 East/#8	Open Cut	OW127/ L407 Map 41
Seasonal Wetlands	Line 407 East/#9	Open Cut	WF164e, WF162e, WF161e, WF160e, WF159e, WF158e, WF166e, WF157e/ L407 Maps 41, 42
East Levee Road/ Steelhead Creek/ Western Pacific Railroad/ Seasonal Wetland	Line 407 East/#10	HDD	OW176, WF094e/ L407 Maps 42, 43
Seasonal Wetland	Line 407 East/#11	Open Cut	WF155e/ L407 Map 43
Pleasant Grove Road	Line 407 East/#12	Open Cut	n/a
Vernal Pool/ Vernal Swale	Line 407 East/#13	Bore	WF120e, WF119e/ L407 Map 43
Seasonal Wetland	Line 407 East/#14	Open Cut	WF154e/ L407 Map 44
Locust Road	Line 407 East/#15	Open Cut	n/a
Seasonal Wetland	Line 407 East/#16	Open Cut	WF060e/ L407 Map 45
Seasonal Wetland	Line 407 East/#17	Open Cut	WF061e/ L407 Map 45
Seasonal Wetland	Line 407 East/#18	Open Cut	WF062e/ L407 Map 46
Seasonal Wetland	Line 407 East #19	Open Cut	WF179e/ L407 Map 46
Seasonal Wetland	Line 407 East/#20	Open Cut	WF059e/ L407 Map 46
Brewer Road/ Seasonal Wetland	Line 407 East #21	Bore	WF057e/ L407 Map 46

Feature Name or Type [1]	Project Segment/ Crossing #	Proposed Crossing Method [2]	Wetland Feature #/ Wetland Map #
Seasonal Swale	Line 407 East/#22	Open Cut	WF114e/ L407 Map 47
Seasonal Wetland	Line 407 East/#23	Open Cut	WF144e/ L407 Map 47
Riparian Wetland	Line 407 East/#24	Open Cut	WF054e/ L407 Maps 47, 48
Seasonal Swale	Line 407 East/#25	Open Cut	WF050e/ L407 Map 49
Venal Swale/ Seasonal Swale/ Seasonal Wetland/ Vernal Pool	Line 407 East/#26	HDD	WF118e, WF141e, WF048e, WF043e/ L407 Map 49
Seasonal Wetland	Line 407 East/#27	Open Cut	WF048e/ L407 Map 50
Seasonal Wetland/ Seasonal Swale	Line 407 East/#28	Open Cut	WF029e, WF030e/ L407 Map 51
Curry Creek/ Vernal Pool/Vernal Swale	Line 407 East/#29	HDD	OW55, WF180e, WF032e, WF033e/ L407 Map 52
Seasonal Swales	Line 407 East/#30	Open Cut	WF174e, WF173e/ L407 Map 53
Vernal Pool	Line 407 East/#31	Narrow ROW to Avoid	WF167e/ L407 Map 53
Curry Creek/ Vernal Pool Complex	Line 407 East/#32	HDD	WF009e, WF018de, WF011e, WF017e, WF182e, WF183e, WF012e, WF014e/ L407 Maps 53, 54
Seasonal Swale	Line 407 East/#33	Open Cut	WF002e/ L407 Map 54
Seasonal Wetland	Line 407 East/#34	Open Cut	WF007e/ L407 Map 55

[1] Final crossing locations subject to change prior to construction.

[2] Crossing methods will be finalized in coordination with landowners and the appropriate agencies and all permits and easements will be obtained prior to construction. Proposed crossing methods are subject to change if permits cannot be obtained to open cut features.

Jacking is similar to boring except that an open-ended casing is forced, or jacked through, as opposed to drilling. Soils are then removed from the casing. The remainder of the installation procedure is identical to that described for boring.

Horizontal Directional Drill

HDD utilizes a hydraulically powered horizontal drilling rig mounted on a portable steel skid. Support equipment includes a drilling mud tank and a power unit for the hydraulic pumps and mud pumps. The variable-angle drilling unit is adjusted to the proper design angle for the particular bore, and the first and smallest of the cutting heads begins the bore at the surveyed entry point in a small pit on the surface. The first section of drill stem has an articulating joint near the drill cutting head that can be controlled by the bore operator. Successive drill stem sections are added as the drill head makes its way under the crossing. Once the drill head reaches the midpoint and deepest point of the crossing, the drill head is articulated slightly by the operator to begin its upward climb toward the exit point. Once through, a succession of larger cutting heads and reamers are pulled and pushed through the bore hole until it is the appropriate size for the pipeline.

During the HDD, drilling mud is pumped under high pressure through the drill stem to rotate the cutting head and return the soil cuttings to the small pit at the surface entry point. The mud is pumped from this small pit to a processing unit where the cuttings are removed and the mud reused. In certain areas, the geologic strata above the bore may be weak and/or unconsolidated and the high pressure of the drilling mud may result in a fracture of these strata, allowing drilling mud to rise to the surface. The boring operation is stopped immediately when this occurs. This situation is termed a "frac-out" and is usually resolved by reducing the mud system pressure or increasing the mud viscosity.

While the bore is occurring, special armor-coated pipe sections to be pulled through the crossing are strung on pipe supports in the extra workspace along the edge of the ROW, welded, and the joints are coated. Once the bore hole is the correct diameter, a pulling head is welded on the end of this pipeline section, and the pipe is pulled through the bore until it surfaces on the other side. Bulldozers with sidebooms and slings support the pipe as it is slowly pulled through the bore hole. The completed bored crossing is then connected to the trenched pipeline, and the trench tie-in sites are backfilled.

Project Access

The main travel routes that will be used for construction access along Line 406 will include County Road (CR) 85, CR 87, CR 88A, CR 17, CR 19, and assorted smaller roads on the east side of I-5. Travel routes that will be used for construction access along Line 407 will include CR 16, CR 16A, CR 17, Baseline Road, Riego Road, and Powerline Road. Streets and roads perpendicular to these main routes that may also be used to access the project area include Watt Avenue, West Elverta Road, Walerga Road, SR 70/99, and SR 113. Access to the Yolo Bypass may be available from CR 16 adjacent to Grays Bend and the western Yolo Bypass levee road. The primary access for equipment will be along the PG&E ROW or via temporary bridges across canals or other water features. No new roads are expected to be required for the project, though

improvements may need to be made to some of the approaches at road or waterbody crossings such as blading or gravelling.

Short-duration traffic control and small-segment lane closures may occur along Baseline Road, Riego Road, and Powerline Road. The California DOT and the counties of Placer, Sutter, Sacramento, and Yolo will be consulted and all required approvals secured prior to construction activities occurring within any roadways.

Staging Areas

The primary staging areas for vehicles, equipment, materials, and other supplies required for the construction of the pipeline and regulator stations will be on the project ROW within the temporary and permanent easements. If the construction contractors choose to stage materials and/or equipment off of the ROW, they will be responsible for securing suitable space in a commercial yard. While these areas have not been identified, it is expected that staging would require a space of approximately 300 feet by 200 feet. Identification of staging areas will include any necessary environmental reviews and surveys, and notifications to and approvals from all required regulatory agencies.

Additional Work Space

Additional ROW space may be required in areas such as directionally drilled crossings, bore locations, ROW access roads, and as needed for laydown of project materials. During HDD operations, up to 125 feet of additional space is typically needed on the drill entry side, adjacent to the ROW, for a length of 200 feet for the rig setup, mud tanks, and power units. On the exit side of the crossing, an additional 50-foot-wide strip, approximately 1.2 times the length of the crossing, is typically needed to string, weld, and coat the pipe section to be pulled through the drilled crossing. Extra workspaces will be shown on design drawings prior to construction. Based on draft design drawings, acreages of the proposed extra workspaces have been calculated and are included in the summary of temporary impacts in this report (see Section 7). Procedures for identifying and approving additional extra workspace that may be requested by the pipeline contractor will include any necessary environmental reviews and surveys, and notifications to and approvals from all required regulatory agencies.

Pipe Storage Yards

Pending successful negotiations, two locations have been identified for potential pipe storage yards. The Arbuckle Yard (owned and operated by Northern Truck and Crane, Inc.) is south of the town of Arbuckle near the intersection of Old Highway 99W and Eddy Road, and the Woodland Yard is north of the City of Woodland near the intersection of Best Ranch Road and CR 100B. The yards were selected based upon their proximity to the project, major highways, and railroad spurs. Both potential pipe storage yards have rail access and consist of active storage yards or previously disturbed areas that were used for equipment storage or factory operations. Pipe will be delivered by rail to these pipe storage yards in 80-foot joints. The Woodland yard will require grading and fencing prior to use. Soil contamination tests will be performed prior to utilizing the yards as necessary to establish a baseline. The Arbuckle Yard is currently in use as a commercial pipe storage yard and will not need any improvements.

The Arbuckle Yard will be utilized during the Line 406 project and is required from January 2009 to June 2010. The total square footage to be temporarily impacted by the Arbuckle yard is 181,962 square feet. The Woodland yard will be utilized from the Line 407 East and West projects and is required from January 2010 to June 2013. The total square footage to be temporarily impacted by the Woodland yard is 277,049 square feet.

Water Sources and Disposal

Water will be used for HDD operations, hydrostatic testing, and dust control. Traditional sources include public/private water systems via fire hydrants, waterways (canals, creeks, or rivers), or water brought in by truck or storage tanks. Potential sources have been identified and are provided in Table 2. Final sources will be determined after design drawings are completed and hydro test procedures are detailed.

Water utilized in hydrostatic testing will be disposed of using one or more of the following methods: Discharge into sanitary sewer systems, storm drains, drainage ditches, creeks, or rivers (carbon filtering or other form of water conditioning may be required). The method used will be determined by the availability and capacity of the systems in the area, requirements of governing agencies, and condition of the water after hydrostatic testing.

CONSTRUCTION SCHEDULE

Construction of the Line 406 and Line 407 Pipeline Project is scheduled to begin in spring 2009, and may continue through 2012, depending on load growth in the project area. Line 406 will be constructed in 2009. The Line 407 East, Line 407 West, and Powerline Road DFM segments are scheduled to be constructed as dictated by the added load on the transmission system. Current projections are that Line 407 East and the Powerline Road DFM will be constructed between 2009 and 2010. Line 407 West is projected to be constructed between 2010 and 2012.

In the Line 407 East and Powerline Road DFM segments where rice fields provide habitat for the GGS, construction will be conducted between May 1 and October 1, within the work windows outlined by the USFWS. If sensitive environmental resources such as nesting birds are encountered in preconstruction surveys or during construction, construction scheduling in those identified portions of the project may be modified to prevent impacts to sensitive species or sensitive habitat. With the exception of the HDD, construction is expected to be conducted 10 hours per day, 6 days per week, depending on the schedule for the particular phases of construction. HDD operations typically run 24 hours per day to avoid stoppages that may result in the collapse of the hole.

Table 2: Potential Water Sources

Water Source	Location	Line Segment
Natural waterway	Knights Landing Ridge Cut	407 West
Natural waterway	Yolo Bypass	407 West
Natural waterway	Yolo Bypass	407 West
Natural waterway	Sacramento River	407 West
Fire hydrant	Near intersection of Fiddyment and Baseline roads	407 East
Irrigation canal	Northeast corner of West Elverta and Powerline roads	407 East
Irrigation canal	Northeast corner of West Elverta and Powerline roads	Powerline Road Distribution Feeder main
Irrigation canal	Near tie-in of Line 400/401 and Line 406; runs perpendicular to right-of-way	Line 406

OPERATIONS AND MAINTENANCE

Routine maintenance along the majority of the pipeline will consist of quarterly to annual patrolling (e.g., foot or aerial patrol), cathodic protection, and surveys. PG&E will maintain a 50-foot-wide permanent easement along the length of the project, with the exception of the Powerline Road DFM, which will have a 35-foot-wide permanent easement. Vegetation maintenance will be performed as needed to maintain a 30-foot-wide corridor centered on the pipe that is free of deep-rooted plants. Because the majority of the route is grassland and row crops or rice fields, very few areas are expected to require vegetation maintenance by PG&E.

3. DESCRIPTION OF ACTION AREA

The project action area includes the ROW and the full extent of additional space that may be directly or indirectly affected by project construction. This includes a 100-foot ROW consisting of 50 feet of temporary construction workspace and 50 feet of permanent easement for the 30-inch segments of pipeline, and a 60-foot ROW consisting of 25 feet of temporary construction workspace and 35 feet of permanent easement for the 10-inch segment of pipeline, in addition to all extra workspace areas necessary for laydown of materials, maneuvering of construction vehicles, and access to and from the ROW. The action area also includes areas outside of the ROW that support special-status species that could potentially be affected by project construction activities if significant amounts of contaminants, sedimentation, noise, or air pollution are carried beyond the ROW. These areas include nesting trees within 0.25 mile (1320 ft.) of the ROW, vernal pools within 250 ft. of the ROW, GGS upland habitat within 250 ft. of the ROW, and water up to 1000 ft. downstream of the project ROW that has the potential to support special-

status fish, critical habitat, or EFH for chinook salmon. It is not anticipated that direct or indirect effects resulting from project construction or operation will extend beyond this action area.

To delineate the project action area, local topography, hydrology, special-status species populations, and potential project effects were considered. The topography of the project area is relatively flat with the exception of the Dunnigan Hills, which have rolling hills. Water features in the project area that extend the action area beyond the ROW include the Sacramento River, the Yolo Bypass and Tule Canal, Knights Landing Ridge Cut, Goodnow Slough, Hungry Hollow Canal, Steelhead Creek, Curry Creek, a large matrix of irrigation canals in the Line 407 East and Line 407 West project segments, seasonal wetland features in the Dunnigan Hills, and vernal pools and swales in the Line 407 East project segment.

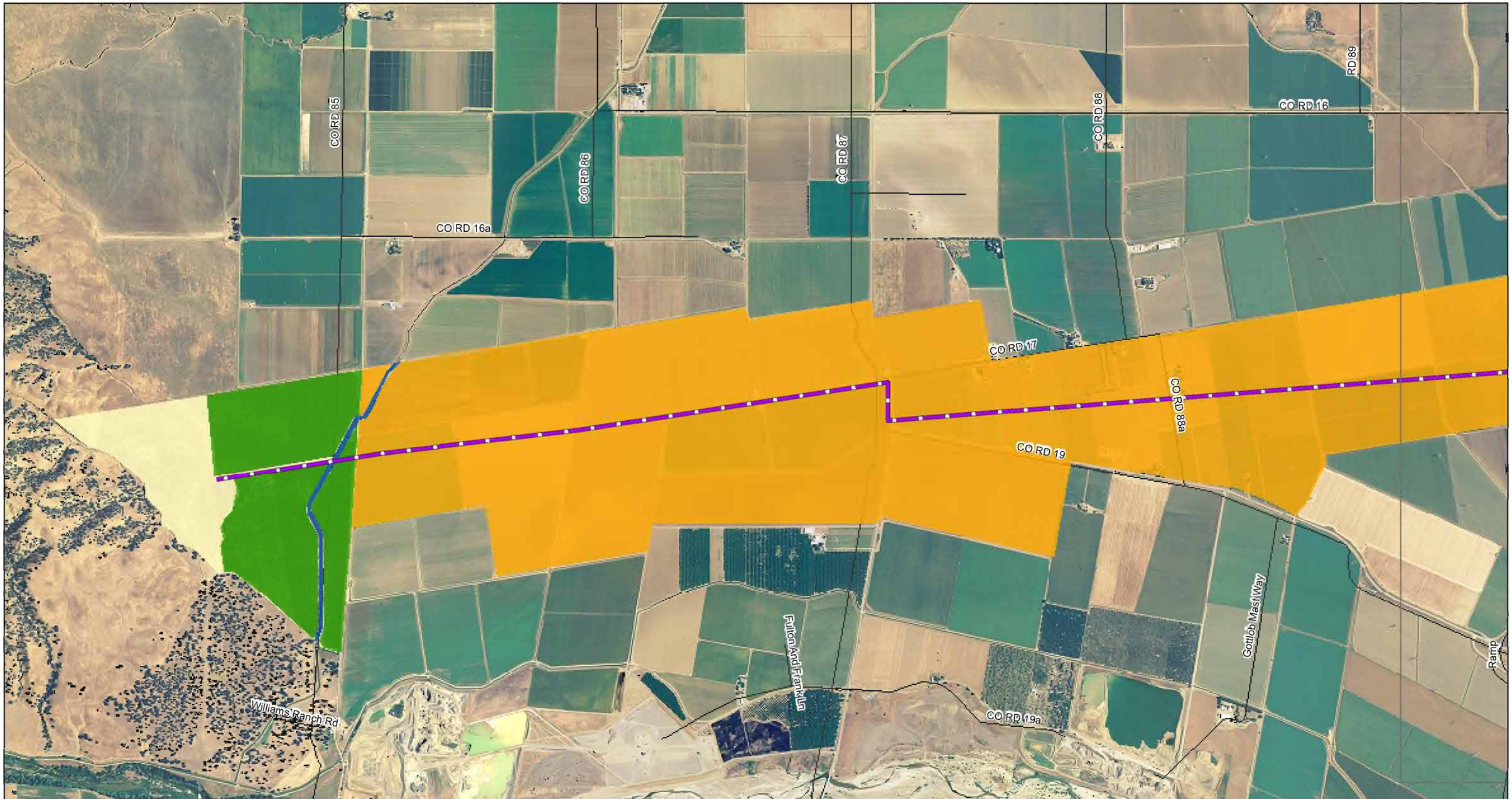
VEGETATION COMMUNITIES AND HABITAT TYPES

Plant communities and habitat types were mapped within a 1,000-foot study area centered on the proposed alignment of the pipeline. This study area was intended to cover all ROW adjustments, extra workspaces, and minor alignment modifications. Preconstruction surveys may be required to identify the location of special-status species habitat outside of the 1,000-foot study area but within the action area (e.g., nesting trees with active nests). Figures 2A-2G show the habitat characterization of the study area. The habitat types that were identified in the study area are described in detail below, based on Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986) and the California Department of Fish and Game's *California Wildlife Habitat Relationship System* (2006b).

Agricultural Lands

Agricultural production in the project area includes orchards, row crops, and rice fields. Orchards can be found in the western portion of the Line 406 segment west of I-505, and in the Line 407 West segment west of the Sacramento River. Row crops exist predominantly in the Line 406 and Line 407 West segments, though small plots of row crops can also be found in the Line 407 East segment. Rice fields exist in the Line 407 West and Line 407 East/ Powerline Road DFM segments within the Natomas Basin between the Sacramento River and Steelhead Creek.

Agricultural fields provide habitat for a number of special-status species that have become accustomed to the consistent disturbance associated with farming. Swainson's hawk and other raptor species utilize agricultural fields for foraging and may nest in adjacent trees where prey is abundant. There are numerous CNDDB records for Swainson's hawk within 0.25 mile of the Line 406 and Line 407 project alignment. Mountain plovers (*Charadrius montanus*) often utilize freshly plowed fields for foraging, and northern harriers have been observed foraging over agricultural fields in the project area. Other resident and migratory avian species also forage and nest in or adjacent to agricultural areas. Canals associated with agriculture and other aquatic habitat such as that found in rice provide foraging, breeding, cover, and basking habitat for the GGS.



PG&E
TRC

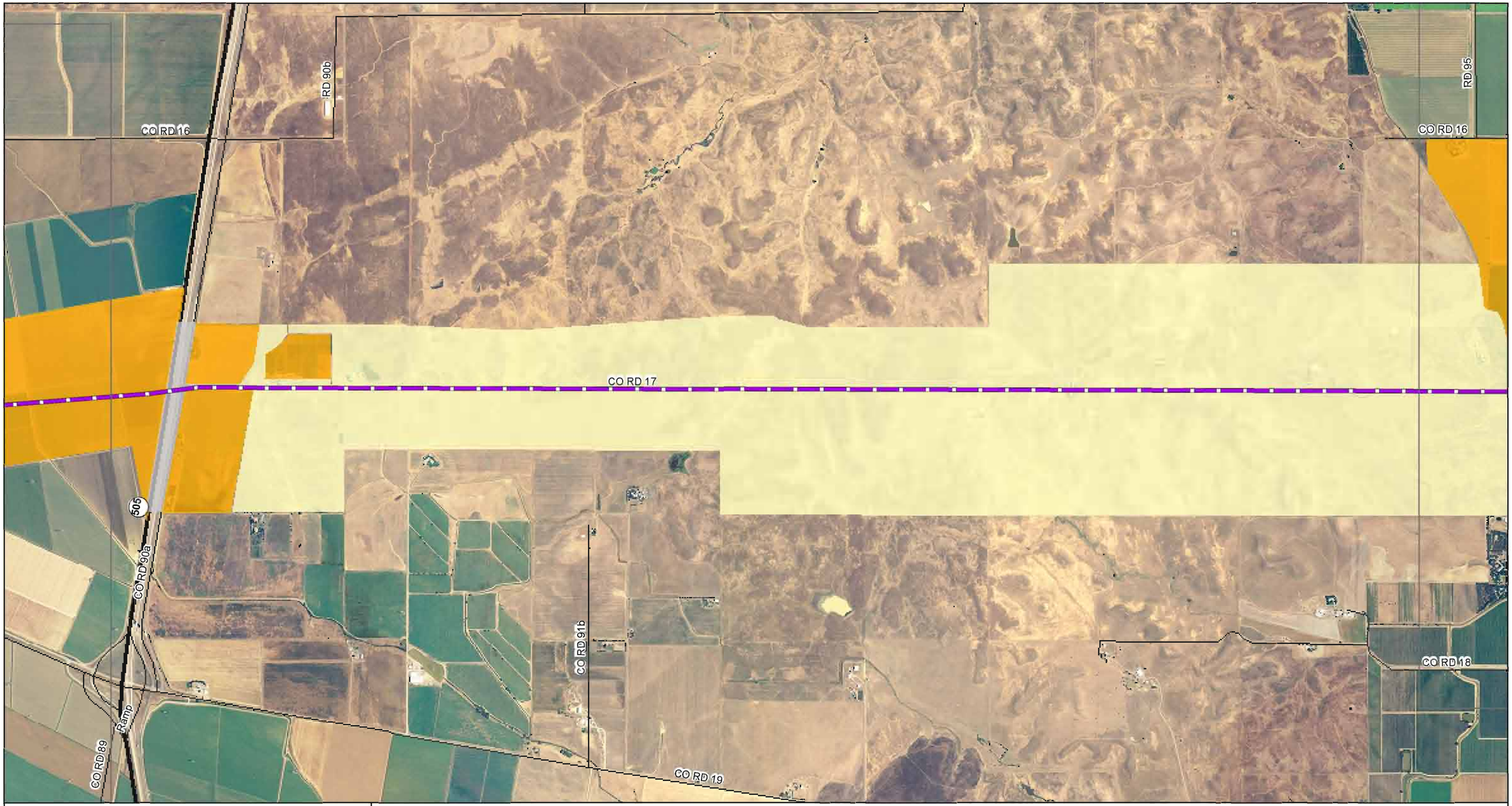
Line 406 and Line 407 Pipeline Project
Figure 2A
Habitat Map

- Proposed Pipeline
- Row Crops
- Annual Grassland
- Riverine
- Developed
- Wetland
- Orchard
- Rice
- Riparian Woodland
- Oak Woodland

N W E S

0 0.5 1 2 Miles

Scale 1:24,000



PG&E
TRC

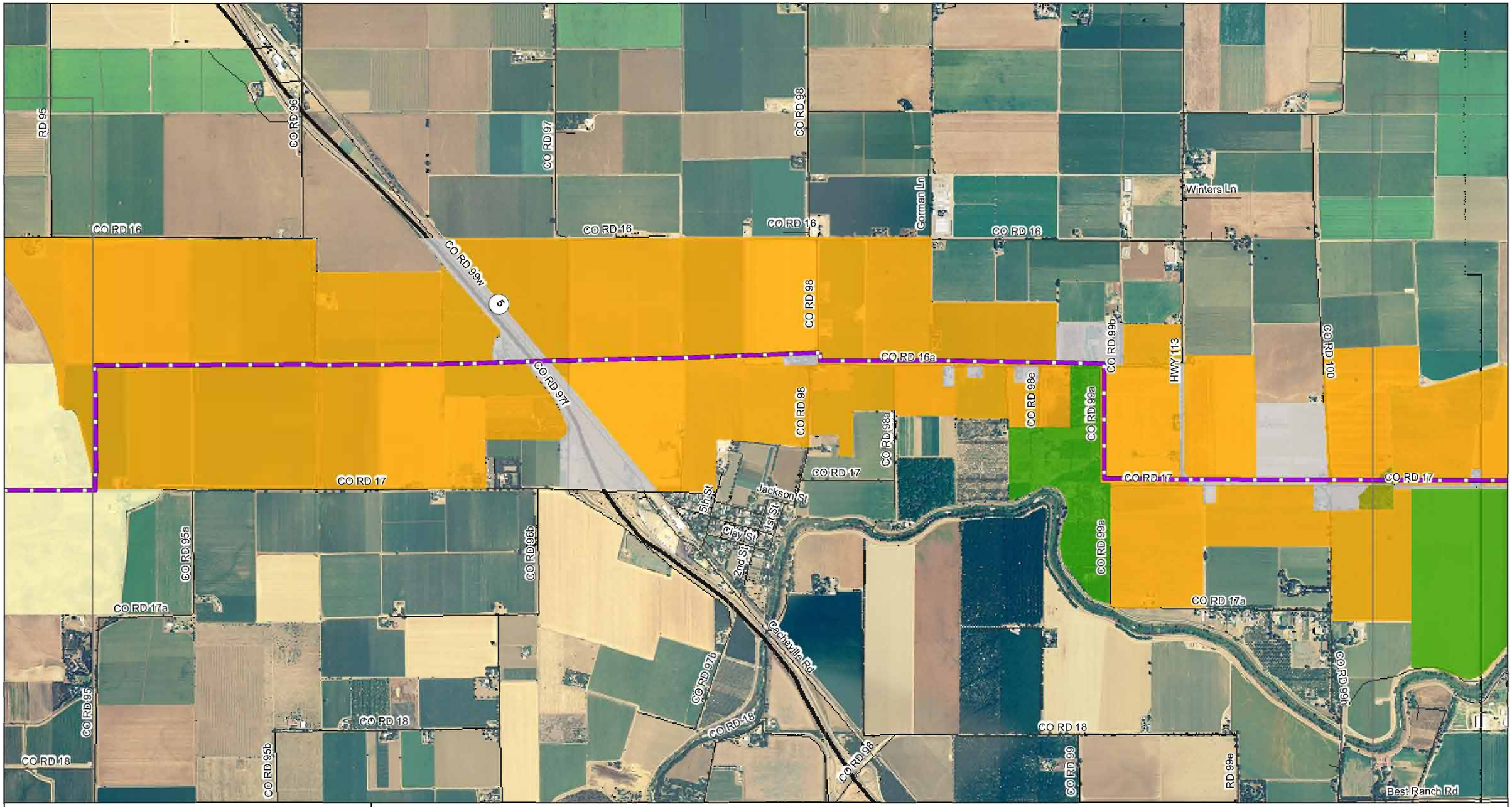
Line 406 and Line 407 Pipeline Project Figure 2B Habitat Map

- Proposed Pipeline
- Row Crops
- Annual Grassland
- Riverine
- Developed
- Wetland
- Orchard
- Rice
- Riparian Woodland
- Oak Woodland

N W E S

0 0.5 1 2 Miles

Scale 1:24,000



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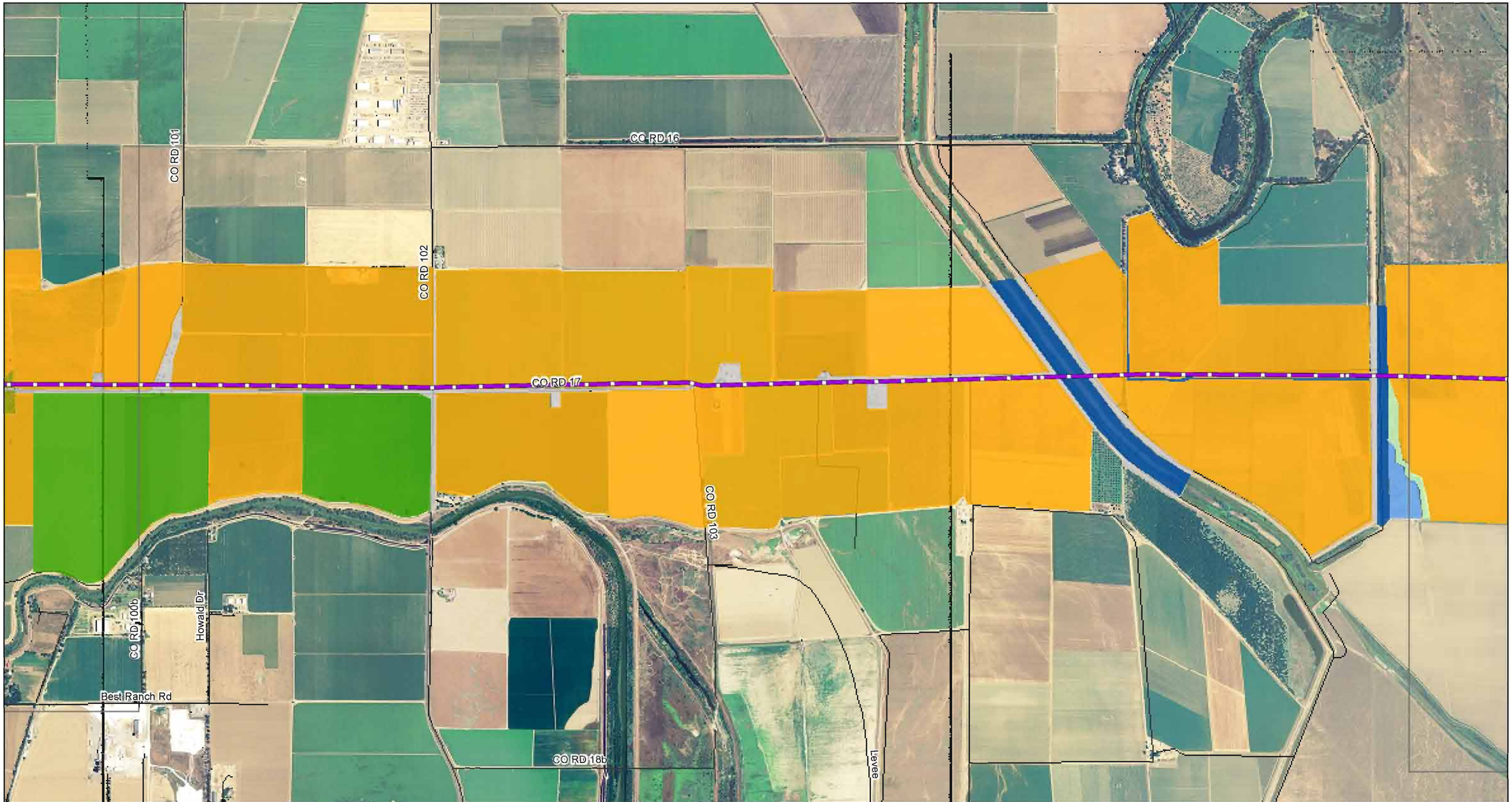
Line 406 and Line 407 Pipeline Project
Figure 2C
Habitat Map

- Proposed Pipeline
- Row Crops
- Annual Grassland
- Riverine
- Developed
- Wetland
- Orchard
- Rice
- Riparian Woodland
- Oak Woodland

N W E S

0 0.5 1 2 Miles

Scale 1:24,000



PG&E
TRC

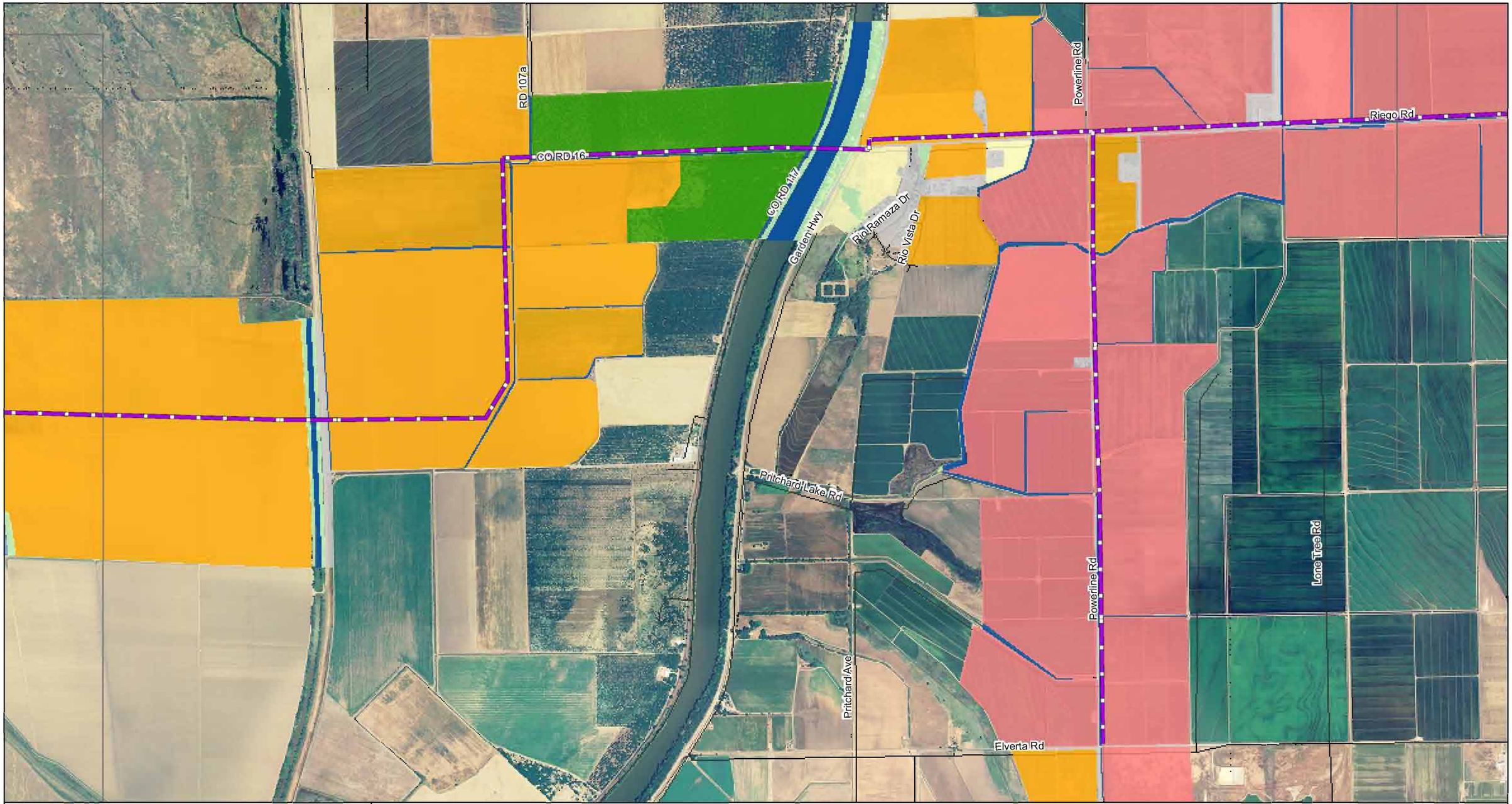
Line 406 and Line 407 Pipeline Project Figure 2D Habitat Map

- Proposed Pipeline
- Row Crops
- Annual Grassland
- Riverine
- Developed
- Wetland
- Orchard
- Rice
- Riparian Woodland
- Oak Woodland

N W E S

0 0.5 1 2 Miles

Scale 1:24,000



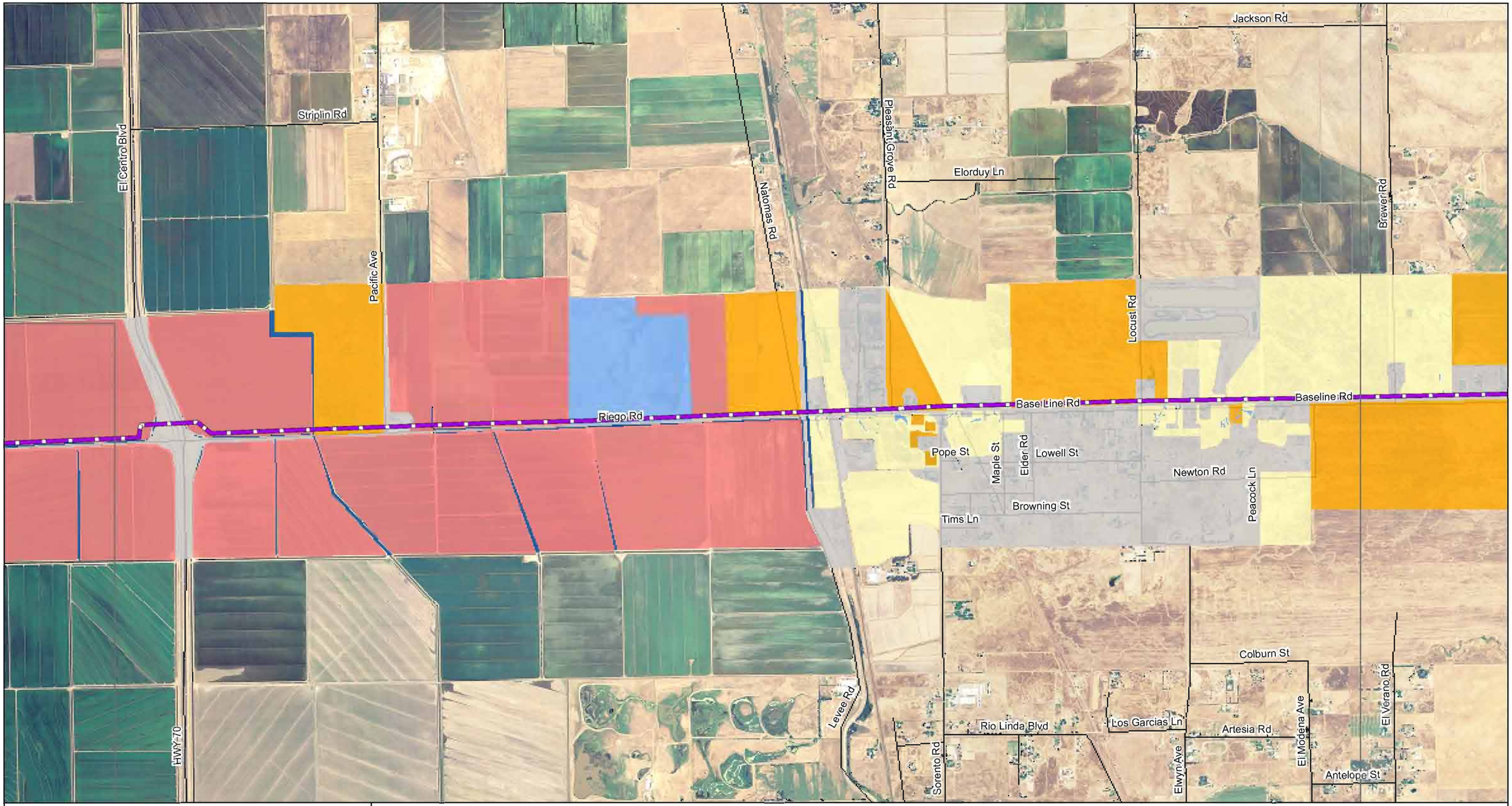
Line 406 and Line 407 Pipeline Project
Figure 2E
Habitat Map

- Proposed Pipeline
- Row Crops
- Annual Grassland
- Riverine
- Developed
- Wetland
- Orchard
- Rice
- Riparian Woodland
- Oak Woodland

N W E S

0 0.5 1 2 Miles

Scale 1:24,000



PG&E
TRC

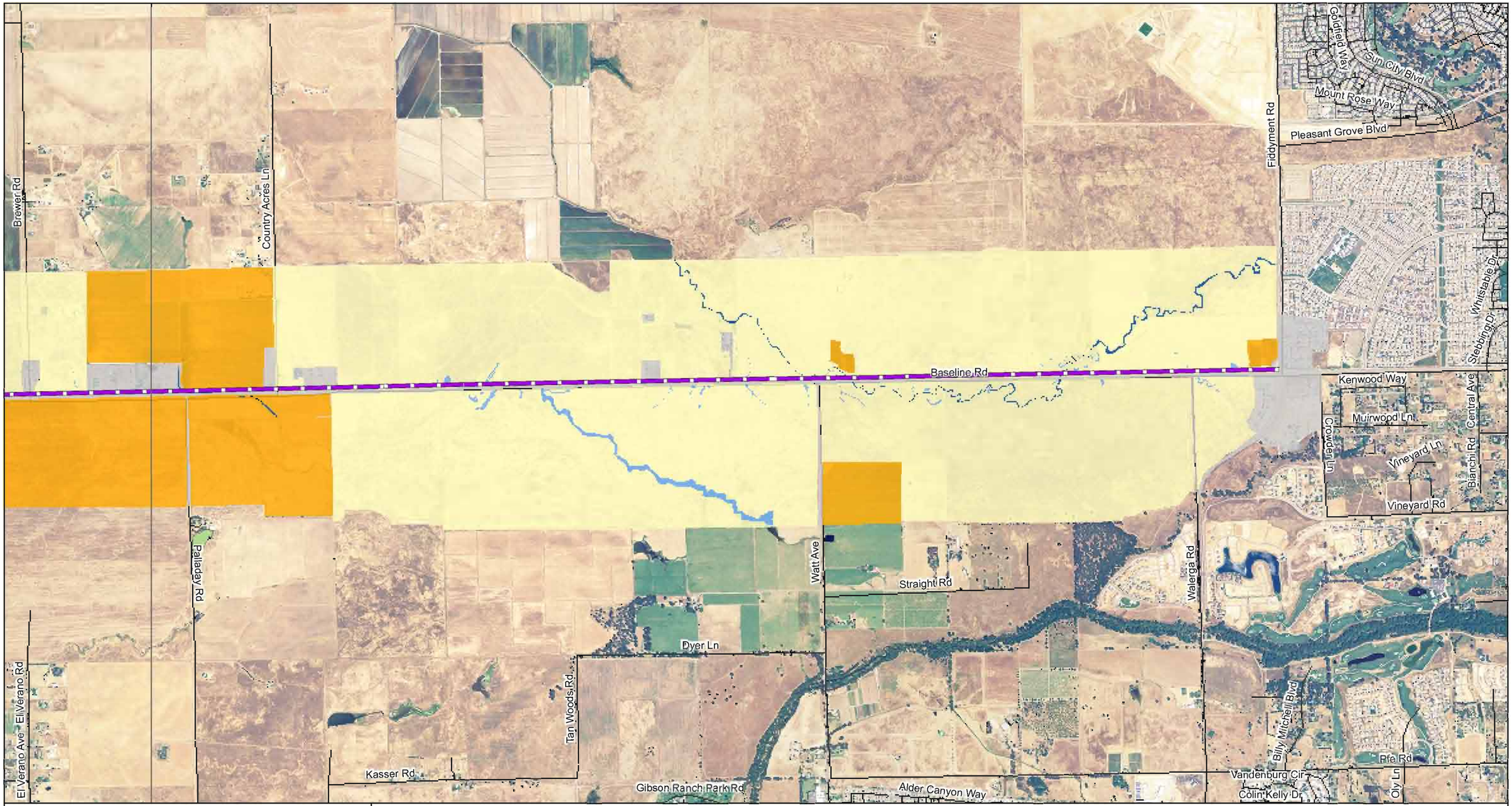
Line 406 and Line 407 Pipeline Project
Figure 2F
Habitat Map

- Proposed Pipeline
- Row Crops
- Annual Grassland
- Riverine
- Developed
- Wetland
- Orchard
- Rice
- Riparian Woodland
- Oak Woodland

N W E S

0 0.5 1 2 Miles

Scale 1:24,000



Line 406 and Line 407 Pipeline Project
Figure 2G
Habitat Map

- Proposed Pipeline
- Row Crops
- Annual Grassland
- Riverine
- Developed
- Wetland
- Orchard
- Rice
- Riparian Woodland
- Oak Woodland

N W E S

0 0.5 1 2 Miles

Scale 1:24,000

Annual Grasslands

Grasslands in California are characterized by a diverse composition of native and introduced species of grasses, native wildflowers, and weedy annual forbs. In central California, grasslands occur on coastal terraces, valleys, and hillsides in areas where soil moisture is adequate in spring to support grasses and other shallow-rooted plants but generally becomes too dry in the summer to support woodlands. Characteristic species of annual grassland habitat include wild oat (*Avena* spp.), soft chess (*Bromus mollis*), wild rye (*Lolium perenne*), lupine (*Lupinus* spp.), owl's clover (*Orthocarpus densiflorus*), redstem filaree (*Erodium cicutarium*), and burclover (*Medicago hispida*).

Plant species inhabiting the annual grassland within the study area include silver European hairgrass (*Aira caryophyllea*), annual oatgrass, star-thistle (*Centaurea solstitialis*), bindweed (*Convolvulus arvensis*), nit grass (*Gastridium ventricosum*), gumplant (*Grindelia* spp.), Fitch's tarweed (*Hemizonia fitchii*), soft chess, Medusa-head grass (*Taeniatherum caput-medusae*), and vinegar weed (*Trichostema lanceolatum*). Much of the grassland has been disced, plowed, and/or graded for various agricultural uses, or has been disturbed as a consequence of urbanization.

Grasslands often provide important habitat for a variety of wildlife species. Raptors, including red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk, white-tailed kite (*Elanus leucurus*), barn owl (*Tyto alba*), American kestrel (*Falco sparverius*), northern harriers, and others commonly use open grassland areas for foraging purposes, while species such as western meadowlark (*Sturnella neglecta*) and burrowing owl (*Athene cunicularia*) use open grassland areas for nesting. Reptiles that commonly breed within grassland habitat include western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis melanoleucus*), and western rattlesnake (*Crotalus viridis*). Mammals in grassland include the coyote (*Canis latrans*) and California ground squirrel (*Spermophilus beecheyi*).

Annual grasslands exist in the Dunnigan Hills area in the Line 406 project segment and in the Line 407 East project segment east of Steelhead Creek. Grasslands with ephemeral creeks in the Dunnigan Hills may provide habitat for the American badger (*Taxidea taxus*), California tiger salamander (*Ambystoma californiense*) (CTS), and western spadefoot toad, in addition to a number of sensitive raptor species that forage for lagomorphs and other small mammals in the area. Burrowing owls may utilize the extensive network of ground squirrel burrows in the Dunnigan Hills for nesting and rearing of young. Grasslands in the eastern portion of Line 407 East include numerous seasonal wetland features that may support listed vernal pool invertebrate species, but are not likely to support large numbers of burrowing mammals or the avian species that forage on them or utilize their burrows due to a hardpan soil layer that underlies the area and makes burrowing difficult.

Developed/Ornamental

Developed/ornamental habitat includes commercial and residential development and associated infrastructure, and is commonly landscaped with nonnative ornamental species. Though this habitat type does not typically host many native species, a number of wildlife species commonly utilize developed/ornamental habitat for foraging and roosting, and may even nest in ornamental

trees or under bridges and other urban structures. Species typically associated with the urban environment include scrub jay (*Aphelocoma californica*), raccoon (*Procyon lotor*), European starling (*Sturnus vulgaris*), mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), striped skunk (*Mephitis mephitis*), opossum (*Didelphis virginiana*), and rock dove (*Columba livia*). Other bird and bat species may also utilize developed/ornamental habitats for foraging, roosting, and/or nesting.

Developed/ornamental habitat exists throughout the project area, but is concentrated most heavily east of Steelhead Creek where houses and small businesses line Riego and Baseline roads. Developed/ornamental habitat in the rest of the project area is limited to scattered rural development and agricultural structures.

Oak Woodland

Oak woodlands can range from very open savanna-type woodlands to oak forests with nearly complete canopies. Denser stands typically grow in valley soils along natural drainages. Tree density decreases with the transition from lowlands to the less fertile soils of drier uplands. Forested oak woodlands usually have thick duff layers, and understory vegetation is often largely absent or typified by deciduous shrubs and herbaceous species.

This woodland type is dominated by a variety of trees, including valley oak (*Quercus lobata*), California sycamore (*Platanus racemosa*), Hinds black walnut (*Juglans hidsii*), boxelder (*Acer negundo*), and blue oak (*Quercus douglasii*). The understory is dominated by California rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), everlasting (*Gnaphalium* spp.), snowberry (*Symphoricarpus* spp.), and toyon (*Heteromeles arbutifolia*). Various sorts of wild oats, brome (*Bromus* spp.), barley (*Hordeum vulgare*), ryegrass (*Lolium* spp.), and needlegrass (*Nassella* spp.) dominate the ground cover.

Oak woodlands in the Central Valley are often found below 2,000 feet adjacent to annual grasslands or agricultural lands. Oaks provide food, cover, and nesting habitat for many species of wildlife. Typical bird species that utilize oak woodlands include European starling, California quail (*Callipepla californica*), oak titmouse (*Baeolophus inornatus*), California towhee (*Pipilo crissalis*), scrub jay, acorn woodpecker (*Melanerpes formicivorus*), nuthatches (*Sitta* spp.), western bluebird (*Sialia mexicana*), red-shouldered hawk (*Buteo lineatus*), Swainson's hawk, and other raptors. Typical mammals found in oak woodlands include western gray squirrel (*Sciurus griseus*), bats, mule deer (*Odocoileus hemionus*), and California ground squirrel.

Two small stands of oak woodland exist in the Line 407 West project segment west of Knights Landing Ridge Cut along CR 17.

Riparian Woodland

Riparian habitat supports a great diversity of natural communities that provide foraging and nesting opportunities for special-status species, and is often associated with areas that experience flooding from the adjacent waterways. Trees and shrubs in riparian communities are tolerant of these seasonal flooding and high groundwater conditions, and include valley oak and Fremont

cottonwood (*Populus fremontii*) within the project area. Understory conditions are highly variable, but can include annual grasses or emergent wetland vegetation. Understory shrubs may include assorted willow (*Salix* spp.), poison oak, California blackberry (*Rubus ursinus*), Himalayan blackberry (*Rubus discolor*), California rose, and elderberry shrubs, the host plant of the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB).

Riparian woodlands provide abundant food, cover, and breeding sites for wildlife in close proximity to water. These factors and the structural diversity of riparian woodland are largely responsible for the high productivity of this habitat. Bird species commonly found in this habitat include black phoebe (*Sayornis nigricans*), California quail, mourning dove (*Zenaida macroura*), western wood-pewee (*Contopus sordidulus*), California towhee, and song sparrow (*Melospiza melodia*). Riparian woodlands also provide important feeding, resting, and nesting habitat for neotropical migrant songbirds, such as grosbeak (*Pheucticus* spp.), vireo (*Vireo* spp.), warbler (*Phylloscopus* spp.), and flycatcher (*Empidonax* spp.).

Amphibians and reptiles likely to occur in this community include western fence lizard, Pacific tree frog (*Hyla regilla*), California king snake (*Lampropeltis getula californiae*), valley garter snake (*Thamnophis sirtalis fitchi*), and Gilbert's skink (*Eumeces gilberti*). Mammals that are typically found within riparian woodland habitat may include opossum, raccoon, deer mouse (*Peromyscus maniculatus*), broad-footed mole (*Scapanus latimanus*), striped skunk, and gray fox (*Urocyon cinereoargenteus*).

Riparian woodland is primarily found adjacent to the Sacramento River, Yolo Bypass, Knights Landing Ridge Cut, and other larger waterways in the project action area.

Riverine

The riverine classification includes rivers and canals where water flows continually, as well as intermittently flowing creeks and canals. Riverine habitats tend to occur with contiguous wetlands and upland habitats, and have the potential to support special-status aquatic species, including fish, amphibians, and reptiles. They also provide foraging habitat for a variety of waterfowl, and numerous other species rely on these areas for drinking water. Tricolored blackbird (*Agelaius tricolor*), bank swallow, and burrowing owl may nest along the banks of riverine habitats.

Riverine habitat exists in the Sacramento River, Tule Canal, Knights Landing Ridge Cut, Spangler Canal, Steelhead Creek, Curry Creek, and in several small, unnamed intermittent channels within the project area. Much of the riverine habitat in the project action area experiences seasonal flow, including Knights Landing Ridge Cut, Tule Canal (and Yolo Bypass), Steelhead Creek, and Curry Creek. Riverine habitat with limited seasonal flows is not likely to support special-status fish during the proposed construction periods for the project due to poor water quality and high temperatures, though special-status fish species may occur in these areas during wet months when flows allow the fish access to the project area and water quality is suitable to their survival.

Wetlands

Wetland habitat in the project area consists of freshwater emergent wetlands, seasonal wetlands and swales, and vernal pools and swales. These different wetland types are described below.

Freshwater Emergent Wetlands

Many of the irrigation and drainage canals in the project area support freshwater emergent wetlands along their edges, which include species such as cattail (*Typha* spp.), vervain (*Verbena* spp.), yellow nutsedge (*Cyperus esculentus*), tall cyperus (*Cyperus eragrostis*), and floating primrose willow (*Ludwigia peploides*). Steelhead and Curry creeks also support small, narrow bands of freshwater emergent wetland, which become especially apparent in the dry season when water flows subside and only ponded sections of water remain. Canals and freshwater emergent wetlands may support nesting and foraging activities of numerous special-status species, including the northwestern pond turtle, GGS, tricolored blackbird, greater sandhill crane, white-faced ibis, and bank swallow (*Riparia riparia*).

Seasonal Wetlands and Swales

Seasonal wetlands and swales are shallow depressions that include three defining characteristics: hydrophytic vegetation, hydric soils, and hydrology (i.e., ponding). These features allow water to pond for a long enough period of time to support hydrophytic vegetation and hydric soils, but do not typically pond water for prolonged periods of time due to permeable soils. Seasonal wetlands in the project area support a number of hydrophytic vegetative species, including iris-leaved rush (*Juncus xiphioides*), Italian ryegrass (*Lolium multiflorum*), yellow nutsedge, dove weed (*Eremocarpus setigerus*), and rabbit's-foot grass (*Polypogon monspeliensis*). These wetland features may provide important reproductive or aestivation habitat for the CTS and the western spadefoot toad, and were delineated in the Line 406 and Line 407 East project segments.

Vernal Pools and Swales

Vernal pools and swales are seasonal wetlands that convey and pond water during fall and winter rains, but that do not drain like other seasonal wetland features. They are typically associated with low topographic depressions and soils with an impermeable layer of clay and/or an iron-silica cemented hardpan. Winter rainfall does not penetrate the hardpan layer, causing a pool to form. Germination and growth of annual herbs and grasses begins with the onset of winter rains, and continues as pools fill with water. In the spring, water in the pools begins to evaporate, often leaving behind concentric rings of flowers that encircle the pool.

Vernal pools and swales were delineated within annual grasslands in the Line 407 East project segment, yet support a community distinct from the surrounding grassland community. They provide unique habitats for several endemic California plants and invertebrates, as well as amphibians. Plant species inhabiting vernal pools within the study area include annual hairgrass (*Deschampsia danthonioides*), dwarf downingia (*Downingia pusilla*), dove weed, coyote thistle (*Eryngium castrense*), bractless hedge hyssop (*Gratiola ebracteata*), toad rush (*Juncus bufonius*), tidy tips (*Layia* spp.), white-flowered navarretia (*Navarretia leucocephala*), American pillwort (*Pilularia americana*), stalked popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), Sacramento Valley pogogyne (*Pogogyne zizyphoroides*), and common knotweed

(*Polygonum arenastrum*). Vernal pool invertebrates that may occur in the project area include the vernal pool fairy shrimp, Conservancy fairy shrimp, and vernal pool tadpole shrimp. Vernal pools and swales may also provide habitat for the western spadefoot toad.

4. STUDY METHODS AND SPECIES CONSIDERED

LITERATURE REVIEW

Special-status species lists from the USFWS (USFWS, 2007a and 2008a), National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) (NMFS, 2007a), CNDDB (CDFG, 2007), and any applicable habitat conservation plans including the Natomas Basin Habitat Conservation Plan (NBHCP) were referenced to compile a master list of special-status and sensitive species that could potentially occur in the project action area (see Attachment C for special-status species lists). Aerial photography and geographic information system (GIS) maps were then used to assess the potential for sensitive habitats in the project area. In order to encompass the full extent of the project action area, species lists were compiled for the following USGS 7.5-minute quadrangles (quads):

- Esparto
- Bird Valley
- Madison
- Zamora
- Woodland
- Eldorado Bend
- Grays Bend
- Knights Landing
- Taylor Monument
- Verona
- Rio Linda
- Pleasant Grove
- Citrus Heights
- Roseville

Special-status species that were considered include all federally listed threatened and endangered species, candidates for listing, species proposed for listing, species delisted within the last five years, species of concern (NMFS), and species covered by the NBHCP. A special-status species was considered a potential inhabitant of the project action area if its known geographical distribution encompassed any of the 14 quads and its general habitat requirements (e.g., roosting, nesting, or foraging habitat; specific soil type; permanent water source) were present. A list of special-status species with the potential to occur was compiled, and the habitat requirements of each species were considered during focused field surveys and habitat assessments. Figures 3A to 3C show the locations of CNDDB records near the project action area. Table 3 lists the special-status species identified in the literature review, their listing status, habitat association, and potential to occur in the project action area.

A total of eight special-status plant species were found in record searches for the 14 quads that were reviewed and in the NBHCP. Of these, all eight species listed below were ruled out from potentially occurring in the project action area because the action area is out of the species' known range, suitable habitat is absent from the project area, and/or they were not found during focused rare plant surveys of the project area:

- Palmate-bracted bird's-beak (*Cordylanthus palmatus*), federally listed endangered
- Boggs Lake hedge-hyssop (*Gratiola heterosepala*), covered by NBHCP

- Delta tule pea (*Lathyrus jepsonii* spp. *jepsonii*), covered by NBHCP
- Legenere (*Legenere limosa*), covered by NBHCP
- Colusa grass (*Neostapfia colusana*), federally listed threatened, and covered by NBHCP
- Slender Orcutt grass (*Orcuttia tenuis*), federally listed threatened, and covered by NBHCP
- Sacramento Orcutt grass (*Orcuttia viscida*), federally listed endangered, and covered by NBHCP
- Sanford's arrowhead (*Sagittaria sandfordii*), covered by NBHCP

Twenty-six special-status wildlife species (or distinct populations of species) were found in record searches within the 14 quads (refer to Table 3). Of these, the following five species were ruled out from potentially occurring in the project action area because the action area is out of the species' known range, suitable habitat is absent from the project area, and/or they were not found during focused surveys of the project area:

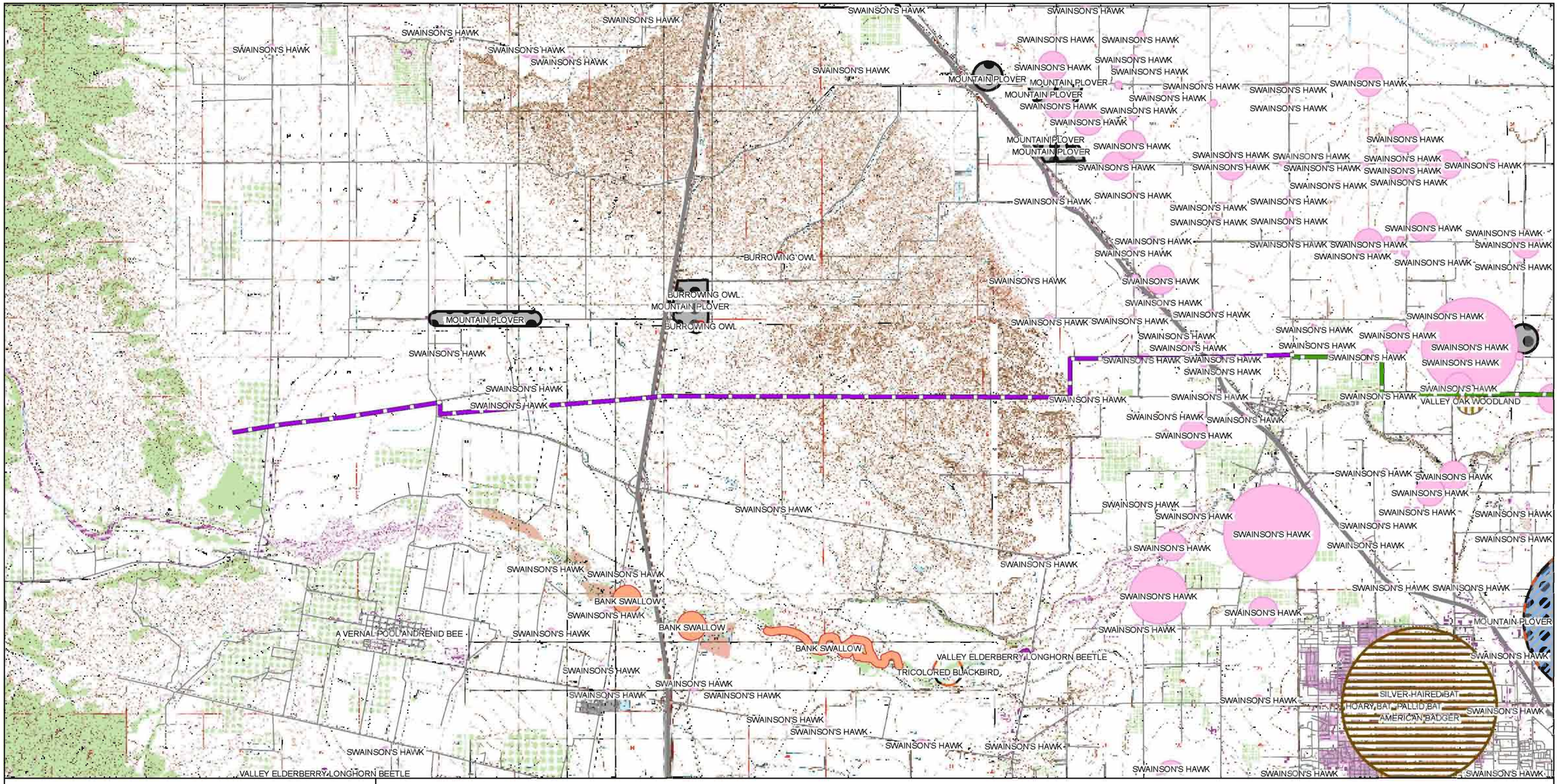
- Midvalley fairy shrimp (*Branchinecta mesovallensis*), covered by NBHCP
- Delta green ground beetle (*Elaphrus viridis*), federally listed threatened
- California freshwater shrimp (*Syncaris pacifica*), federally listed endangered
- Delta smelt (*Hypomesus transpacificus*), federally listed threatened
- California red-legged frog (*Rana aurora draynonii*), federally listed threatened

CONSULTATION TO DATE

John Baker of the NMFS Sacramento Area Office was contacted by Benjamin Hart of TRC on August 17 and 24, 2006 in regard to special-status fish species with the potential to exist in the project action area, critical habitat designations, and EFH. Jeff Stuart of the NMFS was contacted by Benjamin Hart of TRC on December 5 and 26, 2007 to verify that the species considered potential inhabitants of the project action area had not changed since the August 2006 discussions with Mr. Baker. Jana Milliken of the USFWS Sacramento Office was contacted by Benjamin Hart of TRC on October 24, 2007 to discuss the 2006 wet-season branchiopod survey completed by Gallaway and potential for listed vernal pool invertebrates to exist in the project area. A letter dated October 29, 2007 was received from the Sacramento Fish and Wildlife Office of the USFWS in response to the Notice of Preparation of a Draft Environmental Impact Report and Notice of Public Scoping Meeting for the Line 406 and Line 407 Project. The letter included a list of species of primary concern to the USFWS, and other projects in the area that may potentially affect species or habitat under their jurisdiction (see Attachment D for a copy of the letter). PG&E and its consultants met with Jana Milliken of the USFWS on January 14, 2008 to discuss the project and concerns of the USFWS in detail.

FIELD SURVEYS

Preliminary site visits to the project area were conducted to identify sensitive resources in proximity to the project and consisted primarily of driving all accessible roads adjacent to the project route. After initial site visits, biological surveys were conducted in the Line 406 and Line 407 segments within a 1,000-foot survey corridor (approximately 500 feet on either side of the proposed alignment) by PG&E, CH2M HILL, GANDA, TRC, Gallaway, and Helm Biological Consulting.



Line 406 and Line 407 Pipeline Project Figure 3A CNDDB Records

Animals

- Great blue heron
- Black-crowned night heron
- Great egret
- Snowy egret
- White-tailed kite
- Swainson's hawk
- white-faced ibis
- California tiger salamander
- Burrowing owl
- American badger
- Bank swallow
- Purple martin
- Tricolored blackbird
- Giant garter snake
- western snowy plover
- mountain plover
- Western spadefoot
- western pond turtle
- Sacramento splittail
- California linderiella
- Vernal pool fairy shrimp
- Vernal pool tadpole shrimp
- Valley elderberry longhorn beetle
- Ricksecker's water scavenger beetle

Plants

- Sanford's arrowhead
- Big-scale balsamroot
- Hispid bird's-beak
- Legenere
- Dwarf downingia
- Rose-mallow
- Red Bluff dwarf rush
- Boggs Lake hedge-hyssop

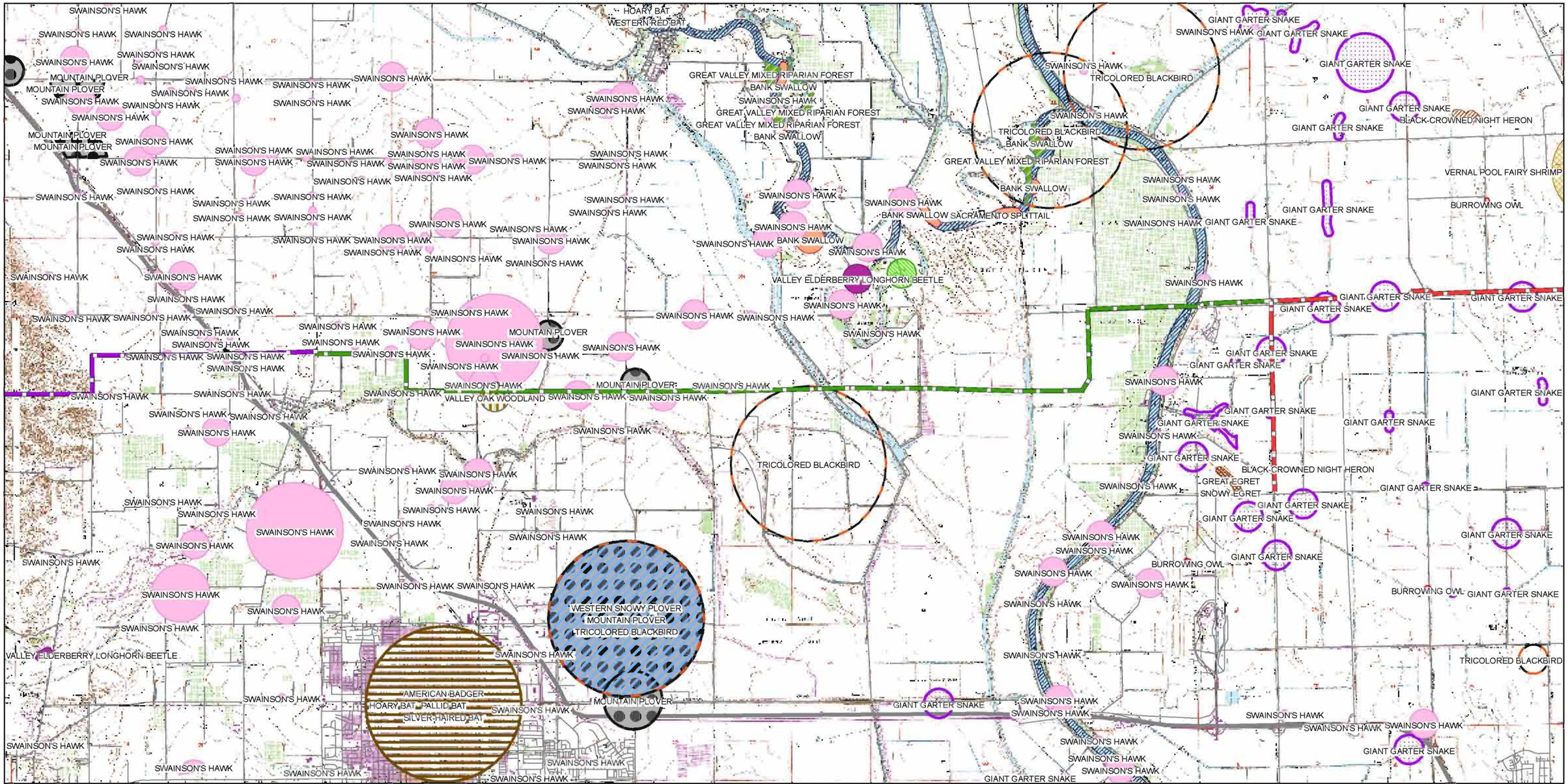
Habitats

- Valley Oak Woodland
- Alkali Meadow
- Alkali Seep
- Northern Claypan Vernal Pool
- Northern Volcanic Mud Flow Vernal Pool
- Northern Hardpan Vernal Pool
- Great Valley Mixed Riparian Forest

N W E S

0 1 2 Miles

Scale 1:80,000



Line 406 and Line 407 Pipeline Project Figure 3B CNDDB Records

Animals

- Great blue heron
- Black-crowned night heron
- Great egret
- Snowy egret
- White-tailed kite
- Swainson's hawk
- white-faced ibis
- California tiger salamander
- Burrowing owl
- American badger
- Bank swallow
- Purple martin
- Tricolored blackbird
- Giant garter snake
- western snowy plover
- mountain plover
- Western spadefoot
- western pond turtle
- Sacramento splittail
- California linderiella
- Vernal pool fairy shrimp
- Vernal pool tadpole shrimp
- Valley elderberry longhorn beetle
- Ricksecker's water scavenger beetle

Plants

- Sanford's arrowhead
- Big-scale balsamroot
- Hispid bird's-beak
- Legenere
- Dwarf downingia
- Rose-mallow
- Red Bluff dwarf rush
- Boggs Lake hedge-hyssop

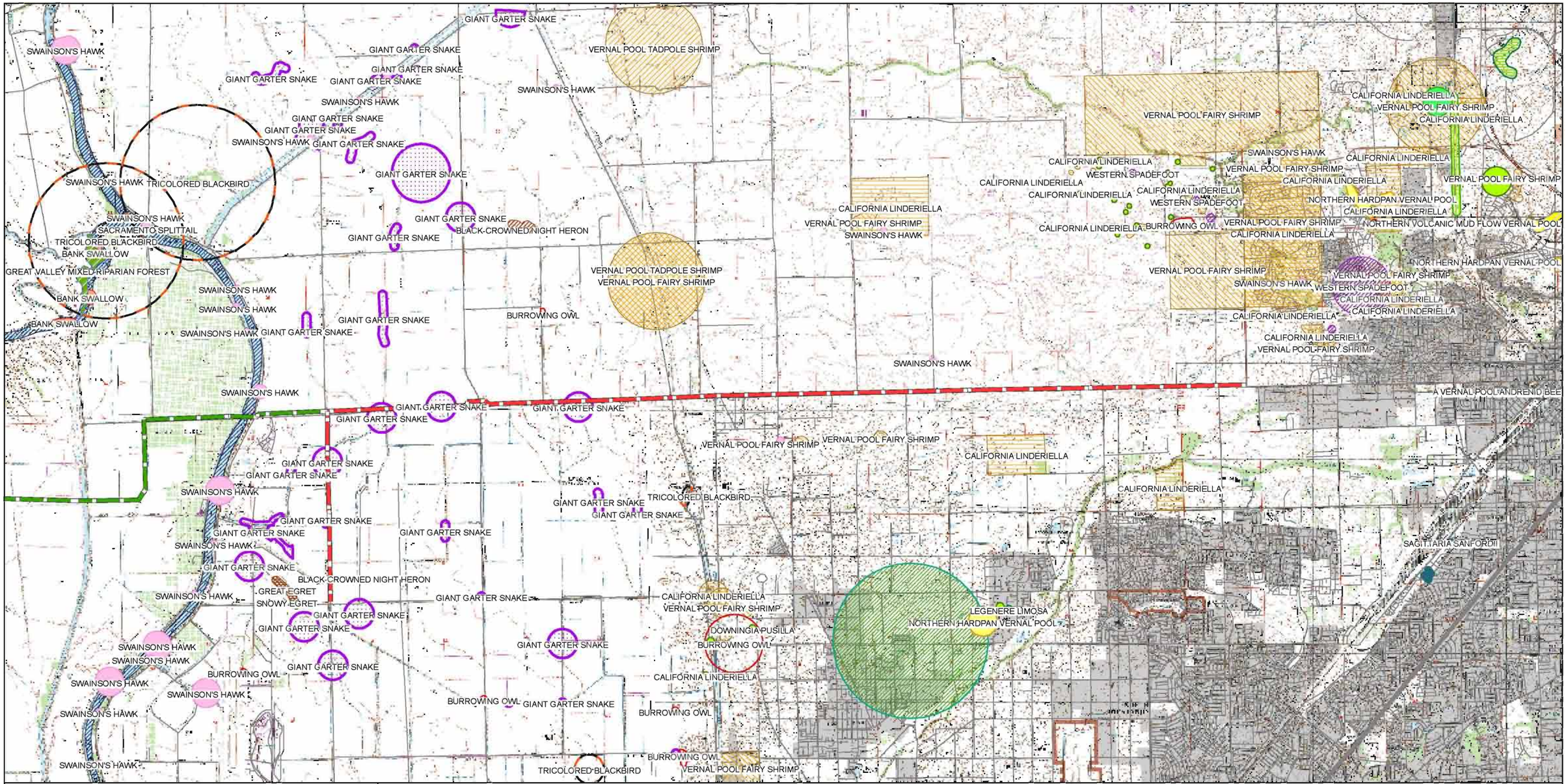
Habitats

- Valley Oak Woodland
- Alkali Meadow
- Alkali Seep
- Northern Claypan Vernal Pool
- Northern Volcanic Mud Flow Vernal Pool
- Northern Hardpan Vernal Pool
- Great Valley Mixed Riparian Forest

N W E S

0 1 2 Miles

Scale 1:80,000



Line 406 and Line 407 Pipeline Project Figure 3C CNDDB Records

Animals

- Great blue heron
- Black-crowned night heron
- Great egret
- Snowy egret
- White-tailed kite
- Swainson's hawk
- white-faced ibis
- California tiger salamander
- Burrowing owl
- American badger
- Bank swallow
- Purple martin
- Tricolored blackbird
- Giant garter snake
- western snowy plover
- mountain plover
- Western spadefoot
- western pond turtle
- Sacramento splittail
- California linderiella
- Vernal pool fairy shrimp
- Vernal pool tadpole shrimp
- Valley elderberry longhorn beetle
- Ricksecker's water scavenger beetle

Plants

- Sanford's arrowhead
- Big-scale balsamroot
- Hispid bird's-beak
- Legenere
- Dwarf downingia
- Rose-mallow
- Red Bluff dwarf rush
- Boggs Lake hedge-hyssop

Habitats

- Valley Oak Woodland
- Alkali Meadow
- Alkali Seep
- Northern Claypan Vernal Pool
- Northern Volcanic Mud Flow Vernal Pool
- Northern Hardpan Vernal Pool
- Great Valley Mixed Riparian Forest

N W E S

0 1 2 Miles

Scale 1:80,000

Table 3: Habitat Associations and Assessment Results for Special-Status Species in the Action Area

Species	Listing Status[1]	Habitat Association	Potential to Occur
Plants			
palmate-bracted bird's-beak (*Cordylanthus palmatus*)	FE	Chenopod scrub/valley and foothill grassland/alkaline soils	No potential to occur. Was not found during protocol-level surveys.
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	NBHCP	Marshes and swamps/vernal pools/clay	No potential to occur. Was not found during protocol-level surveys.
delta tule pea (*Lathyrus jepsonii* spp. *jepsonii*)	NBHCP	Freshwater and brackish marshes and swamps	No potential to occur. Was not found during protocol-level surveys.
legenere (*Legenere limosa*)	NBHCP	Vernal pools	No potential to occur. Was not found during protocol-level surveys.
Colusa grass (*Neostapfia colusana*)	FT NBHCP	Large adobe vernal pools	No potential to occur. Was not found during protocol-level surveys.
slender Orcutt grass (*Orcuttia tenuis*)	FT NBHCP	Vernal pools	No potential to occur. Was not found during protocol-level surveys.
Sacramento Orcutt grass (*Orcuttia viscida*)	FE NBHCP	Vernal pools	No potential to occur. Was not found during protocol-level surveys.
Sanford's arrowhead (*Sagittaria sandfordii*)	NBHCP	Marshes and swamps (assorted shallow freshwater)	No potential to occur. Was not found during protocol-level surveys.
Invertebrates			
conservancy fairy shrimp (*Branchinecta conservatio*)	FE	Conservancy fairy shrimp inhabit rather large, cool-water vernal pools with moderately turbid water (Eriksen and Belk, 1999) that generally last until June. Populations are known in only eight locations, none of which is in the project action area.	Suitable habitat may exist in eastern portion of Line 407 East. Not found in initial vernal pool invertebrate surveys of project area. [2]
vernal pool fairy shrimp (*Branchinecta lynchi*)	FT NBHCP	Habitats vary from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Most often found in pools measuring less than 0.05 acre, in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands.	Suitable habitat exists in eastern portion of Line 407 East. Not found in initial vernal pool invertebrate surveys of project area. [2]

Species	Listing Status[1]	Habitat Association	Potential to Occur
midvalley fairy shrimp (*Branchinecta mesovallensis*)	NBHCP	Midvalley fairy shrimp have been found in shallow vernal pools, vernal swales, and various artificial ephemeral wetland habitats in the following California counties: Sacramento, Solano, Yolo, Contra Costa, San Joaquin, Madera, Merced, and Fresno.	Project action area is out of known range of the midvalley fairy shrimp. Not likely to occur.
valley elderberry longhorn beetle (*Desmocerus californicus dimorphus)*	FT NBHCP	Riparian forests and adjacent upland habitats of California's Central Valley where elderberry shrubs with a diameter of 1 inch at ground level are prevalent.	Elderberry shrubs with valley elderberry longhorn beetle exit holes were observed in the Line 407 West project area during focused surveys. Likely to occur.
delta green ground beetle (*Elaphrus viridis*)	FT	Preferred habitat is not well understood. Species may prefer more open habitats in the grassland-playa pool matrix where the beetle is found, such as edges of pools, trails, roads, and ditches. Adults may also occur in surrounding grasslands. Larvae may hide under dense vegetation or in cracks in the ground, making them hard to see. To date, the delta green ground beetle has only been found in the greater Jepson Prairie area in south-central Solano County, California.	Project action area is out of known range of the delta green ground beetle. Not likely to occur.
vernal pool tadpole shrimp (*Lepidurus packardi*)	FE NBHCP	Inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet in the former Mather Air Force Base area of Sacramento County to the 89-acre Olcott Lake at Jepson Prairie.	Suitable habitat exists in eastern portion of Line 407 East. Not found in initial vernal pool invertebrate surveys of project area. [2]
California freshwater shrimp (*Syncaris pacifica*)	FE	Found only in low-elevation (less than 380 feet) and low-gradient (generally less than 1 percent) streams. Excellent habitat conditions include streams of 12 to 36 inches in depth with exposed live roots of trees such as alder and willow, undercut banks greater than 6 inches with overhanging woody debris or stream vegetation and vines such as stinging nettles, grasses, vine maple, and mint. Historically, the shrimp was probably common in low elevation, perennial freshwater streams in Marin, Sonoma, and Napa counties. Today, it is found in 16 stream segments within these counties.	Project action area is out of range of the species and suitable habitat conditions do not exist in the project action area. Not likely to occur.

Species	Listing Status[1]	Habitat Association	Potential to Occur
Fish			
green sturgeon (southern Distinct Population Segment) (*Acipenser medirostris*)	FT	Inhabits marine waters for majority of life; spawning takes place in deep, fast-moving water with temperatures between 46 and 57 degrees Fahrenheit (deg. F). Juveniles typically migrate out to sea before the end of their second year, primarily during summer and fall.	Moderate potential to occur in project action area in the Sacramento River.
delta smelt (*Hypomesus transpacificus*)	FT	Estuarine waters with temperatures ranging from 43 to 82 deg. F, and salinities between 2 and 7 parts per thousand (ppt), but rarely above 18 ppt. Delta smelt spawn in fresh water at temperatures from about 45 to 59 deg. F between February and June. Spawning takes place in dead-end sloughs and shallow edge waters of channels in the western Delta.	While delta smelt are known to occur in the tidally influenced (brackish) lower portions of the Sacramento River and Yolo Bypass approximately 11 miles downstream of the project, suitable habitat conditions are not present in the action area and the action area is out of the species known range. Not likely to occur.
California Central Valley steelhead (*Oncorhynchus mykiss*)	FT CH	Spawning takes place in fresh water in clean gravel within tributaries to mainstem rivers with temperatures in the range of 59 to 64 deg. F, rarely below 34 or above 81 deg. F. Juvenile steelhead utilize cool, clear, fast-moving permanent streams and rivers where there is ample cover of riparian vegetation or undercut banks, and where invertebrate life is abundant. Juvenile steelhead spend between one and three years in fresh water before smolting and migrating to sea. Adults spend between one and four years at sea before returning to spawn. Critical habitat for steelhead has been designated in lower Steelhead Creek and Dry Creek.	Likely to occur in the project action area within the Sacramento River year-round, in the Yolo Bypass during wet months, and in Steelhead Creek downstream of the project action area (species could stray into project action area during wet months).
Central Valley fall- and late-fall-run chinook (*Oncorhynchus tshawytscha*)	FSC EFH	Cool, clear year-round flowing water with temperatures between 41 and 66 deg. F. At around 72 to 73.5 deg. F, major mortality is experienced in wild populations. Adults require clean gravel bars and cool, well-oxygenated fresh water for spawning. Juveniles require in-stream structures such as undercut banks, log structures, boulders, etc., for optimal rearing habitat in streams, and plentiful invertebrate life for feeding.	Likely to occur in the project action area within the Sacramento River year-round, in the Yolo Bypass during wet months, and in Steelhead Creek downstream of the project action area (species could stray into project action area during wet months).

Species	Listing Status[1]	Habitat Association	Potential to Occur
Central Valley spring-run chinook (*Oncorhynchus tshawytscha*)	FT CH EFH	Cool, clear year-round flowing water with temperatures between 41 and 66 deg. F. At around 72 to 73.5 deg. F, major mortality is experienced in wild populations. Adults require clean gravel bars and cool, well-oxygenated fresh water for spawning. Juveniles require in-stream structures such as undercut banks, log structures, and boulders for optimal rearing habitat in streams, and plentiful invertebrate life for feeding. Critical habitat for Central Valley spring-run chinook has been designated in the Sacramento River and Yolo Bypass.	Likely to occur in the project action area within the Sacramento River year-round, in the Yolo Bypass during wet months.
Sacramento River winter-run chinook (*Oncorhynchus tshawytcha*)	FE CH EFH	Cool, clear year-round flowing water with temperatures between 41 and 66 deg. F. At around 72 to 73.5 deg. F, major mortality is experienced in wild populations. Adults require clean gravel bars and cool, well-oxygenated water for spawning. Juveniles require in-stream structures such as undercut banks, log structures, and boulders for optimal rearing habitat in streams, and plentiful invertebrate life for feeding. Critical habitat for Sacramento River winter-run chinook has been designated in the Sacramento River.	Likely to occur in the project action area within the Sacramento River year-round, in the Yolo Bypass during wet months.
Amphibians			
California tiger salamander (*Ambystoma californiense*)	FT NBHCP	Inhabits lowlands and foothills. Breeds in long-lasting temporary pools as well as some permanent pools in grasslands and oak woodland habitats. Aestivates in small mammal burrows, particularly those of the California ground squirrel, as well as cracks and crevices in dry earth.	Likely to occur in project action area.
California red-legged frog (*Rana aurora draytonii*)	FT	Believed to either never have occurred or to have been extirpated from valley floor. Inhabits lowlands and foothills in or near permanent deep water with dense growth of emergent and woody riparian vegetation bordering permanent and semi-permanent ponds, ponded streams, marshes, and springs. Upland habitat surrounding breeding areas is important for shelter during dispersal and aestivation.	Project action area is out of species' known range. Not likely to occur.

Species	Listing Status[1]	Habitat Association	Potential to Occur
western spadefoot toad (*Spea hammondii*)	NBHCP	Inhabits lowlands in open areas with sandy or gravelly soils in a variety of habitats, including mixed woodlands, grasslands, chaparral, sandy washes, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Breeds in temporary pools and quiet streams.	Likely to occur in project action area.
Reptiles			
northwestern pond turtle (*Clemmys marmorata marmorata*)	NBHCP	Can be found throughout the state inhabiting woodland, grassland, and open forest habitats that contain ponds, permanent pools along intermittent drainages, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation.	Likely to occur in project action area.
giant garter snake (*Thamnophis gigas*)	FT NBHCP	Inhabits freshwater marshes, wetlands, slow-moving streams, drainage ditches, irrigation canals, and rice fields of the Central Valley. Requires emergent or riparian vegetation for cover and foraging and basking and upland habitat for retreat and hibernation activities.	Likely to occur in project action area
Birds			
tricolored blackbird (*Agelaius tricolor*)	NBHCP	Colonial nester that requires a protected nesting substrate of tall emergent or shrubby vegetation over or near open water. Foraging habitat includes annual grasslands, seasonal wetlands, agricultural fields, riparian areas, and cattle dairies.	Likely to occur in project action area.
burrowing owl (*Athene cunicularia*)	NBHCP	Open, dry, low-growing vegetation, grasslands (annual or perennial), deserts, scrublands, agricultural, and rangelands. Suitable habitat may contain trees and shrubs if overall canopy closure is low (less than 30 percent). Subterranean nester associated with burrowing mammals, but may use manmade structures and debris piles.	Likely to occur in project action area.
Swainson's Hawk (*Buteo swainsoni*)	NBHCP	Nesting habitat consists of open areas with stands of few, dense-topped trees in juniper-sage flats, riparian areas, and oak savannas. Foraging habitat consists of open grasslands, grain, and alfalfa fields (supporting rodent populations) adjacent to nesting opportunities.	Likely to occur in the project action area.

Species	Listing Status[1]	Habitat Association	Potential to Occur
western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FC	Nests in riparian forests along broad, lower floodplains of large river systems. Requires broad, well-developed, low-elevation riparian woodlands of primarily mature cottonwoods and willows.	Moderate potential to occur in riparian habitat along project action area waterways.
bald eagle (*Haliaeetus leucocephalus*)	FD	Nests in the upper canopy of towering mature trees with open branches or on cliffs near large rivers, lakes, bays, and coastlines. Migrants arrive late in fall and winter among dense conifer stands. Wintering areas include large rivers, lakes, reservoirs, and additional habitats along migration routes.	Moderate potential to occur in project action area as a migrant during winter.
loggerhead shrike (*Lanius ludovicianus*)	NBHCP	Grasslands interspersed with scattered trees and shrubs. Breeding territories may encompass cultivated cropland, transportation rights-of-way, and shelterbelts. Typically located in scrub deserts, shrub-steppe habitats, western oak savanna, and agricultural landscapes. Shrikes typically hunt from dead trees, tall shrubs, utility wires, and fence posts, and impale prey on sharp twigs, thorns, or barbed wire.	Moderate potential to occur in project action area.
white-faced ibis (*Plegadis chihi*)	NBHCP	Feeds in emergent wetlands (often fresh water), wet meadows, flooded pastures, or croplands. Nest sites are located in dense emergent wetlands. Nests are constructed as a deep cup of wetland plants slightly raised on a mound or platform within tall vegetation.	Likely to occur in project action area.
bank swallow (*Riparia riparia*)	NBHCP	Historically found along large, lowland rivers, and along the coast in southern California. Inhabits riparian lowlands and nests in colonies. Requires vertical cliffs or soft banks with fine-textured soils near streams, rivers, lakes, and oceans for nesting.	Likely to occur in project action area.

Sources: CNDDB, 2007; NBHCP, 2003; NMFS, 2007a; USFWS, 2007

[1]**Listing Status**

U.S. Fish and Wildlife Service

FE	Federally listed endangered	FD	Federally de-listed; to be monitored for five years
FT	Federally listed threatened	FSC	Federal Species of Concern (NMFS)
FC	Candidate for federal listing	CH	Critical habitat designated in project action area
		EFH	Essential fish habitat designated in project action area

Natomas Basin Habitat Conservation Plan

NBHCP Covered species under the Natomas Basin Habitat Conservation Plan

[2]The 2006 dry-season survey for federally listed large branchiopods found cysts belonging to the genus *Branchinecta,* but these cysts were not identified to species. Wet-season surveys for vernal pool invertebrates did not identify live specimens of conservancy fairy shrimp, vernal pool fairy shrimp, midvalley fairy shrimp, or vernal pool tadpole shrimp; however, the 2006 wet-season survey was determined by the U.S. Fish and Wildlife Service (USFWS) Sacramento Office to be insufficient to determine presence or absence of the species due to poor rainfall and branchiopod growth conditions. A supplemental survey is being performed in the wet season of 2007/2008 and survey results will be provided to the USFWS as a supplement to this report upon completion.

These surveys were conducted to identify and map habitat boundaries, to identify special-status species within the project area, and to locate and delineate water features with the potential to support special-status species (see Attachment E for complete field survey reports). Table 4 lists the field surveys, their dates, and the company associations of the surveyors who performed them.

Habitat Types

Habitat types in the project area were mapped based on aerial photos and field surveys conducted in 2006 and 2007 (refer to Figures 2A-2G). Wetland delineations were conducted by CH2M HILL for the Line 406 project segment, and by Gallaway for the Line 407 project segments in 2006 and 2007. The wetland delineation surveys involved an examination of botanical resources, soils, hydrological features, and determination of wetland characteristics based on the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (1987), the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (2006), and the USACE Jurisdictional Determination Form Instructional Guidebook (2007).

Special-status Plant Species

Rare plant surveys were conducted by GANDA and CH2M HILL in the Line 406 project area and by Gallaway in the Line 407 project area during spring and summer 2006 and 2007. Rare plants that were considered in these surveys included all federally and state-listed threatened and endangered species, candidates for listing, plant species proposed for listing, plants covered under the NBHCP, plants that meet the definitions of rare or endangered under the CEQA, and plant species listed by the California Native Plant Society (CNPS) as 1A (presumed extinct in California, but may occur or be rediscovered), 1B (plants rare, threatened, or endangered in California or elsewhere), or 2 (plants rare, threatened, or endangered in California, but more common elsewhere).

Surveys were conducted during the appropriate blooming periods of the species that were identified in the literature review and for which suitable habitat was determined to exist in the project area. All plants observed in the field surveys were identified to the extent necessary to determine their status as rare, threatened, or endangered. Prior to conducting rare plant surveys, known reference populations of the plants were visited to ensure that the flowering periods of the species were active. The locations of all special-status plant species observed in the project area were clearly designated on USGS 7.5-minute topographic maps.

No plant species under the jurisdiction of the USFWS were found in surveys of the project area. One rare plant, the dwarf downingia (CNPS List 2), was observed in the Line 407 East survey area. This species was observed on the opposite side of the road from the proposed alignment, but the occurrence was within the project action area (see Figure 3 of the Line 407 East Rare Plant Survey Report in Attachment E). No other special-status or rare plants were found in surveys of the Line 406 and Line 407 project area.

Table 4: Field Surveys

Survey	Survey Date(s)	Surveyor Association(s)
Special-status/Rare Plants	• May 5 and 12, and July 21, 24, and 26, 2006, and May 14, 2007 (Line 407 East) • May 3, 8, and 14, 2007 (Line 407 West) • May 31 and June 1, 2007 (Line 406)	Gallaway Line 407 East and Line 407 West) GANDA/CH2M HILL (Line 406)
Valley Elderberry Longhorn Beetle	• May 8 and 14, 2007 (Line 407 West) • May 31 and June 1, 2007 (Line 406; conducted during rare plant surveys)	Gallaway and GANDA/CH2M HILL (Line 406)
Vernal Pool Invertebrate Surveys (Line 407 East project segment)	• November 5, 6, and 18, 2006, October 7, 2007 (Dry-season survey) • December 21, 2006 through May 18, 2007 (Wet-season survey)	Helm Biological Consulting (Dry-season survey) Gallaway (Wet-season survey)
Fish Habitat Assessment	• July 20, 2006 and June 21, 2007 (all project segments)	TRC
Special-status Amphibian and Reptile Habitat Assessment	• June 12 and 13, 2006 (Line 407 East) • November 30 and December 5 and 7, 2006 (Line 406) • June 29, 2007 (Line 407 West)	PG&E
Special-status Avian and Mammalian Species Habitat Assessment	• June 12 and 13, 2006 (Line 407 East) • November 30 and December 5 and 7, 2006 (Line 406) • June 29, 2007 (Line 407 West)	PG&E
Delineation of Waters of the United States	• July 21 and 24 to 28, and August 10 and 25, 2006 (Line 407 East) • May 3, 8, and 14, June 21, and July 31, 2007 (Line 407 West) • April 4 and 5, 2007 (Line 406)	Gallaway Line 407 East and Line 407 West) CH2M HILL (Line 406)

Special-status Wildlife Species

Special-status wildlife species that were considered in surveys of the project area included all federally listed threatened and endangered wildlife species, candidates for listing, species proposed for listing, species of concern (NMFS), and species covered by the NBHCP. A special-status species was considered a potential inhabitant of the project area if its known geographical range occurs in any of the USGS 7.5-minute quadrangles within the project action area, and its general habitat requirements (e.g., roosting, nesting, foraging habitat; specific soil type; permanent water source; etc.) are present. These habitat requirements were considered during the surveys, as described in detail below.

Invertebrates

Valley Elderberry Longhorn Beetle

Gallaway performed surveys for the VELB in the Line 407 project area during rare plant surveys conducted in April, May, and August 2006, and May 2007. CH2M HILL performed surveys for VELB in the Line 406 area in November 2006 and May and June 2007. During these surveys, Gallaway and CH2M HILL searched for the VELB's host plants, elderberry (*Sambucus* spp.), in accordance with the USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle (1999).

Surveys focused on identifying elderberry shrubs within the 1,000-foot survey corridor and classifying the number of elderberry stems measuring greater than or equal to 1 inch at ground height. The survey also focused on the detection of emergence holes on elderberry shrubs that would indicate the presence of VELB.

Elderberry was observed in the Line 407 West project segment survey area, but no elderberry was identified during the Line 406 or Line 407 East rare plant surveys. Within the Line 407 West survey area, elderberry was found in riparian habitat along a canal adjacent to CR 16 near the west bank of the Sacramento River, and in upland habitat near the junction of CR 99A and CR 17 (see Figure 2 of the VELB Survey Report in Attachment E). All elderberry shrubs identified in field surveys were mapped using a sub-meter global positioning system unit. Adult beetles were not observed during the surveys; however, emergence holes were detected on 10 of the 23 elderberry shrubs mapped within the study area.

Vernal Pool Invertebrates

Wetland delineations in the Line 406 and Line 407 project segments revealed that suitable habitat for special-status vernal pool invertebrates only exists in the Line 407 East project segment, and thus, surveys for these species focused only on this segment. One full dry-season survey and one full wet-season survey were completed for special-status vernal pool invertebrates in the Line 407 East area. All surveys were conducted by 10(a)-permitted staff in accordance with the USFWS protocols contained in the Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for Listed Vernal Pool Branchiopods (USFWS, 1996a).

Helm Biological Consulting performed protocol-level dry-season vernal pool invertebrate sampling in the Line 407 East segment in November 2006 and October 2007. The October 2007 survey consisted of supplemental sampling of pools that were inaccessible during the 2006 survey due to landowner access issues. Dry-season sampling was completed before rains began and before any wetland feature with the potential to host vernal pool invertebrates was inundated with water. Cysts belonging to the genus *Branchinecta* were observed during dry-season sampling in soils collected from 41 basins within the study area. Within those basins, 13 are within the proposed project ROW, and 9 are within 250 feet of the project ROW and may have hydrological connectivity to the project ROW. Cysts belonging to the California fairy shrimp (*Linderiella occidentalis*) were observed in soils collected from 21 basins in the study area. While the California fairy shrimp is not federally listed, it commonly occurs in pools along with other listed vernal pool species. The dry-season survey report and supplement are included in Attachment E.

Gallaway performed protocol-level wet-season vernal pool invertebrate sampling in the Line 407 East area between December 2006 and May 2007. Vernal pools, vernal swales, seasonal wetlands, seasonal swales, and roadside ditches were sampled in efforts to determine the presence of federally listed vernal pool invertebrates. Wet-season surveys of the site revealed the presence of the California fairy shrimp in five pools within the site; however, surveyors found no presence of federally listed vernal pool invertebrates despite the dry-season sampling findings. The wet-season survey report is included in Attachment E.

Precipitation levels for the winter of 2006-2007 were below average, and thus ,ponding of the suitable habitat in the project area was limited as compared to normal precipitation years. This may have led to reduced hatching and growth to maturity of listed vernal pool invertebrates that may occur in the project area. Discussions with the USFWS (USFWS, 2007b) revealed that the USFWS was not going to accept the 2006-2007 Line 407 East wet-season survey to satisfy the requirements of the protocol due to poor winter conditions; therefore, the survey will be repeated by Gallaway during the winter season of 2007-2008. Upon completion, the 2007-2008 wet-season survey report will be submitted to the USFWS for review as a supplement to this BA.

Fish

TRC conducted a literature review to identify and compile a list of special-status fish species with the potential to exist in the project area. Eight species (or distinct runs of species) were identified, some of which are Pacific salmon with designated EFH or critical habitat within the Sacramento River, Yolo Bypass, and associated creeks and canals in the project action area.

TRC conducted field reconnaissance surveys on July 20, 2006 and June 21, 2007 to identify any waterways in the survey area that may provide suitable habitat for special-status fish species. Conditions that were considered included seasonal flow and water quality characteristics, riparian cover, substrate composition, and accessibility of the waterway to species, including in-stream structures that may create barriers to fish passage. See Attachment E for the Line 406 and Line 407 Fish Habitat Assessment.

Amphibians and Reptiles

PG&E biologists performed amphibian and reptile surveys for Line 406 and Line 407. Aerial photography and GIS maps, in conjunction with ground-reconnaissance surveys, were used to assess the potential for sensitive herpetological species and their habitats to occur within the project survey corridor. Reconnaissance-level field surveys of the project alignment were performed on June 12 and 13, 2006 for Line 407 East; November 30 and December 5 and 7, 2006 for Line 406; and June 29, 2007 for Line 407 West. The purpose of these surveys was to assess site conditions, habitat types present, and to note any special-status reptile and amphibian species and habitats that may be present. The survey corridor was assessed by driving available roads and walking representative portions of the habitat within the survey area along the pipeline alignment, thus allowing a close-up inspection of the habitat. Observable habitat characteristics were noted. The only amphibians documented during surveys were nonnative bullfrogs (*Rana catesbeiana*). Both tadpole and juvenile life stages were observed (adults were not observed). See Attachment E for the Line 406 and Line 407 Amphibian and Reptile Report.

Birds and Mammals

PG&E biologists performed an avian and mammalian habitat assessment for Line 406 and Line 407 within the 1,000-foot survey corridor. In the case of arboreal nesting raptors, a 0.25-mile survey area centered on the proposed alignment was assessed (0.5-mile survey corridor). Aerial photography, GIS maps, and ground-reconnaissance surveys were used to note site conditions, habitat types (nesting, foraging, cover, roosting, maternity, or wintering), and any special-status avian or mammalian species that may be present. Reconnaissance-level field surveys were performed on June 12 and 13, 2006 for Line 407 East; November 30 and December 5 and 7, 2006 for Line 406; and June 29, 2007 for Line 407 West. See Attachment E for the Line 406 and Line 407 Avian and Mammalian Survey Report.

Additional surveys may be required for pipeline construction activities that involve significant vegetation removal and/or that occur near suitable nesting, roosting, or maternity habitats during sensitive wildlife temporal windows. Appropriate nesting bird and bat roosting/maternity surveys will be conducted as needed or required prior to commencement of construction activities. These surveys will identify active nests or roosting areas within any applicable species-specific buffers and will allow for proper mitigation or avoidance of impacts.

5. SPECIES ACCOUNTS AND STATUS OF SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR IN THE ACTION AREA

SPECIAL-STATUS PLANT SPECIES

Suitable habitat for the eight special-status plant species identified in preliminary research for this analysis may exist in the project action area in the form of vernal pools, freshwater emergent wetlands, or grasslands. However, none of these eight species was found in protocol-level surveys within the 1,000-foot study area. Potential effects to special-status plant species that may occur out of the ROW and/or study area, but potentially within other portions of the action area, are discussed in Section 7 of this report.

SPECIAL-STATUS WILDLIFE SPECIES

The following section contains descriptions of special-status wildlife species that may occur in the project action area. Critical habitat has been designated for many of these species, but is not mentioned in the species descriptions below unless it occurs within the project action area.

Conservancy Fairy Shrimp (*Branchinecta conservatio*)

The Conservancy fairy shrimp is federally listed as endangered. It is included in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS, 2005b). It ranges in size from about 0.5 to 1 inch long. Fairy shrimp feed on algae, bacteria, protozoa, rotifers, and bits of detritus (USFWS, 2007c). Conservancy fairy shrimp inhabit rather large, cool-water vernal pools with moderately turbid water (Eriksen and Belk, 1999). The pools generally last until June. However, live shrimp are usually found between November and April.

Female fairy shrimp carry their eggs in a brood sac. When they are mature, the eggs either are dropped to the pool bottom or remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs. They remain in the dry pool bed until rains and other environmental stimuli hatch them. Resting fairy shrimp eggs are known as cysts. They are capable of withstanding heat, cold, and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Hatching can begin within the same week that a pool starts to fill. Average time to maturity is 49 days. In warmer pools, it can be as little as 19 days (USFWS, 2007c).

As of October 15, 2007, the USFWS was aware of eight populations of Conservancy fairy shrimp, none of which is within the project action area. However, one Conservancy fairy shrimp was found in recent surveys in a pool in western Placer County north of the project alignment (USFWS, 2007c). Thus, the USFWS has requested that Conservancy fairy shrimp be considered in this BA and in wet-season vernal pool invertebrate surveys of the project area.

Conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp occupy the same vernal pool ecosystems and are threatened by similar factors. The loss, fragmentation, and isolation of functional vernal pool ecosystems have threatened the continued existence of these species. Primarily, habitat loss is the result of urbanization, agricultural conversion, and mining. Included in habitat loss is habitat alteration and degradation as a result of changes to natural hydrology, invasive species, incompatible grazing regimes, infrastructure projects (e.g., roads, water storage and conveyance, and utilities), recreational activities (e.g., off-highway vehicles and hiking), erosion, climatic and environmental change, and contamination. As previously described, habitat fragmentation includes those activities associated with habitat loss that contribute to the isolation and fragmentation of vernal pool habitats (USFWS, 2005b).

Conservancy fairy shrimp may occur in vernal features in the Line 407 East project segment. Wet-season surveys during the winter of 2007-2008 will determine if these species are present in the area. Results of the survey will be provided to the USFWS upon completion.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

The vernal pool fairy shrimp is federally listed as threatened and is covered by the NBHCP. It is also included in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon.* This small crustacean ranges in size from 0.5 to 1 inch long. The life history of the vernal pool fairy shrimp is very similar to that of the Conservancy fairy shrimp.

Vernal pool fairy shrimp occupy a variety of vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre. This species is most commonly found in grass or mud-bottomed swales, or basalt-flow depression pools in unplowed grasslands. Vernal pool fairy shrimp have been collected from early December to early May (USFWS, 2006b).

The breeding cycle of vernal pool fairy shrimp is similar to that of Conservancy fairy shrimp. After the cysts hatch, the average time to maturity for the vernal pool fairy shrimp is 41 days. In warmer pools, maturity can be reached in as little as 18 days (Eriksen and Belk, 1999).

Vernal pool fairy shrimp occupy the same vernal pool ecosystems as Conservancy fairy shrimp and are threatened by similar factors. Thus, details of habitat loss, fragmentation, isolation, alteration, and degradation provided in the conservancy fairy shrimp description are not repeated here. However, specific threats to the vernal pool fairy shrimp are provided below.

Most of the known occurrences of the vernal pool fairy shrimp in the Northeastern Sacramento Valley Vernal Pool Region are located on Caltrans rights-of-way and are threatened by various future road improvement projects, particularly the future expansion of Highway 99. In the northwestern region, some occurrences may be threatened by agricultural conversion or development, and in the southeastern region, the shrimp are threatened by urban development. As a result, both Sacramento and Placer Counties are currently developing Habitat Conservation Plans to address growth in the region (USFWS, 2005b).

Vernal pool fairy shrimp may occur in vernal features in the Line 407 East project segment. Wet-season surveys during the winter of 2007-2008 will determine if these species are present in the area. Results of the survey will be provided to the USFWS upon completion.

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The valley elderberry longhorn beetle is federally listed as threatened and is covered by the NBHCP. VELB are characterized by elongate, cylindrical bodies with long antennae, often more than two thirds of the body length. VELB are stout-bodied. Males range in length from about 0.5 to nearly 1 inch, with antennae about as long as their bodies. Females are slightly more robust than males, measuring approximately 0.75 to 1 inch, with somewhat shorter antennae (USFWS, 2007d).

There are four stages in the VELB's life: egg, larva, pupa, and adult. The species is nearly always found on or close to its host plant, elderberry. In order to serve as habitat, elderberry

shrubs must have stems that are 1 inch or greater in diameter at ground level. Females lay their eggs on the bark. Larvae hatch and burrow into the stems. The larval stage may last two years, after which the larvae enter the pupal stage and transform into adults. Adults actively feed and mate from March to June (USFWS, 2007d).

Extensive destruction of California's Central Valley riparian forests is due to agricultural and urban development, resulting in widespread alteration and fragmentation of riparian habitats, and to a lesser extent, upland habitats, which support the beetle. These primary threats include loss and alteration of habitat by agricultural conversion; inappropriate grazing; levee construction; stream and river channelization; removal of riparian vegetation and rip-rapping of shoreline; predation by nonnative animals such as the Argentine ant; and recreational, industrial, and urban development. Other factors include insecticide and herbicide use in agricultural areas and along road rights-of-way that limit the beetle's distribution. The age and quality of individual shrubs and elderberry stands as a food plant for the beetle may also be a factor in its limited distribution (USFWS, 2007d).

VELB may occur in the Line 407 West project segment west of the Sacramento River where elderberry shrubs were identified during 2007 surveys (see Attachment E for the VELB survey report).

Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)

The vernal pool tadpole shrimp is federally listed as endangered and is covered by the NBHCP. It is also included in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*. Vernal pool tadpole shrimp adults reach a length of 2 inches. Tadpole shrimp climb or scramble over objects, as well as plow along or within bottom sediments. Their diet consists of organic debris and living organisms, such as fairy shrimp and other invertebrates. This animal inhabits vernal pools containing clear to highly turbid water ranging in size from 54 square feet to 89 acres (USFWS, 2006c).

The life history of the vernal pool tadpole shrimp is linked to the seasonal cycle of the vernal pool, and is similar to that of the Conservancy and vernal pool fairy shrimp described above. The vernal pool tadpole shrimp has a patchy distribution across the Central Valley of California, from Shasta County southward to northwestern Tulare County, with isolated occurrences in Alameda and Contra Costa counties. Although vernal pool tadpole shrimp are spread over a wide geographic range, their habitat is highly fragmented and they are uncommon where they are found (USFWS, 2006c).

Vernal pool tadpole shrimp are threatened by the same habitat loss, fragmentation, and isolation as Conservancy fairy shrimp and vernal pool fairy shrimp previously described. Specifically, vernal pool tadpole shrimp in the northeastern Sacramento Valley region, where most of the known occurrences are on Caltrans rights of way, are threatened by road improvement projects related to general urban growth. In the northwestern region, the shrimp are threatened by development on the few sites on private land where it is known to occur, and in the southeastern region, extant populations are threatened by continued extensive urban development (USFWS, 2005b).

Vernal pool tadpole shrimp may occur in vernal features in the Line 407 East project segment. Wet-season surveys during the winter of 2007-2008 will determine if these species are present in the area. Results of the survey will be provided to the USFWS upon completion.

Green Sturgeon (*Acipenser medirostris*)

The southern distinct population segment of green sturgeon is federally listed as threatened. The green sturgeon is the most marine of the sturgeon species, coming into rivers mainly to spawn. This species may remain in fresh water for up to two years in its early life stages. Spawning takes place in deep, fast-moving water with temperatures between 46 and 57 deg. F. Larval and juvenile green sturgeon remain near estuaries in early life stages, but they migrate considerable distances as they grow. Juveniles typically migrate out to sea before the end of their second year, primarily during summer and fall (Moyle, 2002).

A principal factor in the decline of the Southern Distinct Population Segment (DPS) of green sturgeon is the reduction of the limited spawning area in the Sacramento River. This small concentration of spawning adults increases the risk of extirpation due to catastrophic events. Other threats include insufficient freshwater flow rates in spawning areas, contaminants, bycatch of green sturgeon in fisheries, poaching, impassable barriers, entrainment by water projects, influence of exotic species, and elevated water temperatures (NMFS, 2006e).

Green sturgeon may occur in the Sacramento River within the Line 407 West project segment.

California Central Valley Steelhead (*Oncorhynchus mykiss*)

The Central Valley steelhead is federally listed as threatened and critical habitat has been designated in Steelhead Creek approximately 6 miles downstream of the project, in the Yolo Bypass and the Sacramento River (NMFS, 2005a). They are anadromous (born in fresh water, migrate to the ocean where most of their growth occurs, and return to fresh water to spawn). Unlike Pacific salmon, steelhead are iteroparous (i.e., can spawn more than once). Repeat spawning rates are generally low, however, and vary considerably among populations (Moyle, 2002).

In California, peak spawning occurs from December through April in small streams and tributaries with cool, well-oxygenated water. Steelhead eggs hatch in about 30 days at 51 deg. F. Fry (newly-hatched steelhead) usually emerge from the gravel four to six weeks after hatching. Juvenile steelhead spend between one and three years in fresh water before migrating to the ocean. Once at sea, they spend between one and four years before returning to spawn (McEwan, 2001).

California Central Valley steelhead are considered “winter” steelhead, entering streams between August and October and hold in fresh water until flows in tributaries are high enough to enter them for spawning. Steelhead typically spawn shortly after reaching spawning grounds, often traveling long distances to reach ideal spawning habitat (Moyle, 2002).

Inaccessibility to spawning and rearing habitat due to impassable dams is the primary threat to the California Central Valley Steelhead DPS. Where steelhead are still extant, natural populations are subject to habitat degradation and various impacts from water development (e.g., water storage, withdrawal, conveyance, and diversions for agriculture, flood control, and domestic and hydropower purposes) and land use activities. While not completely assessed, stocking of hatchery fish may have deleterious effects on native wild trout populations. Furthermore, it is likely many of the threats affecting Chinook salmon are also negatively impacting steelhead, such as inadequately screened water diversions, high water temperatures, and predation by nonnative species (NMFS, 2007b).

California Central Valley steelhead may occur in Steelhead Creek (wet season only) in the Line 407 East project segment, or in the Sacramento River or Yolo Bypass in the Line 407 West project segment.

Central Valley Fall- and Late-fall-Run Chinook (*Oncorhynchus tshawytscha*)

Chinook salmon, the largest of the salmon species, is one of eight species of Pacific salmonids in the genus *Oncorhynchus*. Chinook salmon are anadromous and semelparous (i.e., spawn only once and then die). Central Valley fall- and late-fall-run chinook salmon are NMFS Species of Concern.

EFH has been designated for all species of chinook salmon managed by the NMFS and the Pacific Fisheries Management Council under the Pacific Coast Salmon Plan of 1997, and Amendment 14 to the Pacific Coast Salmon Plan of 2000. Within the project area, EFH includes all watercourses accessible to chinook salmon, including Steelhead Creek, the Sacramento River, and the Yolo Bypass (NMFS, 2006d).

During spawning, adult female chinook will prepare a redd in a stream area with suitable gravel composition, water depth, and water velocity. Suitable substrate for spawning usually consists of a mixture of gravel and cobble with low silt content. The adult female chinook may deposit eggs in four to five “nesting pockets” within a single redd. After spawning, adult chinook guard the redd from 4 to 25 days before dying. Chinook salmon eggs hatch between 90 and 150 days after deposition, depending upon water temperatures. Eggs are deposited at a time to ensure that young salmon fry emerge during the following spring when the river or estuary productivity is sufficient for juvenile survival and growth (NMFS, 2006c).

Juvenile chinook may spend from three months to two years in fresh water after emergence and before migrating to estuarine areas as smolts, and then into the ocean to feed and mature. Chinook salmon remain at sea for one to six years, although they typically remain for two to four years, with the exception of a small proportion of yearling males (jack salmon), which either mature in fresh water or return after spending two to three months in saltwater (Moyle, 2002).

The Central Valley fall- and late-fall-run chinook designation consists of two distinct migrations of chinook. Fall-run chinook are adapted for spawning in lowland reaches of large rivers and their tributaries. They migrate from the ocean in late summer and early fall in mature condition and typically spawn within a few days or weeks of reaching the spawning grounds. Juveniles

emerge in spring and move downstream to rear in mainstem rivers or estuaries before heading out to sea. Late-fall-run chinook typically migrate into rivers between October and April, and hold in the river for one to three months before spawning. They are adapted for spawning and rearing in mainstem rivers such as the upper Sacramento River that remain cold and deep enough in summer for rearing of juveniles. Juveniles grow rapidly and travel to sea after spending between 7 and 13 months in fresh water (Moyle, 2002).

The late-fall-run chinook is included in the Recovery Plan for the Sacramento/San Joaquin Delta Native Fishes, and protection measures outlined by the plan are discussed in Section 6 of this report.

On April 10, 2008, the Pacific Fishery Management Council adopted final regulatory recommendations to close commercial and recreational fishing for fall- and late fall-run chinook. A state of emergency was declared by the governor of California, stating that the fall chinook salmon fishery had collapsed due to poor ocean conditions and other environmental factors. The state of emergency directed the CDFG to work to ensure the protection of the resource and to address the long-term restoration and management of the ESU in ongoing discussions with federal agencies and representatives from conservation and fishing organizations and fishing communities (Schwarzenegger, 2008).

Threats to the species are similar to those of the spring- and winter-run chinook, including elevated water temperatures and impacted water quality, water diversions and dams, and loss of suitable spawning and rearing habitat, though other factors that may have contributed to this recent decline in population could include high predation and low abundance of food in the ocean that are thought to have occurred in 2005 when the juveniles were heading out sea.

Central Valley fall- and late-fall-run chinook may occur in the Sacramento River or Yolo bypass in the Line 407 West project segment. Additionally, these fish are known to occur in Steelhead Creek approximately 6 miles downstream of the project and could potentially stray into the Line 407 East project area during wet months.

Central Valley Spring-run Chinook (*Oncorhynchus tshawytscha*)

Central Valley spring-run chinook are federally listed as threatened. Critical habitat for the species has been designated in the Sacramento River and Yolo Bypass. Central Valley spring-run chinook salmon are similar in many of their life history characteristics to other chinook salmon runs in the Central Valley, with the exception of their run timing, their spawning period, and the amount of time spent in the river by juveniles before migrating out to sea.

Threats to Central Valley spring-run chinook salmon fall into three broad categories: loss of most historical spawning habitat, degradation of remaining habitat, and genetic threats from the Feather River Hatchery spring-run chinook salmon program. Like most spring-run chinook salmon, Central Valley spring-run chinook salmon require cool freshwater while they mature over the summer. In the Central Valley, summer water temperatures are suitable for chinook salmon only above 150- to 500-meter elevations, and most such habitat in the Central Valley is now upstream of impassable dams. Only three wild populations of spring-run chinook salmon

with consistent spawning runs (on Mill, Deer, and Butte creeks, tributaries to the lower Sacramento River draining out of the southern Cascade Mountains) are extant.

In addition to outright loss of habitat, Central Valley spring-run chinook salmon must contend with widespread habitat degradation and modification of rearing and migration habitats in the natal stream, the Sacramento River, and the Sacramento delta. The natal tributaries do not have large impassable dams, like many Central Valley streams, but they do have many small in-stream flows during spring-run migration periods. Problems in the migration corridor include unscreened or inadequately screened water diversions, predation by nonnative species, and excessively high water temperatures (NMFS, 2005b).

The Feather and Yuba rivers contain populations that are thought to be significantly influenced by the Feather River Hatchery spring-run chinook salmon stock. The Feather River Hatchery spring-run chinook salmon program releases its production far downstream of the hatchery, causing high rates of straying. There is concern that fall-run and spring-run chinook salmon have hybridized in the hatchery (CDFG, 2001).

Spring-run chinook salmon enter the Sacramento River as sexually immature fish in spring and early summer, usually between March and September. They move upstream and enter tributary streams, holding in headwater pools until they spawn typically between late August and October. Adults die after spawning. Juveniles typically rear in freshwater for 3 to 15 months. Juveniles emigrate from the tributaries to estuarine waters and the ocean between mid November and June (Moyle, 2002).

Central Valley spring-run chinook may occur in the Sacramento River or Yolo Bypass in the Line 407 West project segment.

Sacramento River Winter-run Chinook (*Oncorhynchus tshawytcha*)

Winter-run chinook in California are unique to the Sacramento River. They are federally listed as endangered and critical habitat has been designated in the Sacramento River. Winter-run chinook salmon are similar in many of their life history characteristics to other chinook salmon runs in the Central Valley, with the exception of their run timing, their spawning period, and the amount of time spent in the river by juveniles before migrating out to sea.

Winter-run salmon typically migrate upstream as immature fish during winter and spring, then spawn several months later in summer. Most winter-run chinook return to fresh water at three years old, and spawn in the upper Sacramento River in clear, cool water released from Shasta Reservoir. Adults die after spawning. Juveniles remain in fresh water for 5 to 10 months, followed by an intermediate time in estuarine waters before entering the ocean. Optimal temperatures for growth and survival of winter-run chinook salmon range from between 41 and 66 deg. F. At around 72 to 73.5 deg. F, major mortality is experienced in wild populations (Moyle, 2002).

The Shasta and Keswick dams block access to the Sacramento River winter-run chinook Evolutionary Significant Unit's (ESU) historic spawning habitat and is the primary threat to the

species. With cold-water releases from Shasta Dam creating spawning habitat and conditions 100 feet below the dam, the species has been able to survive, but has experienced significant impacts. Other threats to the small remaining extant population include vulnerability to drought, adverse flow conditions, high summer water temperatures, entrainment by water diversions, pollution (e.g., Iron Mountain Mine), predation, and unsustainable harvest rates (NMFS, 2007b).

Sacramento River winter-run chinook may occur in the Sacramento River or Yolo Bypass in the Line 407 West project segment.

California Tiger Salamander (*Ambystoma californiense*)

The CTS is federally listed as threatened. This salamander is endemic to California, and occurs in low elevations of the Coast Range from Sonoma County to Santa Barbara County, and in the Central Valley from Colusa County to Tulare County. It breeds in long-lasting temporary pools as well as some permanent pools in grasslands and oak woodland habitats. Upland habitats with small-mammal burrows, particularly those of the California ground squirrel, are utilized for aestivation (Jennings and Hayes, 1994). Migration to and from breeding sites typically occurs at night following relatively warm rains from November to March. Juvenile salamanders may spend up to five years traveling farther and farther from breeding pools before finding a suitable pool or returning to their natal pools to breed.

The primary cause of the decline of California tiger salamander populations is the loss and fragmentation of habitat from human activities and the encroachment of nonnative predators. All of the estimated seven genetic populations of this species have been significantly reduced because of urban and agricultural development, land conversion, and other human-caused factors. Reduction of ground squirrel populations to low levels through widespread rodent control programs may reduce availability of burrows and adversely affect the California tiger salamander. Poison typically used on ground squirrels is likely to have a disproportionately adverse effect on California tiger salamanders, which are smaller than the target species and have permeable skins. Use of pesticides such as methoprene in mosquito abatement may have an indirect adverse effect on the California tiger salamander by reducing the availability of prey. Various nonnative subspecies have been introduced and may out-compete the California tiger salamanders, or interbreed with them to create hybrids that may be less adapted to the California climate, or are not reproductively viable. Automobiles and off-road vehicles kill a significant number of migrating California tiger salamanders, and contaminated runoff from roads, highways, and agriculture may adversely affects the species (USFWS, 2008b).

The CTS may occur in the grasslands of the Dunnigan Hills within the Line 406 project segment where mammal burrows are abundant and temporary pools and cattle ponds exist, or in grasslands in the Line 407 East segment where vernal pools are present. However, mammal burrows are not abundant in the Line 407 project area and thus the CTS is less likely to occur in the Line 407 project segment.

Western Spadefoot Toad (*Spea hammondii*)

The western spadefoot is covered by the NBHCP and is included in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (2005b). It ranges from the northern end of the Central Valley near Redding, east of the Sierra Nevada range and the deserts, and south into northwest Baja California at elevations from near sea level up to 4,000 feet. Spadefoot toads prefer open areas with sandy or gravelly soils in a variety of habitats, including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Spadefoot toads breed from January to May in temporary pools and quiet streams that do not contain bullfrogs (*Rana catesbeiana*), fish, or crayfish (*Procambarus clarkii*). The species burrows into drying pool bottoms or seeks refuge in mammal burrows to pass the dry season (Stebbins, 2003).

The primary cause of the reduction in western spadefoot toad population is habitat loss and fragmentation from urban and agricultural development. Furthermore, most of the remaining suitable rainpool or vernal pool habitats concentrated on valley terraces along the edges of the Central Valley floor are not protected. Livestock grazing can crush or consume egg clusters or directly trample juvenile and adult toads. In addition, cattle herd management (grazing and watering) may change vernal pool hydrology, adversely affecting toad metamorphosis and reducing the population. Roads may cause direct mortality to toads from motor vehicle strikes and can be a barrier to movements, effectively isolating populations and fragmenting habitat. Industrial contaminants and chemicals used on vegetation are toxic to amphibians and their prey, detrimentally impacting the toad populations. Another reason for the population decline and displacement of the toad is the introduction of nonnative predators such as the bullfrog (USFWS, 2005b).

The western spadefoot toad may occur in the Line 407 East project segment east of Steelhead Creek or in the Dunnigan Hills area of the Line 406 project segment where temporary pools or mammal burrows exist.

Northwestern Pond Turtle (*Clemmys marmorata marmorata*)

The northwestern pond turtle is covered by the NBHCP. In California, western pond turtles were historically present in most Pacific-slope drainages between the Oregon and Mexican borders (Jennings and Hayes, 1994). The turtle is divided into two subspecies: the northwestern subspecies (*C.m.marmorata*) and the southwestern subspecies (*C.m.pallida*). The northwestern subspecies is the one considered in this assessment, and is most likely to occur in still or slow-moving permanent or nearly permanent aquatic habitats that have access to suitable basking sites (e.g., logs, rocks, or open banks) and nearby upland nesting habitat. Northwestern pond turtles are thoroughly aquatic and can be found inhabiting woodland, grassland, and open forest habitats that contain ponds, permanent pools along intermittent drainages, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation (Stebbins, 2003).

Factors threatening the northwestern pond turtle include loss, degradation, and fragmentation of habitat; disease; and introduced predators and competitors. Specifically, agricultural activities can destroy turtle nests or cause nests to fail. In addition, cattle may trample and eat aquatic

vegetation that serves as habitat for hatchlings, and may directly crush individuals (Jennings and Hayes, 1994).

The western pond turtle may occur in aquatic habitats such as irrigation canals, creeks, or ponds within the Line 406, Line 407 West, and Line 407 East project segments.

Giant Garter Snake (*Thamnophis gigas*)

The GGS is federally listed as threatened and is covered by the NBHCP. A draft recovery plan was proposed for the GGS in 1999. The snake is endemic to valley floor wetlands of the Sacramento and San Joaquin valleys and its current range extends from near Chico in Butte County south to Fresno County. Thirteen known populations are concentrated in portions of the rice production zones in the Butte, Colusa, Sutter, American, Sacramento, and Yolo basins. The species inhabits freshwater marshes, wetlands, slow-moving streams, drainage ditches, irrigation canals, and rice fields in the Central Valley. The GGS requires emergent or riparian vegetation for cover, foraging, and basking, and upland habitat for retreat and hibernation activities. The snake also requires permanent water during its active period of May through October (USFWS, 1993).

The primary causes for the decline of the giant garter snake are habitat loss and fragmentation, flood control activities, agricultural and land management practices, introduced predators, parasites, and pollution. One of the most notable threats has been the high channelization of rivers, resulting in the removal of oxbows and backwater areas providing suitable habitat for the snakes (USFWS, 2007e).

The GGS may occur in rice fields and other associated aquatic and upland habitats in the Line 407 East and Line 407 West project segments east of the Sacramento River.

Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird is covered by the NBHCP. The species is a colonial nester that requires a protected nesting substrate of tall emergent or shrubby vegetation over or near open water. Foraging habitat includes annual grasslands, seasonal wetlands, agricultural fields, riparian areas, and cattle dairies. This species may visit lowland areas within mixed species flocks from October through March. Tricolored blackbirds are nearly endemic to California and the vast majority of the breeding population occurs in the Central Valley (and encompasses all valley counties), with populations also occurring in northeastern California and along the central and southern California coast. Nesting colonies are vulnerable to agricultural practices, wetland alteration and destruction, introduced predators, pesticides, and poisons (Hamilton, 2004).

Current threats to the tricolored blackbird population include land conversion of nesting and feeding areas to agriculture and urban development, predation by Black-crowned Night-herons (*Nycticorax nycticorax*), coyotes (*Canis latrans*), raccoons (*Procyon lotor*), and ravens (*Corvus corax*), frequently causing nearly complete loss of nests at colonies, mowing active nesting colonies in grain fields, and fluctuating water levels (USDA, 2005).

The tricolored blackbird may occur in the Line 406, Line 407 West, and Line 407 East project segments where suitable foraging or nesting habitat exists.

Burrowing Owl (*Athene cunicularia*)

The burrowing owl is covered by the NBHCP. Burrowing owls inhabit open, dry, gently rolling to flat grasslands, scrublands, and agricultural lands. Essential habitat characteristics for the burrowing owl are low-growing sparse vegetation and the occurrence of burrowing rodents. Burrowing owls range throughout most of the interior western United States, southern Canada, the Central Valley of California, southern California, throughout Mexico into Central America, and along the western half of Florida. The species is declining, with many populations extirpated due to habitat loss/fragmentation and burrowing-rodent control (Johnsgard, 1988; Klute, et al., 2003).

Habitat loss and degradation from rapid urbanization of farmland in the core areas of the Central and Imperial valleys is the greatest threat to burrowing owls in California. Ongoing urbanization in coastal regions, changes in agricultural practices, and continuing eradication of ground squirrels are also serious threats. Other causes of mortality may include roadkill where owls nest near roadways, pesticide concentration through consumption of contaminated food sources, or West Nile virus which is particularly virulent in raptor species (Gervais et al., 2008).

The burrowing owl is likely to occur in agricultural lands within the Line 406, Line 407 West, and Line 407 East segments, and is found in the Line 406 project segment within the Dunnigan Hills where mammal burrows and rodents are present and suitable nesting and foraging opportunities abound.

Swainson's Hawk (*Buteo swainsoni*)

The Swainson's hawk is covered by the NBHCP. Foraging habitat for the species consists of open grasslands, grain, and alfalfa fields (supporting rodent populations) adjacent to nesting opportunities. Nesting habitat consists of open areas with stands of dense-topped trees in juniper-sage flats, riparian areas, and oak savannas. Swainson's hawks typically nest in stands with only a few trees in the abovementioned habitats, as well as within agricultural areas. Swainson's hawks can become relatively habituated to human presence and activity as they readily occupy habitat within agricultural and rural residential areas, usually along roadsides where suitable nest trees are located, but sudden changes in activity regimes (construction in previously open areas or human intrusion) frequently causes nest abandonment, particularly during certain times of the breeding season (Johnsgard, 1990; Woodbridge, 1998).

The Swainson's hawk's breeding range includes the interior western United States, north-central Mexico, northeastern Alaska, northwestern and south-central Canada, and the Central Valley of California, and it winters primarily in South America. Breeding occurs from March to August.

The loss of agricultural lands to various residential and commercial developments is a serious threat to Swainson's hawks throughout California. Additional threats are habitat loss due to riverbank protection projects; conversion from agricultural crops that provide abundant foraging

opportunities to crops such as vineyards and orchards, which provide fewer foraging opportunities; shooting; pesticide poisoning of prey animals and hawks on wintering grounds; competition from other raptors; and human disturbance at nest sites (CDFG, 1983).

The Swainson's hawk may occur in grasslands, agricultural areas, and the Line 406, Line 407 West, and Line 407 East project segments.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

The western yellow-billed cuckoo is a candidate for federal listing. Cuckoos nest in riparian forests along broad, lower floodplains of larger river systems. The cuckoo requires broad, well-developed, low-elevation riparian woodlands of primarily mature cottonwoods and willows in large, contiguous tracts of habitat. Dense understory foliage seems to be an important habitat characteristic in nest-site selection, and cottonwood trees are an important foraging habitat component in California. The species exhibits some degree of nest-site fidelity and can act as a facultative brood parasite (USFWS, 2001).

The breeding range of the western yellow-billed cuckoo formerly included most of North America from southern Canada to the Greater Antilles and northern Mexico. In recent years, the species' distribution in the west has contracted. The northern limit of breeding in the coastal states is now in the Sacramento Valley, and the northern limit of breeding in the western interior states is southern Idaho. The species is threatened by riparian habitat loss and modification, water management and flood control projects, and by the introduction of invasive riparian plant species (Laymon, 1998; USFWS, 2001).

Loss of breeding riparian habitat is the primary threat to the western yellow-billed cuckoo. The principal causes of riparian habitat losses are conversions to agricultural and other uses, dams and river flow management, stream channelization and stabilization, groundwater pumping, replacement of native plants with invasive nonnative plants, and livestock grazing. Overuse by livestock can change plant community structure, species composition, relative abundance, and plant density, thereby degrading and modifying the riparian habitat (USFWS, 2007f).

The western yellow-billed cuckoo may occur along riparian corridors in the Line 407 West project segment.

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle was de-listed from its former federally threatened listing status on June 28, 2007. Currently, the bald eagle's main California breeding territories are in northern California, but the eagles also nest in scattered locations in the central and southern Sierra Nevada mountains and foothills, in several locations from the central Coast Range to inland southern California, and on Santa Catalina Island. The bald eagle generally winters throughout its breeding range but more frequently along coastal areas. This species nests in large, mature trees and on cliffs near large bodies of water or free-flowing rivers that provide an adequate fish prey base. The bald eagle requires large bodies of water for hunting and fishing, as well as adjacent snags or structures for

perching, and is highly susceptible to human disturbance during nesting activities (Johnsgard, 1990).

Primary threats to the bald eagle population are habitat loss, environmental contaminants (i.e., organophospate pesticides, heavy metals, and oil spills), electrocution by powerlines, and human disturbance. Human activity may disturb roosting or foraging bald eagles to a degree that interferes with breeding, feeding, or sheltering behavior, causing injury, death, or nest abandonment (USFWS, 2008c).

The bald eagle may occur as a winter migrant near suitable habitat along the Sacramento River in the Line 407 West project segment.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is covered by the NBHCP. The shrike is a common resident and winter visitor in lowlands and foothills throughout California. Loggerhead shrikes prefer open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. The highest population densities occur in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats, but the species is also found in cropland areas (CDFG, 2006c).

The primary cause of loggerhead shrike population declines is breeding habitat loss and degradation as a result of urbanization, and agricultural conversion. Other threats to the shrikes include pesticides ingested from prey, shootings of perched birds, road kills, and increased predation (County of Sacramento, 2005).

The loggerhead shrike may occur in agricultural, riparian, or developed habitat in the Line 406, Line 407 West, and Line 407 East project segments.

White-faced Ibis (*Plegadis chihi*)

The white-faced ibis is covered by the NBHCP. White-faced ibises feed in fresh emergent wetlands, shallow lacustrine waters, the muddy ground of wet meadows, and irrigated or flooded pastures and croplands. This ibis eats amphibians and small fishes in shallow water or on the water surface, and earthworms, insects, crustaceans, and miscellaneous invertebrates by probing deep in mud with its long bill (CDFG, 2006c).

The species nests and roosts amid dense, freshwater emergent vegetation such as bulrushes, cattails, reeds, or low shrubs over water. It breeds across the western United States northward to Montana, eastward to western Louisiana, and southward to South America. It winters from Southern California and Louisiana southward. It is an uncommon summer resident in sections of Southern California, a rare visitor in the Central Valley, and is more widespread in migration. Formerly more common, especially in the San Joaquin Valley, this species no longer regularly breeds anywhere in California (Remsen, 1978; CDFG, 2006c).

In the Central Valley, the historical threat to the white-faced ibis was the loss of wetlands from reclamation projects, including levee and drainage projects, agricultural conversions, and industrial and urban development. Recently, habitat loss and degradation consists of the conversion from suitable flood-irrigated agriculture crops to pressurized water-delivery systems and urbanization. In addition, traditional breeding areas on refuges are threatened with habitat degradation from lack of water as a result of reduced water allocations. Other threats to the ibis include predation, illegal shooting, and contamination (County of Sacramento, 2005).

The white-faced ibis may occur in wetland habitat within the Line 406, Line 407 West, and Line 407 East project segments.

Bank Swallow (*Riparia riparia*)

The bank swallow is covered by the NBHCP. It is a locally common to uncommon resident in northern and central California during its breeding season. Because nesting only occurs in suitable habitat, breeding areas are spread throughout northern and central California in major lowland valleys and coastal areas where alluvial soils exist. Nesting colonies only occur in vertical banks or bluffs of friable soils suitable for burrowing by these small birds. Banks or bluffs are typically at least 3 feet tall to have some predator deterrence values, and some source of continual erosion is almost always present. Breeding habitat vegetation is extremely varied because breeding sites are mostly selected for the suitability of the soils. Throughout California, colonies are mostly located amidst lowland vegetation types, including riparian forests dominated by willow and Fremont cottonwood. Many colonies along the Sacramento and Feather rivers occur under cultivated crops, including deciduous orchards, irrigated row crops, and dryland grain crops. Coastal colonies are located under coastal grassland and coastal scrub communities, while colonies in montane environments in Shasta, Lassen, and Plumas counties occur in coniferous forests where pines (*Pinus* spp.) and firs (*Abies* spp.) dominate. Colonies in northeastern California occur under irrigated pasture, riparian forests, and desert shrub habitats (Garrison, 1998).

The major breeding population is confined to the Sacramento and Feather rivers and their major tributaries north of their confluence between Redding in Shasta County, and the Yolo Bypass in Yolo County (Laymon et al., 1988).

The primary threat to the bank swallow population is riparian habitat loss and degradation as a result of stream channelization, and bank protection and stabilization projects with the installation of riprap (CDFG, 2000).

The bank swallow may occur where vertical banks of friable soils exist in the Line 406, Line 407 West, and Line 407 East project segments.

6. REGULATORY BACKGROUND

FEDERAL ENDANGERED SPECIES ACT

The FESA protects plants and wildlife that are listed as endangered or threatened by the USFWS and the NMFS. Section 9 of the FESA prohibits the take of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land, and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16USC1538). Under Section 7 of the FESA, federal agencies are required to consult with the USFWS and/or the NMFS if their actions, including permit approvals or funding, could adversely affect a listed plant or wildlife species or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS and/or the NMFS may issue an incidental take permit allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. Section 10 of the FESA provides for issuance of incidental take permits to private parties, provided a habitat conservation plan (HCP) is developed.

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the Fish and Game Code.

MAGNUSON-STEVENS ACT

The Magnuson-Stevens Act, as amended by the Sustainable Fisheries Act of 1996, requires federal agencies to consult with the NMFS on activities that may adversely affect EFH. In addition, the law requires fishery-management councils to include descriptions of EFH and potential threats to EFH in all federal fishery-management plans. The Pacific Fishery Management Council amended the Pacific Coast Salmon Plan in 2000 to include descriptions of EFH for different salmonid species. EFH for chinook salmon was defined for fresh, estuarine, and marine waters.

Freshwater EFH for chinook salmon consists of four major components, including spawning and incubation, juvenile rearing, juvenile migration corridors, and adult migration corridors and holding habitat. Important features of EFH for spawning, rearing, and migration include substrate composition, water quality, water quantity, depth and velocity, channel gradient and

stability, food, cover and habitat complexity, space, access and passage, and floodplain and habitat connectivity.

Chinook salmon EFH includes all streams, lakes, ponds, wetlands, and other waterbodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California. Salmon EFH excludes areas upstream of longstanding naturally impassible barriers (i.e., natural waterfalls in existence for several hundred years), but includes aquatic areas above all artificial barriers except specifically cited impassible dams.

FEDERAL CLEAN WATER ACT

The federal Clean Water Act's (CWA) purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into waters of the United States without a permit from the USACE. The definition of waters of the United States includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency also has authority over wetlands and may override a USACE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or Waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board.

RECOVERY PLAN FOR VERNAL POOL ECOSYSTEMS OF CALIFORNIA AND SOUTHERN OREGON

This recovery plan prepared by the USFWS (USFWS 2005b) features 33 species of plants and animals that occur exclusively or primarily within vernal pool ecosystems in California and southern Oregon, and that may occur in vernal pool habitat in the Line 407 East project segment. The overall goals of this recovery plan are to:

- achieve and protect in perpetuity self-sustaining populations of each species,
- de-list the 20 federally listed plant and animal species, and
- ensure the long-term conservation of the 13 species of special concern.

Interim goals of this recovery plan are to:

- stabilize and protect populations to prevent further decline of each species,
- conduct research necessary to refine reclassification and recovery criteria, and
- reclassify to threatened status those species listed as endangered.

The overall objectives of this recovery plan are to:

- ameliorate or eliminate the threats that caused the species to be federally listed as endangered or threatened, and to ameliorate any newly identified threats in order to be able to de-list or down-list these species;

- ameliorate or eliminate the threats that affect the species of special concern and ameliorate any newly identified threats in order to conserve these species;

- confirm the status of bearded popcorn flower (*Plagiobothrys hystriculus*), a species of special concern that is currently presumed extinct (If extant populations are discovered, the ultimate goal would be to ensure the long-term conservation of this species.); and

- promote natural ecosystem processes and functions by protecting and conserving intact vernal pools and vernal pool complexes.

RECOVERY PLAN FOR THE SACRAMENTO/SAN JOAQUIN DELTA NATIVE FISHES

The Recovery Plan for the Sacramento/San Joaquin Delta Native Fishes (Recovery Plan) was prepared by the USFWS (USFWS 1995) in collaboration with a team of specialists and agencies, and includes recovery and restoration objectives for eight species of fish that utilize the Sacramento/San Joaquin Delta for a significant segment of their life history. The Recovery Plan includes one of the special-status species with the potential to occur near the project area, the Central Valley (Sacramento) late-fall-run chinook salmon.

The objective of the Recovery Plan is to restore wild populations of late-fall-run chinook salmon to optimum levels that can be supported by the remaining holding and spawning habitat in the Sacramento River by improving out-migrant conditions in the Delta. The Recovery Plan delineated actions believed to be necessary for the restoration and recovery of the eight species.

Recovery and restoration actions for the Sacramento late-fall-run chinook salmon include:

- providing passage of adults through the Delta to holding and spawning areas;
- improving spawning success through habitat improvements and protection of adults from harvest on the spawning grounds;
- providing passage flows for out-migrating juveniles;
- providing habitat for juvenile fish in the river;
- improving survival rates through the Delta;
- reducing catch in the ocean and stream fisheries;
- reducing the effects of hatchery fish on wild populations; and
- construction of redds on high terraces during flood events, which are subsequently exposed when flood flows recede.

DRAFT RECOVERY PLAN FOR THE GIANT GARTER SNAKE

The draft recovery plan for the federally threatened GGS, prepared by the USFWS (USFWS 1999b), examines loss and fragmentation of wetland habitats inhabited by the GGS within the

Central Valley of California. It also considers several species of special concern that occur in Central Valley wetlands that benefit from actions taken to recover the GGS. These species include the tricolored blackbird, white-faced ibis, northwestern pond turtle, and associated waterfowl.

The GGS inhabits agricultural wetlands and other waterways, such as irrigation and drainage canals, sloughs, ponds, small lakes, low-gradient streams, and adjacent uplands in the Central Valley. Because of the direct loss of natural habitat, the GGS relies heavily on rice fields in the Sacramento Valley, but also uses managed marsh areas in national wildlife refuges and state wildlife areas. Habitat loss and fragmentation, flood-control activities, changes in agricultural and land management practices, predation from introduced species, parasites, and water pollution are continuing threats and the main causes for the decline of this species.

The GGS has been given a recovery priority of 2C (full species, high degree of threat, high recovery potential) by the USFWS. The objective of the recovery plan is to de-list the GGS.

Recovery criteria have been designated in the plan, and include:

- monitoring, which shows that in 17 out of 20 years, 90 percent of the subpopulations in four recovery units contain both adults and young;
- all extant populations within the recovery unit are protected from threats that limit populations;
- supporting habitat within the recovery unit is adaptively managed and monitored;
- subpopulations are well connected by corridors of suitable habitat; and
- repatriation (reintroduction) has been successful at a specified number of suitable sites.

To satisfy these recovery criteria, the following actions have been recommended by the plan:

- Protect existing populations and habitat
- Restore populations to former habitat
- Survey to determine species distributions
- Monitor populations
- Conduct necessary research, including studies on demographics, population genetics, and habitat use
- Develop and implement incentive programs and an outreach and education plan

CONSERVATION BANKS AND PLANS

The PG&E Line 406 and Line 407 Pipeline Project will cross land covered by the following three conservation banks or plans. PG&E will coordinate with the administrators of these three areas and the USFWS to mitigate for temporary impacts to conservation bank or plan lands associated with construction of the pipeline.

River Ranch Conservation Bank

The River Ranch Conservation Bank, managed by Wildlands, Inc., is an approximately 3,600-acre mitigation bank located west of the Sacramento River in Yolo County. The bank sells conservation credits for VELB, Swainson's hawk, agricultural, and wetland impacts in a primary service area, including all of Sutter, most of Sacramento, and portions of San Joaquin, Amador, Colusa, Yolo, Napa, Solano, El Dorado, Placer, Nevada, and Yuba counties. Extended coverage includes parts of Tehama, Glenn, Butte, Plumas, and Sierra counties. As of May 2008, there were approximately 155 acres of VELB mitigation land comprising up to 3,763 units of VELB habitat, up to 800 acres of Swainson's hawk habitat available for conservation easement, up to 2,000 acres available for agricultural mitigation, and land that will be available for mitigation of jurisdictional seasonal wetland impacts.

Natomas Basin Habitat Conservation Plan

The NBHCP covers approximately 53,537 acres of land within the Natomas Basin in northern Sacramento County and southern Sutter County that has historically been utilized for agriculture. The Natomas Basin is bound by Cross Canal on the northwest corner, the Sacramento River on the west, the American River on the south, and the Natomas East Main Drainage Canal (Steelhead Creek) on the east. The Natomas Basin Conservancy acts as the plan operator for the NBHCP, and acquires and manages habitat land for the benefit of the 22 species covered under the plan.

The purpose of the NBHCP is to promote biological conservation in conjunction with economic and urban development in the permit areas. The NBHCP establishes a multi-species conservation program to minimize and mitigate expected take of covered species that could result from development, including GGS and Swainson's hawk. The NBHCP requires mitigation for designated types of development within the NBHCP area boundaries, including public and private utilities. Compliance includes the requirements for land and/or fee dedication, as well as the application of measures to avoid, minimize, and mitigate the take of species covered by the NBHCP.

A portion of the land that will be crossed by the PG&E Line 407 West and Line 407 East project segments is located in an area permitted for development in Sutter County. Projects in this area require that Sutter County issue an Urban Development Permit to allow the work to proceed under the requirements of the NBHCP. Private or public actions that are covered activities under the NBHCP may also be subject to separate Section 7 review if those actions are authorized, carried out, or funded by federal agencies. Incidental take for covered activities carried out by third-party developers acting under the authority of an Urban Development Permit issued by Sutter County will be granted under the Incidental Take Permit issued to Sutter County by the USFWS, and is subject to the take mitigation, minimization, and avoidance measures provided for under the NBHCP. Incidental take coverage for the federal action agency is granted through the incidental take statement issued with the USFWS's Section 7 biological opinion.

Draft Placer County Conservation Plan

In 2000, the Board of Supervisors directed staff to initiate the implementation of the Placer Legacy Program. As part of that direction, staff initiated the preparation of a Natural Community Conservation Plan and Habitat Conservation Plan to comply with the California and Federal Endangered Species Acts and the federal CWA related to wetlands. That effort, now referred to as the proposed Placer County Conservation Plan, is intended to address the impacts associated primarily with unincorporated growth in western Placer County and growth associated with the build out of the City of Lincoln's updated general plan. Development will require the preservation of approximately 54,300 acres of land between now and 2050, and implementation and land protection measures will be managed in perpetuity.

Conservation planning within Placer County is taking place in phases. The first phase is the development of a plan for the western portion of the County. The draft plan (February 2005) specifies the following techniques for minimizing impacts to wetlands and aquatic ecosystems when constructing utility lines.

- Aquatic and Wetland Goal 3: Protect aquatic and wetland ecosystems within reserves from human and livestock disturbances.

- 3.1: Manage vehicle use, utility crossings, and flood control activities within aquatic habitat by minimizing steam crossings that can harm watershed processes by disrupting fish passage, creating sedimentation, modifying channels, and changing drainage patterns.

- 3.1.1: Limit vehicle crossings and utility crossings to specified locations where impacts can be minimized by using bridges instead of culverts, sizing bridges to a minimum width, designing culverts to pass at least the 100-year flood event, and ensuring regular and long-term monitoring and maintenance.

Pacific Gas and Electric Company VELB Conservation Program

In 2003, PG&E developed a conservation program in consultation with the USFWS to manage mitigation of impacts to VELB resulting from their ongoing maintenance and operation of electric and natural gas transmission and distribution (USFWS, 2003). This conservation program (program) outlines best management practices (BMPs) and avoidance measures intended to minimize impacts to VELB. While the Line 406 and Line 407 Pipeline Project will consist of new construction and will not be considered a maintenance or operation project, many of the measures outlined in the program will be implemented to minimize disturbance of existing elderberry shrubs that provide VELB habitat within or near the project ROW. These avoidance and minimization measures are discussed in detail in Section 8 of this report.

7. EFFECTS ANALYSIS

The following section describes impacts to habitat types, species, and critical habitat that may result from construction of the project. Temporary and permanent impacts are described for all

habitats and species. Additionally, direct and indirect impacts are discussed for each species and critical habitat that may be affected by the project. These types of impacts are described below.

- **Temporary Impacts:** Construction of the Line 406, Line 407 West, and Line 407 East segments of the project will require temporary disturbance of an approximate 100-foot-wide ROW. Construction of the Powerline Road DFM segment will require temporary disturbance to an approximate 60-foot-wide ROW. In certain areas, the ROW may be narrowed to avoid impacts to sensitive habitats and special-status species. In other areas, additional workspace needs may require that the ROW be expanded beyond the 100- or 60-foot widths.

  Potential temporary construction impacts may include loss of foraging and/or nesting habitat, decreased habitat value, disturbance of nesting sites, or habitat fragmentation. However, the majority of these impacts will be temporary, as PG&E plans to restore all disturbed habitats within the ROW following construction. Temporary impacts resulting from construction activities will be reduced to less than significant levels with the implementation of the avoidance, minimization, and mitigation measures outlined in Section 8 of this report.

- **Permanent Impacts:** The Line 406 and Line 407 Pipeline Project consists of the construction of an underground natural gas pipeline and approximately five small aboveground yards. Because the pipeline will be installed underground, permanent impacts that may result from project construction are only anticipated where the aboveground yards will permanently convert existing habitat.

  Permanent impacts to special-status species may consist of loss of suitable foraging, nesting, roosting, breeding, aestivation, or hibernation habitat. However, permanent impacts will be reduced to less than significant levels by avoiding location of permanent structures in sensitive habitat to the maximum extent feasible, by properly restoring the project ROW and work areas, and by replacing sensitive habitat features such as seasonal wetlands and vernal pools through restoration and compensatory mitigation.

- **Direct Impacts:** Direct impacts are defined in the FESA as effects to species or their critical habitat that occur during the implementation of a project. These impacts are likely to result from construction of the project, but are not likely to continue once construction is complete.

- **Indirect Impacts:** Indirect impacts are defined in the FESA as effects that occur to species or their critical habitat after implementation of the project is complete. These effects are caused by or result from project activities and are reasonably certain to occur.

PLANT COMMUNITIES AND HABITAT TYPES

Project impact acreages to habitat types are summarized in Table 5.

Table 5: Project Impact Acreages

Habitat Type	Temporary Impact Acreage	Permanent Impact Acreage
Agricultural	307.1	2.5
Rice	57.4	0.2
Row crops	238.4	0.3
Orchards	11.3	2.0
Annual grassland	118.5	1.1
Developed/ornamental	21.3	0.1
Oak woodland	0.7	0.0
Riparian woodland	0.2	0.0
Riverine	0.5	0.0
Wetlands	6.4	0.0
Fresh emergent wetlands	0.0	0.0
Seasonal wetlands and swales	6.4	0.0
Vernal pools and swales	0.0	0.0

Agricultural Lands

Temporary Impacts

Construction of the project will temporarily impact approximately 307 acres of agricultural lands (approximately 238 acres of row crops, 57 acres of rice fields, and 11 acres of orchards). Impacts may include the temporary loss of portions of agricultural fields where the ROW will be located, or disruption of irrigation flows in row crops. Some trees will be removed from the ROW in the limited orchards in the project area. Following construction, a majority of agricultural lands disturbed during installation of the pipeline will be allowed to return to their previous land use, including replanting trees in orchards. However, some impacts will be permanent, as described below. PG&E will restore the ROW as agreed upon with landowners following completion of

construction activities. Additionally, PG&E will implement the mitigation measures outlined in Section 8 to minimize potential temporary construction impacts to agricultural habitat.

Permanent Impacts

The construction of the five permanent structures, including pressure limiting, pressure regulating, and metering stations and main line valve lots, and maintenance of the permanent ROW will permanently remove approximately 2.5 acres of agricultural habitat, including 0.2 acre of rice, 0.3 acre of row crops, and 2 acres of orchards. Orchards will be permanently impacted where a 30-foot-wide permanent strip of the permanent ROW centered on the pipeline will be maintained by PG&E to keep the area free of deep-rooted vegetation for safety purposes. Orchards will not be allowed to be replanted in this area.

Annual Grasslands

Temporary Impacts

Construction of the project will temporarily impact approximately 119 acres of grassland habitat. Grasslands will be cleared and graded as necessary during preparation of the ROW. Sensitive areas located in annual grasslands such as vernal pools and burrowing owl habitat will be avoided or impacts minimized using the mitigation measures outlined in Section 8 of this report.

Permanent Impacts

The construction of the Capay Metering Station and the Baseline Road Pressure Limiting Station will permanently remove approximately 1.1 acres of grassland habitat.

Developed/Ornamental

Temporary Impacts

Construction of the project will temporarily impact approximately 21 acres of developed/ornamental habitat. This habitat type is exposed to a regular regime of modification from landscaping and human influence and does not provide a great amount of habitat value to special-status species, with the exception of larger trees that may provide nesting opportunities for species like the Swainson's hawk. Where possible, clearing of the ROW will avoid removing potential nesting trees from developed/ornamental habitat. The ROW will be restored in accordance with landowner agreements following construction.

Permanent Impacts

Construction of the project will permanently impact approximately 0.1 acre of developed/ ornamental habitat where the Powerline Road Pressure Regulating Station will be constructed. No other permanent impacts to this habitat type are expected.

Oak Woodland

Temporary Impacts

Impacts to oak woodland habitat resulting from project construction are expected to be minimal as there is not much of this habitat type within the project ROW, and because PG&E plans to route around or under existing trees and to avoid tree removal during construction to the maximum extent feasible. The ROW will cross approximately 0.7 acre of this habitat type. PG&E will work with a certified arborist to determine the best routing options for crossing the small portion of oak woodland habitat in the project ROW, and will comply with all ordinances to replace trees as necessary if damage occurs as a result of construction of the project. In some cases, trimming and treatment of roots and branches may be necessary to install the pipeline where the ROW crosses near existing trees. PG&E will monitor the survival of any trees that require trimming and will replace any trees that do not survive according to the methods outlined in the Restoration and Monitoring Plan to be prepared by PG&E prior to construction in coordination with the appropriate agencies.

Oak trees exist within the project ROW in other habitat types besides oak woodland, and it is possible that a few select oak trees may need to be trimmed or removed to facilitate safe installation of the pipeline. PG&E will replace any trees that are removed or that do not survive trimming as a result of pipeline construction according to the methods outlined in the Restoration and Monitoring Plan.

Permanent Impacts

Permanent impacts to oak woodland are not expected to result from the project because no aboveground facilities will be located in this habitat type. While it is not anticipated, PG&E will replace and monitor the survival of any oak trees that are damaged or removed as a result of the project, according to the replacement ratios to be outlined in the Restoration and Monitoring Plan.

Riparian Woodland

Temporary Impacts

Riparian woodland is located adjacent to the Sacramento River, the Yolo Bypass, and some of the other larger waterways in the project area. Temporary workspace is planned in approximately 0.2 acre of riparian woodland adjacent to a canal just west of the Sacramento River along CR 16, and near the east levee of the Sacramento River where the bore pit will be located for the HDD of the river. No nesting trees are located in these areas, though elderberry shrubs may occur near the CR 16 canal. Temporary impacts could include removal of riparian vegetation and temporary loss of suitable habitat for species that utilize this habitat type.

Permanent Impacts

Permanent impacts to riparian woodland are not expected to result from the project because the pipeline will be installed underground and no aboveground facilities will be located in this habitat type. PG&E will restore any riparian trees or elderberry shrubs that are damaged as a

result of construction according to the measures to be outlined in the Restoration and Monitoring Plan.

Riverine

Temporary Impacts

Construction under riverine habitat in larger waterways such as the Sacramento River, Knights Landing Ridge Cut, Steelhead Creek, and some of the larger irrigation canals will be conducted using HDD methods in order to minimize the potential for impacts. Smaller waterways that provide riverine habitat will be crossed by bores or open-cut construction methods. Where riverine habitat is bored, impacts are not expected to result from project construction. Project construction will temporarily impact approximately 0.5 acre of riverine habitat in small irrigation or drainage canals where open-cut construction will be implemented.

While it is not anticipated, temporary impacts to crossings of riverine habitat could result if a frac-out occurs during HDD activities. PG&E will prepare an HDD Fluid Release Contingency Plan that will address methods for minimizing the potential for impacts that could result from a frac-out, and will implement BMPs outlined in PG&E's Water Quality Construction Best Management Practices Manual to minimize impacts to riverine habitat.

Permanent Impacts

The pipeline will be installed under all major waterways, and all smaller waterways will be crossed using dry-crossing methods. Any open cuts of dry crossings will be restored to preconstruction conditions following installation of the pipeline. Therefore, permanent impacts to riverine habitat are not expected to result from construction of the project.

Wetlands

Wetland types that occur in the project area consist of freshwater emergent wetlands, seasonal wetlands and swales, and vernal pools and swales. Because vernal pools and swales support a number of special-status species and because mitigation for impacts to these features is required at a different ratio than for those impacts to other wetland features, discussions of potential impacts to wetlands are broken into two sections below: fresh emergent/seasonal wetlands and swales, and vernal pools and swales.

Freshwater Emergent Wetlands, Seasonal Wetlands, and Seasonal Swales

Temporary Impacts

Freshwater emergent wetlands are present in Curry Creek, Steelhead Creek, Knights Landing Ridge Cut, Tule Canal, and some of the other irrigation and drainage canals that cross the project alignment. All freshwater emergent wetlands delineated by Gallaway in the Line 407 project area will be avoided by HDD or bore construction techniques, which will place the pipeline under the feature without surface impacts. Where HDD or bore techniques are not feasible, and where the appropriate permits have been obtained, a small amount of this habitat type may be temporarily impacted during open-cut construction of the pipeline across irrigation or drainage canals. Any

temporary impacts to freshwater emergent wetland habitat will be restored as described in Section 8 and as outlined in the Restoration and Monitoring Plan to be prepared by PG&E in coordination with the appropriate agencies prior to construction.

Approximately 6.4 acres of seasonal wetlands and seasonal swales exist in the project ROW, all of which are located in the Line 407 East project segment. These wetlands may be temporarily impacted by clearing and grading activities. PG&E will avoid seasonal wetlands during construction to the maximum extent feasible by narrowing the ROW, adjusting the route, or drilling under these features. Impacts to seasonal wetlands will be further minimized through implementation of the mitigation measures outlined in Section 8. Any temporary impacts to seasonal wetland or seasonal swale habitat will be restored as outlined in the Restoration and Monitoring Plan to be prepared by PG&E prior to construction.

Permanent Impacts

No permanent structures are planned to be constructed in freshwater emergent wetlands, seasonal wetlands, or seasonal swales. Temporarily impacted wetland features will be restored to preconstruction conditions once the pipe has been installed. Permanent impacts to fresh emergent wetlands, seasonal wetlands, and seasonal swales are not expected to result from construction of the project.

Vernal Pools and Swales

Temporary Impacts

All vernal pools and swales will be avoided during construction by implementing HDD or bore crossing methods to install the pipeline under these features, or by narrowing the ROW to avoid these features. Direct surface impacts are not anticipated to result from clearing, grading, or trenching activities. Indirect impacts may occur to approximately 0.9 acre of vernal features where construction will occur within 250 feet of hydrologically-connected features that are down gradient of the ROW. Indirect impacts could include siltation or contamination of pools from runoff leaving the ROW that leads to decreased habitat value or loss of habitat.

Indirect impacts to vernal pool and swale habitat will be minimized or avoided completely by implementation of BMPs and the mitigation measures outlined in Section 8 of this report. Any indirectly impacted vernal pools or swales will be restored as described in the Restoration and Monitoring Plan. Additionally, PG&E will follow any mitigation ratio requirements of the USFWS to compensate for impacts to vernal pool or swale habitat.

Permanent Impacts

Permanent impacts to vernal pools or swales are not expected to occur, as all of these features will remain undisturbed during construction. However, indirect impacts to vernal features could result if sediment or contamination resulting from accidental construction-related spills, as described above. The USFWS often considers any direct or indirect impacts to vernal features to be permanent due to the complex nature of the subsoils that cause vernal features to pond water for extended periods of time, and the sensitivity of these features to modification of hydrology or water quality. PG&E will restore any vernal features that may be indirectly impacted during

construction, as well as compensate for impacts to vernal features as needed according to a mitigation ratio to be agreed upon with the USFWS, as described further in Section 8.

SPECIAL-STATUS PLANT SPECIES

No special-status plant species listed by the USFWS or covered by the NBHCP or the USFWS *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (2005b) were found during focused surveys of the project area. However, suitable habitat does exist in the project action area and PG&E will take the proper precautions to avoid any potential indirect impacts to suitable habitat through implementation of BMPs and the mitigation measures described in Section 8 of this report.

Because special-status plants were not found in protocol-level surveys and are not likely to occur in the project area, temporary, permanent, direct, and indirect impacts to these species are not expected to result from the project.

SPECIAL-STATUS WILDLIFE SPECIES

Vernal Pool Invertebrates

Potential impacts would be similar for all vernal pool invertebrate species considered by this biological assessment. Therefore, the following discussion of temporary, permanent, direct, and indirect impact applies to all special-status vernal pool invertebrates that could potentially be affected by the project, including the vernal pool fairy shrimp, vernal pool tadpole shrimp, and Conservancy fairy shrimp.

Temporary Impacts

Construction is planned to take place in the dry season when vernal pool invertebrate habitat will be dry and the species will not be present in live form (only cysts are expected to be present, if at all). Vernal features will be avoided during construction; therefore, no temporary impacts are anticipated to occur.

Permanent Impacts

Any alteration or contamination of soils within vernal pools, or modification of hydrology that directly connects to vernal pools within the ROW or 250 feet down gradient of the ROW may result in permanent impacts to vernal pool invertebrates. With implementation of BMP's and the measures outlined in Section 8 below, no permanent impacts are anticipated to result from the project.

Direct Impacts

Construction of the project is scheduled to take place in the dry season when live vernal pool invertebrate species are not likely to be present, and will avoid direct impacts to vernal features. Therefore, direct impacts to these species are not anticipated to occur.

Indirect Impacts

Indirect impacts to vernal pool invertebrate species may include reduced feeding opportunities or loss of habitat resulting from watershed pollution or hydrology alterations if construction-related runoff and/or sedimentation is allowed to enter vernal features that are hydrologically-connected to the ROW.

Valley Elderberry Longhorn Beetle

Temporary Impacts

Temporary impacts to VELB could include temporary loss of habitat if elderberry shrubs must be trimmed during preparation of the ROW, or decreased habitat value resulting from construction disturbances within the 100-foot buffer required by the USFWS. However, it is not anticipated that any elderberry shrubs will need to be removed or transplanted, although the ROW may be within 50 feet of existing shrubs along some portions of the project alignment.

Permanent Impacts

Permanent impacts to the VELB could result if elderberry shrubs are removed during construction and are not replaced, or if direct mortality of the species occurs as a result of the project. However, it is not anticipated that project construction will require removal or transplanting of any elderberry shrubs, though work may be required within 50 feet of elderberry shrubs that exist in the project action area.

Direct Impacts

Direct impacts to VELB could include loss of suitable habitat, direct mortality, or decreased habitat value if elderberry shrubs are removed or trimmed during construction.

Indirect Impacts

Indirect impacts could include reduced available habitat or decreased habitat value if elderberry shrubs that must be removed during construction are not replanted or transplanted, or if the ROW is not properly restored.

Fish, Critical Habitat, and Essential Fish Habitat

Because potential impacts would be similar for all fish species considered by this BA, the following impact discussions apply to all special-status fish species that may be affected by the project, including green sturgeon, steelhead, and chinook salmon.

With the exception of the Yolo Bypass, all waterways in the project area that have been designated as critical habitat, that have the potential to support special-status fish species, or that provide EFH to chinook salmon will be crossed using HDD methods. This will significantly reduce potential impacts to these species and habitats as compared to other crossing methods such as open-cut construction.

The Yolo Bypass will be crossed using traditional pipeline construction methods over most of its width, and HDD will be used to cross under the levees and canals that run along its borders. The trenched portions of the Yolo Bypass will be dry during construction and are not expected to host any fish species at that time. All trenched areas of the Yolo Bypass will be restored to preconstruction conditions prior to the rainy season when the area is likely to provide suitable habitat for fish. Agricultural practices in the project ROW within the bypass include a regular schedule of earth-disturbing activities such as discing, ripping, and trenching for irrigation ditches. Construction of the project is not expected to cause earth disturbances to the area that are significantly beyond the existing practices, and, therefore, are not expected to have significant impacts to this area.

Temporary Impacts

Temporary impacts to special-status fish, critical habitat, or chinook salmon EFH could result if sedimentation or accidental spills of hazardous materials are allowed to enter project waterways, or if a frac-out occurs during the HDD process, resulting in decreased water quality or temporary loss of suitable spawning, rearing, or foraging habitat.

The Yolo Bypass will be disturbed during construction, but will not affect special-status fish species, critical habitat, or EFH for chinook salmon because this area provides only seasonal habitat and water and fish will not be present in the trenched portions of the bypass during construction. Additionally, the ROW will be restored prior to the rainy season, as described above. PG&E will implement BMPs and the mitigation measures described in Section 8 to minimize potential temporary impacts to special-status fish species, critical habitat, and chinook salmon EFH.

Permanent Impacts

Permanent impacts to special-status fish species, their critical habitat, or chinook salmon EFH are not expected to result from construction of the project because the pipeline will be installed using HDD methods under any waterways that could potentially support special-status fish species, and the trenched portions of the Yolo Bypass will be restored to preconstruction conditions once the pipeline has been installed. Restoration will be completed before the Yolo Bypass floods and could potentially provide access to fish. Once construction is complete, no other potential impacts to these species or disturbance of their suitable habitat are expected.

Direct Impacts

Direct impacts to special-status fish species, critical habitat, or chinook salmon EFH could include decreased water quality or sedimentation if hazardous materials are allowed to enter waterways or if a frac-out occurs during an HDD crossing.

Indirect Impacts

Indirect impacts to special-status fish species, critical habitat, or chinook salmon EFH could result if the trenched portions of the Yolo Bypass are not properly restored following construction or if accidental spills occur that are not properly cleaned up, and sediment or

contaminants are washed into waterways after construction is complete. Waterways that are crossed using HDD methods are not expected to have any indirect effects.

California Tiger Salamander

Temporary Impacts

Temporary impacts to the CTS could include loss or fragmentation of upland habitat, or siltation or contamination of suitable hydrologically-connected aquatic habitat within 200 feet of the ROW.

Permanent Impacts

Permanent impacts to CTS could include direct mortality; permanent loss of foraging, breeding, or aestivation habitat; or permanent modification of the hydrology of aquatic habitat features that are down gradient and hydrologically-connected to the ROW if the ROW is not properly restored.

Direct Impacts

Direct impacts to CTS could include mortality due to construction activities (i.e. roadkill, loss of protective habitat leading to increased predation), or loss or fragmentation of habitat.

Indirect Impacts

Indirect impacts to CTS could include loss of foraging or breeding opportunities due to habitat fragmentation, or impacted water quality or hydrology in suitable aquatic habitat if hazardous materials are accidentally spilled and not properly cleaned up or if sediment is allowed to leave the ROW and deposit in hydrological features utilized by CTS after construction is complete.

Western Spadefoot Toad

Temporary Impacts

Temporary impacts to the western spadefoot toad could include habitat loss resulting from clearing and grading of the ROW, or watershed pollution caused by accidental construction-related spills or runoff. Temporary habitat fragmentation may result if the project ROW divides existing areas of suitable habitat.

Permanent Impacts

Permanent impacts to the western spadefoot toad could include direct mortality; permanent loss of foraging, breeding, or aestivation habitat; or permanent modification of the hydrology of aquatic habitat features that are down gradient and hydrologically-connected to the ROW if the ROW is not properly restored.

Direct Impacts

Direct impacts to the western spadefoot toad could include mortality, loss of habitat, habitat fragmentation, or loss of foraging opportunities resulting from clearing of the ROW.

Indirect Impacts

Indirect impacts to the western spadefoot toad could include loss of habitat or breeding opportunities if the hydrology of suitable wetlands is altered by sedimentation or construction activities, or habitat fragmentation if the ROW is not properly restored.

Northwestern Pond Turtle

Temporary Impacts

Temporary impacts to the northwestern pond turtle could include loss of habitat resulting from clearing and grading activities or watershed pollution from accidental construction-related spills or runoff. HDD and bore construction methods will place the pipeline under many of the project area waterways that contain suitable habitat for the turtle with minimal (if any) disturbance.

Permanent Impacts

Permanent impacts to the northwestern pond turtle could include direct mortality or permanent loss of foraging, breeding, or hibernation habitat if suitable aquatic or upland habitat is open cut or if the ROW is not restored.

Direct Impacts

Direct impacts to northwestern pond turtle could include mortality, loss of foraging opportunities, habitat fragmentation, or loss of aquatic or upland habitat.

Indirect Impacts

Indirect impacts could include loss of habitat if the project ROW is not properly restored.

Giant Garter Snake

Temporary Impacts

Temporary impacts to the GGS could include loss of habitat, habitat fragmentation, or reduced foraging or breeding opportunities where the ROW will temporarily remove flooded portions of rice fields and adjacent upland habitat.

Permanent Impacts

Permanent impacts to the GGS could include direct mortality or permanent loss of foraging, breeding, or hibernation habitat if the ROW is not properly restored.

Direct Impacts

Direct impacts could include mortality, loss of foraging or breeding opportunities or habitat, or habitat fragmentation.

Indirect Impacts

Indirect impacts could include loss of foraging, breeding, or hibernation opportunities or habitat if the ROW is not properly restored.

Tricolored Blackbird

Temporary Impacts

Temporary impacts to the tricolored blackbird could include loss of habitat, loss of foraging opportunities resulting from construction or clearing of the ROW, or nesting activity disruption resulting from construction noise.

Permanent Impacts

Permanent impacts to the tricolored blackbird could include direct mortality if nesting disturbance results in loss of young or eggs, or loss of habitat if the project ROW is not properly restored.

Direct Impacts

Direct impacts could include loss of habitat or loss of foraging or nesting opportunities resulting from clearing of the ROW, or direct mortality if nesting disturbance results in loss of young or eggs.

Indirect Impacts

Indirect impacts could include loss of foraging habitat if the ROW is not properly restored.

Burrowing Owl

Temporary Impacts

Temporary construction impacts to the burrowing owl could include loss of foraging or nesting habitat resulting from clearing and grading of the ROW, or nesting activity disruption resulting from construction noise that causes a loss of young or eggs, species harassment, or displacement.

Permanent Impacts

Permanent impacts to the burrowing owl could include direct mortality or permanent loss of foraging or nesting habitat if the ROW is not properly restored.

Direct Impacts

Direct effects resulting from pipeline construction could include habitat destruction resulting in loss of cover or foraging opportunities, nesting activity disruption resulting from construction noise, displacement, or direct mortality.

Indirect Impacts

Indirect effects could include adverse habitat modification that results in loss of future foraging or nesting opportunities.

Swainson's Hawk

Temporary Impacts

Temporary construction impacts to the Swainson's hawk could include loss of nesting or foraging opportunities resulting from clearing and grading of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Permanent Impacts

Permanent impacts to the Swainson's hawk could include loss of nesting or foraging opportunities if the ROW is not properly restored, or if suitable nesting trees are removed during construction, or direct mortality.

Direct Impacts

Direct impacts to the Swainson's hawk could include loss of nesting or foraging opportunities resulting from clearing of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Indirect Impacts

Indirect impacts to the Swainson's hawk could include adverse habitat modification that results in loss of future foraging and/or nesting opportunities.

Western Yellow-billed Cuckoo

Temporary Impacts

Temporary construction impacts to the western yellow-billed cuckoo could include loss of nesting or foraging opportunities resulting from clearing and grading of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Permanent Impacts

Permanent impacts to the western yellow-billed cuckoo could include loss of nesting or foraging opportunities if the ROW is not properly restored, or if suitable nesting trees are removed during construction, or direct mortality.

Direct Impacts

Direct impacts to the western yellow-billed cuckoo could include loss of nesting or foraging opportunities resulting from clearing of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Indirect Impacts

Indirect impacts to the western yellow-billed cuckoo could include adverse habitat modification that results in loss of future foraging and/or nesting opportunities.

Bald Eagle

Temporary Impacts

Temporary impacts to the bald eagle are not expected because this species is not likely to occur in the project area during construction.

Permanent Impacts

Permanent impacts to the bald eagle could include loss of suitable stopover or foraging habitat if the ROW is not properly restored, though a majority of the suitable habitat in the project area consists of riparian woodland adjacent to the Sacramento River and other larger waterways, and this habitat will not be impacted by construction of the project.

Direct Impacts

Direct impacts to the bald eagle are not expected because this species is not likely to occur in the project area during construction.

Indirect Impacts

Indirect impacts to the bald eagle are not expected to occur because the project is not likely to impact any suitable habitat for the bald eagle after construction is complete.

Loggerhead Shrike

Temporary Impacts

Temporary construction impacts to the loggerhead shrike could include loss of nesting or foraging opportunities resulting from clearing and grading of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Permanent Impacts

Permanent impacts to the loggerhead shrike could include loss of nesting or foraging opportunities if the ROW is not properly restored, or if suitable nesting trees are removed during construction, or direct mortality.

Direct Impacts

Direct impacts to the loggerhead shrike could include loss of nesting or foraging opportunities resulting from clearing of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Indirect Impacts

Indirect impacts to the loggerhead shrike could include adverse habitat modification that results in loss of future foraging or nesting opportunities.

White-faced Ibis

Temporary Impacts

Temporary construction impacts to the white-faced ibis could include loss of nesting or foraging opportunities resulting from clearing and grading of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Permanent Impacts

Permanent impacts to the white-faced ibis could include loss of nesting or foraging opportunities if the ROW is not properly restored, or if suitable nesting trees are removed during construction, or direct mortality.

Direct Impacts

Direct impacts to the white-faced ibis could include loss of nesting or foraging opportunities resulting from clearing of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Indirect Impacts

Indirect impacts to the white-faced ibis could include adverse habitat modification that results in loss of future foraging or nesting opportunities.

Bank Swallow

Temporary Impacts

Temporary construction impacts to the bank swallow could include loss of nesting or foraging opportunities resulting from clearing and grading of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Permanent Impacts

Permanent impacts to the bank swallow could include loss of nesting or foraging opportunities if the ROW is not properly restored, or if suitable nesting trees are removed during construction, or direct mortality.

Direct Impacts

Direct impacts to the bank swallow could include loss of nesting or foraging opportunities resulting from clearing of the ROW, nesting activity disruption resulting from construction noise, or displacement.

Indirect Impacts

Indirect impacts to the bank swallow could include adverse habitat modification that results in loss of future foraging or nesting opportunities.

Operation and Maintenance

Operation and maintenance activities are not expected to have permanent impacts to sensitive habitats or special-status species, as all aboveground structures will be located in fenced yards within previously disturbed areas, agricultural land, or nonnative grassland, and will require minimal maintenance once construction is complete. Routine maintenance along the majority of the line will consist of quarterly to annual patrolling (e.g., foot or aerial patrol), cathodic protection, and surveys, and will not require significant disturbance of habitat along the ROW. Within the project action area, construction and maintenance vehicles will remain on designated project access routes and existing surfaced roads. PG&E has an ongoing worker education program to educate staff in recognizing and avoiding sensitive habitats in order to minimize impacts during maintenance and operation.

INTERRELATED AND INTERDEPENDENT EFFECTS

This project activity is not interrelated with any other action, and there are no known interdependent effects.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BA. Future federal actions that are unrelated to the proposed action are not considered in this section because they will be subject to separate consultation pursuant to Section 7 of the FESA.

The project may contribute to the cumulative effects to special-status species and their habitats resulting from numerous developments and road expansions that are planned in the project area. Planned developments in the area include the Placer Vineyards Specific Plan, the Dry Creek Community Plan, the Curry Creek Community Plan, the Sierra Vista Specific Plan, the South Sutter Plan Area, and the Metro Air Park. In addition, road expansions are planned for Baseline and Riego roads between Highway 70/99 and Fiddyment Road, and for many of the side streets in the area that are currently limited to two lanes.

These new developments and road expansions are likely to permanently impact the habitats of special-status species, including rare plants and invertebrates associated with vernal pools, raptors and other avian species that utilize grasslands and agricultural lands for foraging and roosting, and GGS in the western portion of the project area. These impacts may include take of special-status species, fragmentation or permanent loss of habitat, or reductions in the quality of habitat.

While the project may contribute to the cumulative effects resulting from new development and road expansion, most of the impacts from the project are going to be temporary in nature, as

habitat will be restored to preconstruction conditions following the completion of construction activities. It is likely that many of the habitats temporarily impacted by project construction will be fully restored by the time construction begins for many of the new developments planned in the area.

Cumulative impacts will be minimized by constructing the pipeline to follow existing roadways such that fragmentation of habitat will be minimized. To the extent possible, the project will be constructed in areas that have previously been disturbed, or that are associated with landscape buffers along the expanded road segments.

ESSENTIAL FISH HABITAT

The project action area includes designated EFH for chinook salmon, as outlined by the Pacific Fishery Management Council in amendments to the Pacific Coast Salmon Plan (refer to Section 6 of this report). Effects of the project on EFH are included in "Fish, Critical Habitat, and Essential Fish Habitat" in Section 7 of this report. Therefore, further analysis and description of potential effects to EFH was deemed unnecessary.

8. IMPACT AVOIDANCE AND MINIMIZATION RECOMMENDATIONS

The following mitigation measures will be implemented by PG&E to avoid or minimize the potential impacts to biological resources that may result from project construction, operation, and maintenance. These mitigation measures have been grouped into two categories: general measures and species- or habitat-specific measures.

General mitigation measures apply to the entire project route, and are organized into preconstruction, during construction, and postconstruction measures. General mitigation measures include worker education training, erosion control, ROW restoration, and seasonal construction-timing restrictions.

Specific measures include those that will be implemented for specific species or habitat types, and detail procedures that will be utilized such as stream-crossing techniques, migratory and nesting bird surveys and monitoring, and vernal pool avoidance and minimization measures. Several of the species- and habitat-specific mitigation measures may be subject to further refinement in discussion with the appropriate resource agencies during the permitting process.

General Preconstruction

MM 1: Project Maps: Detailed construction maps showing location of sensitive environmental resources, construction sites and related features, environmental protection measures, and access routes will be provided to construction supervisors, and will be available to the construction crew members and environmental monitors prior to during construction activities.

MM 2: Worker Training: PG&E will provide a qualified biologist(s) to conduct environmental compliance training, including an endangered species/sensitive habitat education program for construction crews prior to the commencement of the project and during construction activities.

Additional "tailgate" training will be conducted for new construction personnel as needed during construction. Sessions will include discussions of regulatory requirements, including the federal and California Endangered Species Acts, the CWA, California Department of Fish and Game's (CDFG) Fish and Game Code, permit requirements, and consequences of noncompliance with these acts and requirements. Training will also include identification of special-status species that are likely to occur in the project area and discussion of the values of sensitive habitats.

MM 3: Educational Brochure: As part of construction training, PG&E will produce an educational brochure for crews working on the project. Color photos of threatened and endangered species, including vernal pool invertebrates, GGS, CTS, burrowing owl, Swainson's hawk, and others known or likely to occur in the area will be included, as well as a discussion of protective measures agreed to by PG&E and the resource agencies.

MM 4: Exclusion Zone Fencing: PG&E will mark the boundaries of environmentally sensitive exclusion zones and sensitive habitat features that are to be avoided (wetlands, vernal pools, etc.) before and during construction with highly visible flagging or fencing to prevent impacts from vehicles. All construction personnel will be required to conduct work activities within the defined area only.

MM 5: Vegetation Removal: PG&E will only remove vegetation within the approved work area. Overhanging trees may be trimmed as necessary per accepted arborist practices to safely construct the project.

General Construction

MM 6: Work Area: PG&E will confine all heavy equipment, vehicles, and construction work to approved roads and work areas. Stream channel work areas will be limited to what is necessary for construction. Where possible, construction vehicles will be kept out of watercourses with the potential to support special-status species. Where these avoidance measures are not feasible, PG&E will apply for and obtain the appropriate permits prior to construction from the USACE, USFWS, CDFG, and Central Valley Regional Water Quality Control Board (CVRWQCB), and will implement any additional avoidance or mitigation measures that are agreed upon during the permitting process.

MM 7: Construction Monitoring: PG&E will retain a qualified biologist(s) to be on-site during construction activities to perform pre-activity surveys just prior to construction in order to clear the work area of any special-status species, and to monitor compliance with mitigation measures. This includes monitoring in GGS and vernal pool habitat areas, and in wetland and riparian habitats, as described in greater detail below.

MM 8: Erosion and Dust Control: PG&E will implement erosion, sediment, material stockpile, and dust control BMPs on-site to minimize the potential for fill or runoff to enter wetlands or waterways. A biological monitor will be retained as necessary to monitor and inspect the installation and removal of erosion/sediment control devices if applicable.

MM 9: Workday Schedule: To the extent possible, PG&E will conduct all construction activity during daylight hours only, with the exception of HDD, which will continue 24 hours per day, 7 days per week to minimize the potential for frac-out, and hydrostatic testing, which may require holding test pressure in the pipelines past sundown. Where it is deemed necessary and feasible, night lighting and monitors will be used for work that occurs after sundown.

MM 10: Vehicle Inspection: PG&E will ensure that all construction personnel are instructed to visually check for wildlife beneath vehicles and equipment before moving or operating them.

MM 11: Speed Limit: PG&E will enforce a speed limit of 20 miles per hour on private roads and the posted speed limit on public roads.

MM 12: Trench Ramping: At the conclusion of each day's trenching or excavating activities, the end of the trench or bore pit will be ramped at an approximate 2 to 1 slope to allow any wildlife that enters the trench to escape. A biological monitor may approve the use of boards placed at an approximate 2 to 1 slope for site-specific, pre-approved locations where earthen escape ramps are not feasible.

MM 13: Sensitive Habitat Monitoring and Procedures if Listed Species are Found: In accordance with the FESA and CESA, PG&E will retain a qualified biological monitor to inspect any construction activity in habitat that is to be avoided or preserved to ensure that no unauthorized or unnecessary take of listed species or destruction of their habitat occurs. Upon recommendation of the biological monitor, the PG&E work supervisor will be responsible for avoiding and stopping all activities that may result in such take or destruction of habitat until appropriate corrective measures have been completed. PG&E will be responsible for immediately reporting any unauthorized impacts to the USFWS and the CDFG.

MM 14: Spill Prevention/Containment and Refueling Precautions: PG&E will maintain all construction equipment to prevent leaks of fuels, lubricants, or other fluids into waterways. Appropriate materials will be on-site to prevent and manage accidental spills. PG&E will take appropriate precaution when handling and/or storing chemicals (e.g., fuel and hydraulic fluid) near waterways and wetlands, and any and all applicable laws and regulations will be followed. Service and refueling procedures will take place at least 100 feet from waterways or in an upland area at least 100 feet from wetland boundaries to prevent spills from entering waterways or wetlands. These activities may be performed closer than 100 feet if a qualified biologist finds in advance that no reasonable alternative exists, and that PG&E and its contractors have taken the appropriate steps (including secondary containment) to prevent spills and provide prompt cleanup in the event of a spill. These measures will be outlined in a Hazardous Substance Control and Emergency Response Plan to be prepared by PG&E.

MM 15: Trash Cleanup: PG&E will properly contain and remove all trash and waste items generated by construction or crew activities.

MM 16: Prohibitions for Pets, Fire, Firearms: PG&E will prohibit employees, contractors, and subcontractors from having pets, campfires, or firearms at the project site. Smoking will be limited to designated smoking areas only.

General Postconstruction

MM 17: ROW Restoration: PG&E will restore work areas to pre-existing contours and conditions upon completion of work. Restoration, including revegetation and soil stabilization, will be performed as outlined in the Restoration and Monitoring Plan described below.

MM 18: ROW Restoration Plan: PG&E will prepare a Restoration and Monitoring Plan to address postconstruction revegetation, success criteria, and monitoring periods in natural areas. The intent of this plan will be to ensure that impacts are minimized and adequately mitigated to the satisfaction of the permitting agencies, property owners, and/or habitat managers. Restoration in agricultural fields and landscaped areas will be negotiated with the landowners and will result in restoration of temporarily disturbed areas to conditions similar to preconstruction conditions. The Restoration and Monitoring Plan to be developed by PG&E for review with resource agencies will include, at a minimum, the following measures:

- At the completion of construction activities, the ROW will be graded to restore flow lines and natural topography.
- Ripping or disking will be performed to relieve compaction at identified locations as needed.
- Stockpiled topsoil will be re-spread, providing organic matter and a seed bank for restoration.
- At the completion of soil work, all areas disturbed by construction activities will be subject to implementation of permanent erosion control measures.
- Permanent erosion control measures could include spreading a combination of native grass and forb seed, fertilizer, compost, and mulch for soil protection.
- Two seed mixes will be identified, one for upland areas and one for drainages and wetland areas.

MM 19: Seed Mix and Success Criteria: In sensitive communities such as wetlands or stream crossings, PG&E's Restoration and Monitoring Plan will include the use of native seed or plantings and will specify native species lists and propagule types, quantities of material, and appropriate success criteria and monitoring requirements to be determined in discussion with the appropriate resource agencies with responsibility for those areas (e.g., USACE, CDFG, and/or CVRWQCB).

MM 20: Erosion Control: PG&E will install and maintain appropriate temporary erosion and sediment control measures until revegetation is successful as defined by the success criteria to be outlined in the Restoration and Monitoring Plan.

Creek Crossings and Wetland Habitats

MM 21: Water Crossings in Special-status Species Habitats: PG&E will schedule water-crossing construction in waterways with suitable habitat for special-status aquatic species, including salmonids and other fish species, during dry months when the waterways have low or no flow in order to minimize potential impacts. This applies predominantly to the Yolo Bypass, where traditional trenching methods will be used. Other waterways that have potential to support special-status fish species but that are likely to have flows during construction will be crossed using HDD methods.

MM 22: Wetland and Waterway Avoidance During Final Design: PG&E will consider the locations of sensitive wetland habitats and waterways (including vernal pools) during final routing, and the pipeline will be routed to avoid these features wherever possible. Routing considerations will include trenchless construction technologies such as HDD, and narrowing of the ROW to the minimum needed for construction, where appropriate and feasible, to avoid impacts to sensitive wetland habitats and waterways.

MM 23: Wetland Restoration and Monitoring Plan: Where wetland and/or vernal pool avoidance is not possible, PG&E will develop and implement a Wetland Restoration and Monitoring Plan that will describe construction restoration methods and compensatory mitigation. This plan will include discussion of a combination of on-site restoration and off-site compensation for any net permanent losses of vernal pools or wetlands based on mitigation ratios developed in coordination with the USACE and USFWS. The plan will be submitted to the resource agencies, including the CDFG, USACE, CVRWQCB, and USFWS/NMFS as appropriate based on permitting requirements, for their review as part of the permitting processes for these areas. In addition to planting details such as the species to be planted and planting densities, the Wetland Restoration and Monitoring Plan will include information on performance criteria, monitoring, annual reporting, and remedial actions to be undertaken should monitoring determine that the success criteria have not been achieved.

MM 24: HDD Fluid Release Contingency Plan: Prior to construction, PG&E will prepare an HDD Fluid Release Contingency Plan that will specify procedures to contain and clean up any drilling fluids released into waterways or wetlands in the event of an inadvertent release of drilling fluids during HDD procedures.

Vernal Pool Invertebrate Habitat

MM 25: Vernal Pool Invertebrate Mitigation: Section 7 consultation is anticipated to be required for the project's effects on listed vernal pool invertebrate species. PG&E will minimize effects to these species by the general mitigation measures described above. If it is deemed necessary, additional compensation for unavoidable direct effects to vernal pool invertebrate habitat will be based on the guidelines outlined in the USFWS *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California* (1996c), and will include:

- Preservation component. For every acre of habitat directly or indirectly affected, at least two vernal pool credits will be dedicated within a USFWS-approved ecosystem preservation bank, or, based on USFWS evaluation of site-specific conservation values, 3 acres of vernal pool habitat may be preserved on the project site or on another non-bank site as approved by the USFWS.

- Creation component. For every acre of habitat directly affected, at least one vernal pool creation credit will be dedicated within a USFWS-approved habitat mitigation bank, or, based on USFWS evaluation of site-specific conservation values, 2 acres of vernal pool

habitat will be created and monitored on the project site or on another non-bank site as approved by the USFWS.

- Adequate fencing will be placed and maintained around any avoided (preserved) vernal pool habitat to prevent impacts from vehicles (as provided in MM 4 above).

- All on-site construction personnel will receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat (as provided in MM 2 above).

Valley Elderberry Longhorn Beetle

MM 26: Elderberry Shrub Avoidance: Where feasible, PG&E will maintain a 100-foot buffer around existing elderberry shrubs in the project action area with stems over 1 inch in diameter at ground height in the project action area. Signs and fencing will be erected around these buffer zones to keep construction activities away from the area. As part of the worker training to be conducted prior to construction (MM 2), a qualified biologist will discuss avoidance of impacts to VELB and elderberry shrubs and the possible consequences of noncompliance.
Where the 100-foot buffer zone is not feasible, but where a minimum of 20 feet of buffer can be retained between the drip line of existing elderberry shrubs and the project workspace, PG&E will consult with the USFWS to obtain approval to work closer than 100 feet from existing shrubs, and will provide a map of identified shrubs in the project area.

MM 27: Restoration and Maintenance near Elderberry Shrubs: Any disturbance or damage done within the buffer area (area within 100 feet of elderberry plants) during construction will be restored and erosion control and revegetation measures will be implemented where necessary.

No insecticides, herbicides, fertilizers, or other chemicals that might harm the VELB or elderberry shrubs will be used by PG&E in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1 inch or greater in diameter at ground level.

If mowing of the ROW is required to reduce fire hazard, these activities will only take place between July and April. No mowing will occur within 5 feet of elderberry stems, and care will be taken to avoid damaging existing elderberry shrubs with mowing equipment.

MM 28: Transplant or Replace Elderberry from ROW: If elderberry shrubs cannot be avoided during construction of the pipeline, any stems measuring 1 inch or more in diameter at ground level will be transplanted or replaced in accordance with the USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS, 1999a). A suitable transplant site may be available in the Sacramento River Ranch Conservation Bank managed by Wildlands, Inc., which is located just north of the project alignment on the west side of the Sacramento River, and would be subject to USFWS approval. Ratios of replacement will be established as necessary during consultation with the USFWS.

If removal or transplanting of elderberry shrubs is required, native plants will also be planted based on the ratios outlined in the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (1999a).

All transplanting or replanting of elderberry and other native plants in association with VELB habitat impacts will be monitored for 10 years as outlined in the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (1999a), or for another length of time to be determined during consultation with the USFWS.

Giant Garter Snake

The following avoidance and mitigation measures are based on the USACE's Programmatic Biological Opinion for GGS for projects subject to Section 404:

MM 29: GGS Habitat Buffer: PG&E will avoid construction activities within 200 feet of the banks of suitable GGS aquatic habitat where feasible.

MM 30: Construction Window in GGS Habitat: With the exception of ROW isolation dike construction and irrigation flow culvert installation, PG&E will limit construction activity within GGS habitat (predominantly in rice production areas of Line 407 East and Line 407 West project segments within the Natomas Basin; refer to Figures 3B and 3C) to the period between May 1 and October 1. This is the active period for GGS and direct mortality is lessened because snakes are expected to actively move and avoid danger. For work that occurs between October 2 and April 30, PG&E will contact the USFWS and CDFG to determine if additional measures are necessary to minimize and avoid take.

MM 31: GGS Monitoring: PG&E will retain a qualified biologist to survey for GGS immediately prior to construction activities that take place in or within 200 feet of GGS habitat. Survey of the project area will be repeated if a lapse in construction activity of two weeks or more has occurred. If a snake is encountered during construction, activities will cease until the snake leaves or is removed by a permitted biologist in accordance with the Biological Opinion to be issued by the USFWS for the project.

MM 32: Dewatering GGS Habitat: To protect GGS, for any dewatering of potential GGS habitat that occurs after April 15, PG&E will keep the dewatered habitat dry for at least 15 consecutive days prior to excavating or filling the dewatered habitat. This may be required at smaller canal crossings within the Line 407 East and Line 407 West area in rice production areas within the Natomas Basin (refer to Figures 3B and 3C). Where habitat cannot be dried, a qualified biologist will survey the area for GGS immediately prior to and during all construction activities until construction is complete in the area.

Special-status and Nesting Birds

MM 33: Bird Nest Surveys and Monitoring: Because construction will take place during the breeding and nesting season of avian species in the project area (typically February 1 through August 31), PG&E will conduct nesting bird surveys prior to construction for avian species with

potential to occur on-site, or where accessible, in areas adjacent to construction. Where nesting migratory birds are found in or near the project area, the birds and their nests will be evaluated by a qualified biologist. If nest disturbance is anticipated, the biologist will ensure adequate mitigation measures are implemented (MM 34).

MM 34: Nesting Birds: In accordance with the MBTA, if an active nest is observed in the project area during construction, PG&E will stop work within the appropriate buffer for the species and contact the biological monitor immediately. Nest disturbance is dependant on a number of site-specific and activity-specific factors, including the sensitivity of the species, proximity to work activity, amount of noise or frequency of the work activity, and intervening topography, vegetation, structures, etc. Additional mitigation may be required to minimize disturbance of detected nesting activity, such as allowing nesting activity to conclude before continuing construction in an area, restricting certain types of construction practices/activities, creating screening devices to shield nest sites from construction activity, and establishing buffer areas around active nest sites. For inactive nests, measures could include removal and/or handling of nest materials, which will be conducted under the supervision of a qualified biologist.

Burrowing Owls

MM 35: Burrowing Owl Surveys: PG&E will retain a qualified biologist to conduct burrowing owl surveys and to identify any occupied burrows in all project sites and buffer zones with suitable habitat within the Dunnigan Hills area of Line 406. These surveys will be conducted not more than 30 days prior to initial ground-disturbing activities.

MM 36: Burrow Avoidance: If occupied burrows are identified during surveys, PG&E will maintain a buffer of approximately 160 feet from occupied burrows during the nonbreeding season of September 1 through January 31, and approximately 250 feet during the breeding season of February 1 through August 31. Occupied burrows will not be disturbed within these buffers during the nesting season, from February 1 through August 31, unless a qualified biologist has verified that the birds have not begun egg laying and incubation or that the juveniles from those burrows are foraging independently and capable of independent survival at an earlier date. Avoidance also requires that a minimum of 6.5 acres of foraging habitat be preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird. Any required mitigation will occur within a USFWS-approved mitigation bank.

MM 37: Burrow Relocation: If avoidance of occupied burrows is not possible during construction, PG&E will retain a qualified biologist to supervise and/or conduct passive relocation of burrows. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond approximately 160 feet from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls will only be implemented during the non-breeding season. If relocation is necessary, the biologist will conduct the following measures:

- Owls will be excluded from burrows in the immediate impact zone and within an approximately 160-foot buffer zone by installing one-way doors in burrow entrances.

- One-way doors will be left in place 48 hours to insure owls have left the burrow before excavation.

- One alternate natural or artificial burrow will be provided for each burrow that will be excavated in the project impact zone.

- The project area will be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone.

- Whenever possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags will be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

MM 38: Burrowing Owl Monitoring Plan: If relocation of burrows is required, PG&E will prepare a Burrowing Owl Monitoring Plan, which will include mitigation success criteria and a timeline for submittal of annual reports to the CDFG. Annual reports will describe the number and locations of relocations, relocation procedures used, and the degree of success.

Compensatory Mitigation

MM 39: Species-specific and Habitat-specific Compensation: PG&E will provide compensatory mitigation for impacts to vernal pools, wetlands, GGS, and other special-status species as agreed upon through consultation with the USFWS, USACE, and/or CDFG. Proposed measures and compensation ratios have been outlined in the above sections by species. Total acreages of impact to special-status species and sensitive habitats will be calculated upon determination of a final route by the CEQA Lead Agency (California State Lands Commission), and final compensatory mitigation ratios will be determined in consultation with the appropriate resource agencies during permitting of the project. Compensatory mitigation will likely consist of a combination of restoration of habitat on-site, and creation of the appropriate habitat at a suitable location in the project vicinity, or at a suitable agency-approved mitigation bank.

9. CONCLUSIONS AND DETERMINATION STATEMENTS

CONCLUSION

Potential direct effects resulting from pipeline construction include species harassment, displacement, or mortality; habitat destruction; or impacted water quality resulting from accidental hazardous material spills, sedimentation, or altered hydrology. Potential indirect effects include loss or degradation of future habitat functionality or impacted water quality resulting from adverse habitat modification causing future sedimentation and/or altered hydrology.

Potential adverse impacts to these species and their habitats can be minimized or avoided if project conservation measures are implemented. Implementation of appropriate construction BMPs, restricting work to non-sensitive or designated areas, providing environmental awareness to the crew, careful handling of chemicals near waterways, use of non-invasive pipeline installation methods (such as bore or HDD), and restoring the site appropriately are general measures that will minimize or avoid the negative effects that may be associated with construction of the project. Additional conservation measures that may avoid or minimize adverse affects to potentially occurring special-status species include avoiding sensitive temporal windows for wildlife, conducting appropriate preconstruction surveys for wildlife species in the project action area, checking for wildlife beneath vehicles and equipment in the project area, restricting construction activities to daylight hours where feasible, and having a qualified biologist on-site for construction monitoring. Implementation of these measures will greatly reduce the potential for impact to special-status species and their habitats.

DETERMINATION STATEMENTS

Per the FESA, biologists who surveyed the project area recommend the following determinations:

Conservancy Fairy Shrimp

Pending results from the 2007-2008 wet-season vernal pool invertebrate survey, the proposed project may affect but is not likely to adversely affect the federally endangered Conservancy fairy shrimp.

Vernal Pool Fairy Shrimp

Pending results from the 2007-2008 wet-season vernal pool invertebrate survey, the proposed project may affect but is not likely to adversely affect the federally threatened vernal pool fairy shrimp.

Vernal Pool Tadpole Shrimp

Pending results from the 2007-2008 wet-season vernal pool invertebrate survey, the proposed project may affect but is not likely to adversely affect the federally threatened vernal pool tadpole shrimp.

Valley Elderberry Longhorn Beetle

The proposed project may affect but is not likely to adversely affect the federally threatened valley elderberry longhorn beetle.

Green Sturgeon

The proposed project may affect but is not likely to adversely affect the federally threatened green sturgeon.

California Central Valley Steelhead

The proposed project may affect but is not likely to adversely affect the federally threatened California Central Valley steelhead.

Critical Habitat for the California Central Valley Steelhead

The proposed project may affect but is not likely to adversely affect critical habitat for the California Central Valley steelhead.

Central Valley Spring-run Chinook

The proposed project may affect but is not likely to adversely affect the federally threatened Central Valley spring-run chinook.

Critical Habitat for the Central Valley Spring-run Chinook

The proposed project may affect but is not likely to adversely affect critical habitat for the Central Valley spring-run chinook.

Sacramento River Winter-run Chinook

The proposed project may affect but is not likely to adversely affect the federally endangered Sacramento River winter-run chinook.

Critical Habitat for the Sacramento River Winter-run Chinook

The proposed project may affect but is not likely to adversely affect critical habitat for the Sacramento River winter-run chinook.

Essential Fish Habitat for Chinook Salmon

The proposed project may affect but is not likely to adversely affect EFH for chinook salmon.

California Tiger Salamander

The proposed project is likely to adversely affect the federally threatened CTS.

Giant Garter Snake

The proposed project is likely to adversely affect the federally threatened GGS.

Western Yellow-billed Cuckoo

The proposed project may affect but is not likely to adversely affect the candidate for federal listing western yellow-billed cuckoo.

Bald Eagle

The proposed project may affect but is not likely to adversely affect the federally de-listed bald eagle.

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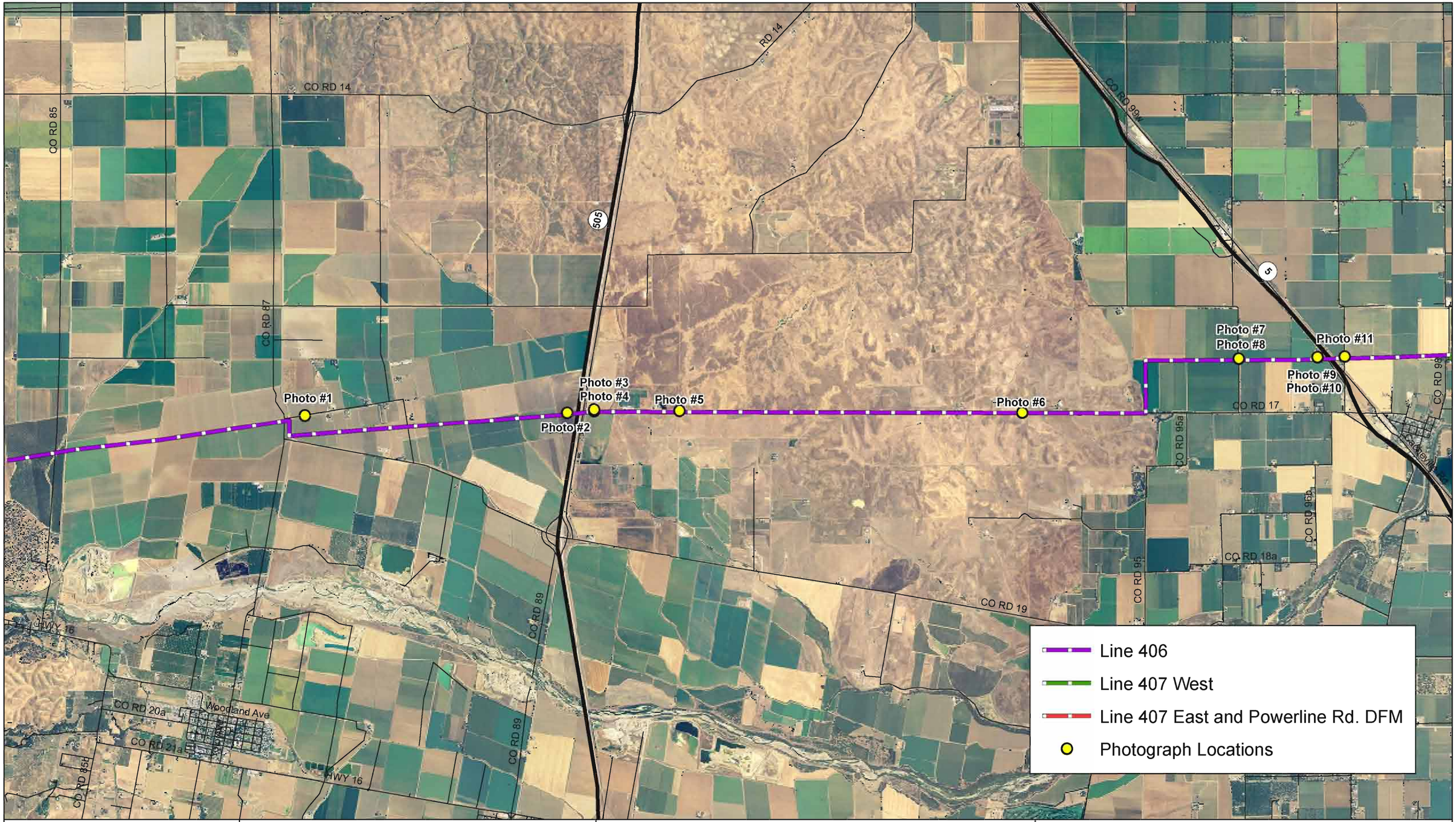
Attachment A: Photo Exhibit



PG&E TRC

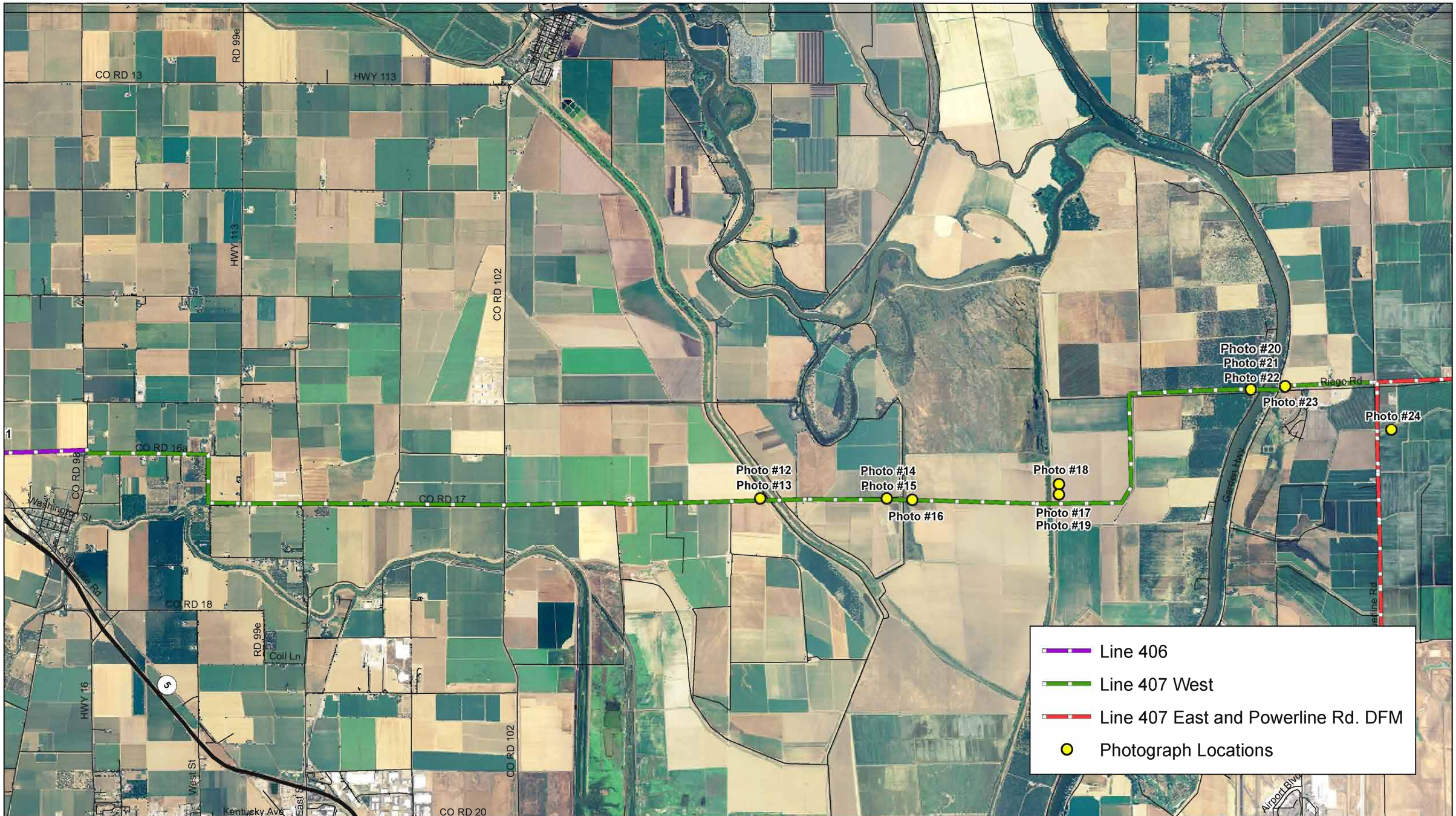
Line 406 and Line 407 Pipeline Project

Map # 1 of 3
Photo Location Map

N W E S

0 1 2 Miles

Scale 1:55,000



PG&E TRC

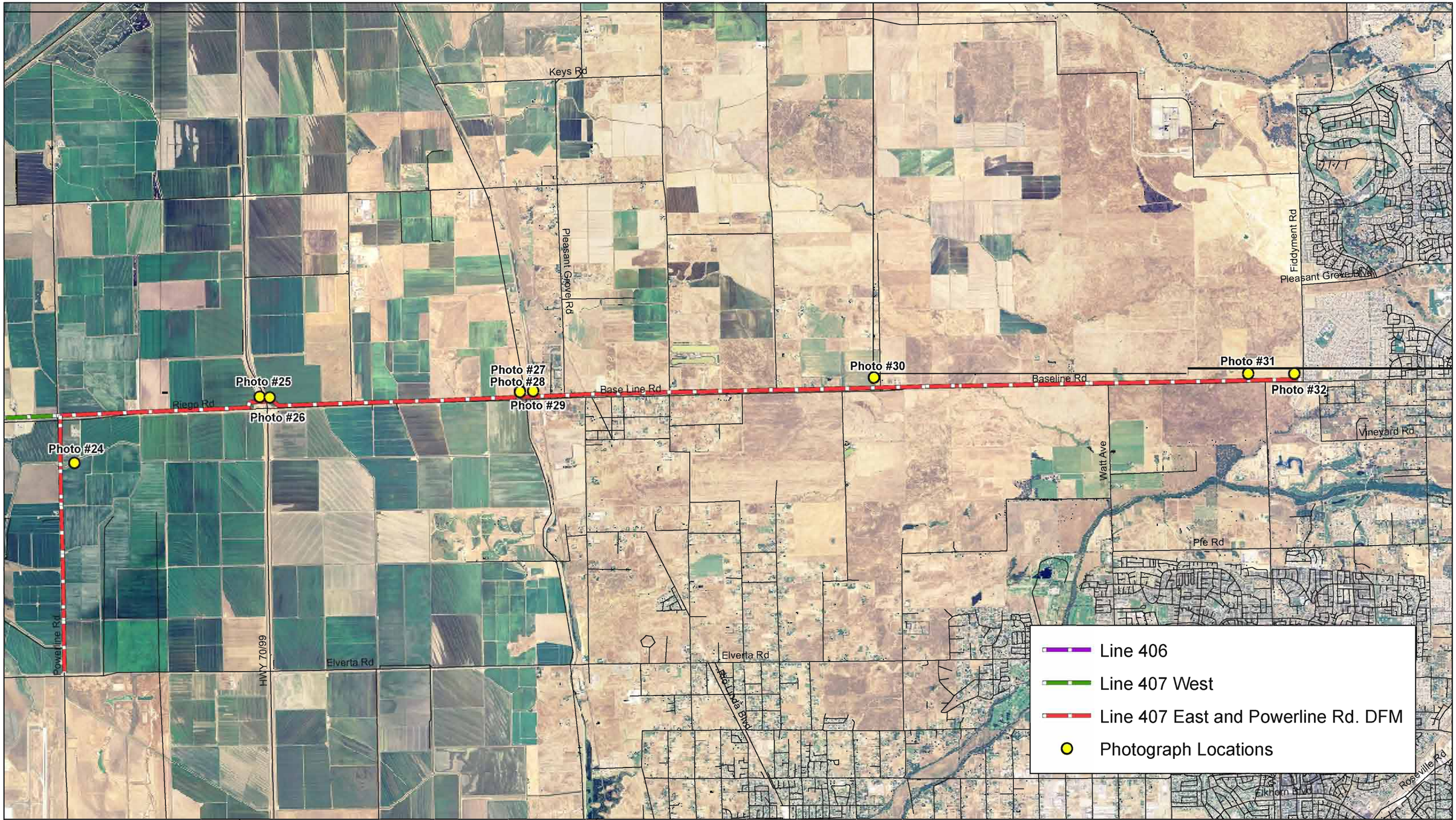
Line 406 and Line 407 Pipeline Project

Map # 2 of 3
Photo Location Map

N W E S

0 1 2 Miles

Scale 1:55,000



PG&E

TRC

Line 406 and Line 407
Pipeline Project

Map # 3 of 3
Photo Location Map

N W E S

0 1 2 Miles

Scale 1:55,000

Photo 1: View west toward Lines 400 and 401 and future Capay Station along Line 406 alignment at junction of County Road (CR) 17 and CR 85

Photo 2: View east across Hwy. 505 toward CR 17 and Goodnow Slough

Photo 3: View west across Hwy. 505 along alignment from CR 90A

Photo 4: View east along CR 17 from CR 90A; Goodnow Slough in foreground; HDD workspace in field behind fence

Photo 5: View east along CR 17 into the Dunnigan Hills; proposed alignment on right side of road

Photo 6: View west along CR 17 in Dunnigan Hills; proposed alignment on left side of road

Photo 7: View west along alignment toward Dunnigan Hills from CR 96

Photo 8: Oak trees along Acacia Canal; view east along alignment toward Hwy. 5 from CR 96

Photo 9: View west toward Dunnigan Hills along Line 406 alignment; HDD location in field, west side of Hwy. 5

Photo 10: View east across Hwy. 5 toward Yolo Junction Station

Photo 11: View east from CR 97 toward future Yolo Junction Station (near white stand pipe and hay stacks), Line 172A, and future Line 407 West

Photo 12: View west from Knights Landing Ridge Cut western levee along Line 407 West alignment and CR 17; HDD location in field to left of road

Photo 13: View east across Knights Landing Ridge Cut

Photo 14: View west toward Knights Landing Ridge Cut from western levee of Yolo Bypass; HDD location in field

Photo 15: Western Yolo Bypass canal, view east from top of western Yolo Bypass levee

Photo 16: View east toward Tule Canal; dry season row crop farming in the Yolo Bypass

Photo 17: Tule Canal in summer; view west from top of eastern Yolo Bypass levee

Photo 18: Yolo Bypass flooded in winter, view west from top of eastern Yolo Bypass levee; Tule Canal in foreground between levee and riparian area

Photo 19: Fallow agricultural fields; view east toward Sacramento River from top of east Yolo Bypass levee

Photo 20: View west along Line 407 West alignment in walnut orchard near west side of Sacramento River crossing HDD site

Photo 21: Sacramento River HDD location from top of western Sacramento River levee; view west

Photo 22: View east along Line 407 West alignment from top of west Sacramento River levee near corner of CR 16 and CR 117

Photo 23: View east along Line 407 West alignment from east levee of Sacramento River toward Riego Rd. Station, future Line 407 East, and future Powerline Rd. DFM; HDD location in field right of Riego Rd.

Photo 24: North Drainage Canal adjacent to Powerline Rd. and flooded rice fields in background; view east

Photo 25: View west from Hwy. 70/99 HDD location toward Sacramento River; rice fields and GGS habitat

Photo 26: View east from Hwy. 70/99 HDD location along north side of Riego Rd.

Photo 27: View west along Line 407 East alignment and Riego Road toward Highway 70/99 from East Levee Rd.; HDD location in foreground

Photo 28: Freshwater emergent wetland in Natomas East Main Drainage Canal (Steelhead Creek) in summer; view north

Photo 29: View west near HDD location on east side of East Levee Rd., Steelhead Creek, railroad, and vernal pool crossing

Photo 30: Line 407 East alignment; view east toward Curry Creek and Roseville along north side of Baseline Rd.

Photo 31: Grasslands and vernal pool complex at Curry Creek; view north from Baseline Rd.

Photo 32: View west from junction of Baseline Rd. and Fiddyment Rd. at existing Line 123 tie-in point

Attachment B: PG&E Best Management Practices Manual

This document is available from PG&E upon request

Attachment C: USFWS and CNDDB Records

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 080324025508

Database Last Updated: January 31, 2008

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Syncaris pacifica
California freshwater shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Strix occidentalis caurina
northern spotted owl (T)

Plants

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Candidate Species

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Quads Containing Listed, Proposed or Candidate Species:

CITRUS HEIGHTS (512A)
RIO LINDA (512B)
TAYLOR MONUMENT (513A)
GRAYS BEND (513B)
WOODLAND (514A)
MADISON (514B)
ESPARTO (515A)
PLEASANT GROVE (528C)
ROSEVILLE (528D)
KNIGHTS LANDING (529C)
VERONA (529D)
ZAMORA (530C)
ELDORADO BEND (530D)
BIRD VALLEY (531D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	***Ambystoma californiense*** California tiger salamander	AAAAA01180	Threatened		G2G3	S2S3	SC
2	***Branchinecta lynchi*** vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
3	***Buteo swainsoni*** Swainson's hawk	ABNKC19070		Threatened	G5	S2	
4	***Charadrius alexandrinus nivosus*** western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
5	***Cordylanthus palmatus*** palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1.1	1B.1
6	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	IICOL48011	Threatened		G3T2	S2	
7	***Gratiola heterosepala*** Boggs Lake hedge-hyssop	PDSCR0R060		Endangered	G3	S3.1	1B.2
8	***Lepidurus packardi*** vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
9	***Riparia riparia*** bank swallow	ABPAU08010		Threatened	G5	S2S3	
10	***Thamnophis gigas*** giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	

Attachment D: USFWS Comment Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:
1-1-07-TA-1220

OCT 29 2007

Christoffer Ellis
Pacific Gas and Electric Company
Technical and Land Services
2730 Gateway Oaks Drive
Sacramento, CA95833

Subject: Pacific Gas and Electric Line 406 and 407 Project in Yolo, Sutter, Sacramento, and Placer Counties, California

Dear Mr. Ellis:

This responds to the *Notice of Preparation of a Draft Environmental Impact Report and Notice of Public Scoping Meeting* (NOP) for the proposed Pacific Gas and Electric (PG&E) Line 406 and 407 project (proposed project). The U.S. Fish and Wildlife Service (Service) received this NOP on June 21, 2007. Due to staffing constraints, the Service was not able to respond within the mandated comment period. The Service provides the following comments to aid PG&E and the California State Lands Commission, the California Environmental Quality Act (CEQA) lead agency, to prepare a Draft Environmental Impact Report (DEIR) that comprehensively addresses potential impacts to federally-listed species. The primary concern and mandate of the U.S. Fish and Wildlife Service (Service) is the protection of federally-listed species pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

PG&E proposes to construct a new 30-inch diameter, 40-mile long natural gas pipeline to transmit and distribute natural gas to growing communities in Placer, Sutter, and Sacramento counties. Line 406 would begin on the existing Line 400 and 401 in Yolo County at the base of the Coast Range and extend to the existing Line 172A near the town of Yolo. Line 407 would extend from Line 172A east to the existing Line 123 near the city of Roseville in Placer County. A proposed distribution feeder main would extend south from Line 407 along Riego Road in Sutter County along Power Line Road and terminate at Elverta Road in Sacramento County.

TAKE PRIDE IN AMERICA

Of primary concern to the Service are the potential for the proposed project to affect the following species:

- endangered vernal pool tadpole shrimp (*Lepidurus packardi*),
- endangered Conservancy fairy shrimp (*Branchinecta conservatio),*
- endangered Sacramento orcutt grass (*Orcuttia viscida*),
- endangered palmate-bracted bird's-beak (*Cordylanthus palmatus*),
- threatened slender orcutt grass (*Orcuttia tenuis),*
- threatened vernal pool fairy shrimp (*Branchinecta lynchi*),
- threatened giant garter snake (*Thamnophis gigas*),
- threatened California red-legged frog (*Rana aurora draytonii),*
- threatened California tiger salamander (*Ambystoma californiense*),
- threatened Colusa grass (*Neostapfia colusana*),
- threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus),*
- threatened delta green ground beetle (*Elaphrus viridis*),

Direct Effects

The Service believes that the proposed project may directly affect the aforementioned species. Temporary and permanent ground disturbance from the clearing of pipeline right-of-way (ROW), trenching to install the pipeline, and construction of permanent and temporary access roads are all activities of concern. Excavation activities may result in increased erosion, leading to siltation of wetlands and other receiving water features, including drainage and irrigation canals (habitat for giant garter snake), and vernal pool features (habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, and vernal pool plants).

Giant garter snakes may be killed or injured by trenching activities to install pipeline. Giant garter snakes typically utilize aquatic habitats during their "active period" (May 1 – October 1) and are better able to escape danger associated with ground disturbance from heavy equipment. In the inactive period (October 2 – April 30), giant garter snakes typically retreat into terrestrial uplands to overwinter in mammal burrows and crevices, and are less mobile. The Service is concerned that activities associated with installing pipeline may result in adverse effects to giant garter snakes through direct mortality, harm, or harassment. The Service recommends that the DEIR address how these effects will be avoided, minimized, and, if necessary, off-set through compensatory mitigation by PG&E.

Vernal pool species are threatened primarily by loss and fragmentation of existing habitat. Vernal pool complexes, which are mosaics of wetted pools which are hydrologically connected and include the associated upland habitat and local watersheds essential for the function of the pools, must be preserved on a landscape level to ensure the persistence of the species that inhabit them. Although dispersal of vernal pool crustaceans between complexes is and probably always

has been relatively low, fragmentation of existing intact complexes could contribute to the loss of genetic diversity of vernal pool species, and reduce the likelihood of recolonization from other populations. Fragmentation by conversion or degradation of habitat may essentially serve as a barrier to dispersal. It is essential that large, contiguous areas of uninterrupted vernal pool habitat, including both wetted and upland components, be preserved across the range of each of the listed species to "buffer" against unforeseen stochastic events.

Construction of access roads or pipeline ROWs may serve to fragment existing vernal pool complexes by introducing impermeable or hardpacked surface which may disrupt the hydrology and mechanisms by which vernal pool species disperse. Vernal swales, which are sometimes present in vernal pool complexes and serve to "connect" pools, could be truncated by access roads or ROWs.

Ground disturbance associated with pipeline installation may result in colonization by non-native plants, animals, and insects. Non-native species may outcompete with crustaceans and plants in vernal pools, prey directly on native vernal pool species, and outcompete or prey on species which pollinate vernal pool plants. In addition, depending on the local soil and geological conditions, the hardpan may be as little as a few inches below the surface, in which case subsurface excavation could "break" the hardpan. Maintaining the hardpan is necessary to ensure surface and subsurface water contributions to the vernal pool features remain intact; otherwise, the inundation period of features, which is critical for the vernal pool crustaceans to complete their life cycle, may be irreparably disrupted. The Service encourages PG&E to strive to route the pipeline to areas outside of and as far away as possible from existing vernal pool complexes to prevent this from occurring.

Elderberry (*Sambucus* sp.) shrubs are the sole host plant and food source for the valley elderberry longhorn beetle (beetle). If proposed activities include removing or transplanting elderberry shrubs, or any ground disturbing activities within 100 feet of elderberry shrubs, PG&E should use the Service's July 9, 1999, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*, which can be found at the website http://www.fws.gov/sacramento/es/documents/velb_conservation.PDF.

Indirect and Cumulative Effects

CEQA guidelines require a discussion of the ways in which a project could potentially foster economic or population growth or the construction of additional housing in the surrounding environment. The DEIR should address the potential for the proposed project to contribute to economic or population growth or the construction of additional housing in the surrounding environment. The Service recommends that the DEIR provide the above discussion by

examining the relationship between energy supply and land use planning for this project, and demonstrate how growth inducing impacts to federally-listed species will be avoided or reduced to a level below significance.

The Service recommends the DEIR include an analysis of how the proposed project may affect implementation of existing and pending habitat conservation plans.

Potential Impacts on the Natomas Basin Habitat Conservation Plan

The DEIR should assess impacts of the proposed project on the Natomas Basin Habitat Conservation Plan's (NBHCP) operating conservation program. In particular, the DEIR should include a comprehensive and meaningful analysis of the proposed projects' effects on giant garter snake, the state-listed as threatened Swainson's hawk (*Buteo swainsoni*), and other Covered Species.

While the Service acknowledges that the proposed project is not urban development, the proposed project may result in significant effects to listed species in the Natomas Basin as a result of permanent and temporary habitat modification and disturbance, and is likely to adversely affect the implementation of the NBHCP (City of Sacramento *et al.* 2003). The proposed installation of natural gas pipeline could result in a loss habitat beyond that anticipated, analyzed and covered for take under Incidental Take Permits (ITPs) issued to the City of Sacramento (City), Sutter County, and the Natomas Basin Conservancy (Conservancy) for the NBHCP and could constitute a significant departure from the NBHCP's Operating Conservation Program. The NBHCP's ITPs cover the take of 22 plant and animal species, many of which are listed as endangered or threatened under the California Endangered Species Act and/or the Federal Endangered Species Act.

The ITPs issued to the Conservancy authorized the take of covered species associated with the restoration, enhancement, operation, and management of 7,758.5 acres of upland, managed marsh and rice preserves set aside as mitigation for the City's and Sutter County's development activities under the NBHCP. It appears that the route of the proposed Line 407 traverses through or directly adjacent to Conservancy preserves along Riego and Power Line roads. Activities associated with installation of a natural gas pipeline and establishment of a permanent utility easements in these preserves may negatively impact these preserves by: (1) resulting in additional direct, indirect and cumulative impacts to the NBHCP's 22 covered species; (2) negatively impacting restoration activities that have occurred or are planned in these preserves; (3) decrease biological connectivity between and within the Natomas Basin's three major geographic areas; (4) decrease the available acreage and locations of potential Conservancy acquisitions; and (5) adversely affect implementation of the NBHCP and its operating conservation strategy. The DEIR should address the impacts of the proposed project on the NBHCP's Operating Conservation Program.

Finally, the DEIR's should consider the potential indirect and cumulative impacts on the NBHCP's Covered Species. The following is a list of possible future projects that may represent reasonably foreseeable cumulative development in the basin. If they are deemed cumulative, the effects of the proposed project may be considerably greater in light of these potential land use changes, and result in increased conservation needs for the Covered Species in the basin.

Possible future projects in the Natomas Basin:

- Natomas Fish Screen Replacement Project
- Bureau of Reclamation's Sacramento River Water Reliability Study Project
- Sacramento Metropolitan Airport Expansion Project
- Sacramento Metropolitan Airport Master Plan
- Natomas Joint Vision Project
- Downtown to Natomas Rail Light Rail Transportation Project
- Sacramento Municipal Utility Substation Expansion Projects (numerous)
- Placer Parkway
- Western Area Power Agency's Sacramento Area Voltage Support Project
- Camino Norte (residential)
- Greenbriar (residential)

In highlighting what we view may be probable and reasonably foreseeable future development in the Natomas Basin, the Services recognizes that additional development in the basin beyond that authorized under the existing federal and State permits is proposed and all concerned parties should reasonably expect that to occur. Even though specific details regarding individual projects may not be available, the effects analysis needs to provide a more thorough assessment of reasonably foreseeable additional development in the basin and the cumulative impact of the proposed project in light of other reasonably foreseeable development on the long-term viability of the operating conservation program.

Potential Impacts on the proposed Placer County Conservation Plan

The proposed Placer County Conservation Plan (PCCP) is currently being developed. It is designed to address the increasing demand for urban development in western Placer County, while establishing a conservation strategy designed to avoid, minimize, and compensate for the loss or modification or wetlands, waters, and species habitat. Although the PCCP is not yet approved, the Service encourages PG&E to coordinate with Placer County, the City of Lincoln, and the other PCCP proponents to design their project which would avoid selecting an alternative which would preclude the success of a future PCCP.

Please contact Jana Milliken, Senior Staff Biologist, at (916) 414-6561 if you have any questions concerning these comments for the Pacific Gas and Electric Line 406 and 407 Project.

Sincerely,

Kenneth Sanchez
Assistant Field Supervisor

cc:

Mr. Todd Gardner and Mr. Jeff Finn, California Department of Fish and Game, Rancho Cordova, California
Ms. Crystal Spurr, California State Lands Commission, Sacramento, California
Mr. John Roberts, The Natomas Basin Conservancy, Sacramento, California
Mr. Scot Mende, City of Sacramento Planning Department, Sacramento, California
Mr. Larry Bagley, County of Sutter, Yuba City, California

Attachment E: Field Survey Reports

E-13: Special-Status Species Assessment Tables

Special Status Species Tables
for PG&E Line 406/407 Natural Gas Pipeline Project
Yolo County, Sacramento County, Sutter County, and Placer County, California
State Clearinghouse No. 2007062091
California State Lands Commission EIR No. 740

List of Tables

Table 1: Special-Status Fish Species Review Table 1
Table 2: Special-Status Plant Species Review Table 4
Table 3: Special-Status Wildlife Species Assessment Table 8

Table 1: Special-Status Fish Species Review Table

Scientific Name Common name	Listing Status NMFS-USFWS/ CDFG	General Habitat Description	Potential for Impacts
Fish			
Acipenser medirostris Green sturgeon	FT/SSC	Anadromous species; large portions of life history are spent in the ocean. Migrations by adults into freshwater occur between late February and late July, with a spawning period generally ranging from March to July. Spawning takes place in deep, fast-moving water with temperatures between 46.5 and 57 degrees Fahrenheit (deg. F). Preferred spawning substrate is likely large cobble, but can range from clean sand to bedrock. Juveniles typically migrate out to sea before the end of their second year, primarily during summer and fall.	**High.** This species has the potential to occur within the Sacramento River between February and July. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).
Hypomesus transpacificus Delta smelt	FT/CT	Delta smelt are usually found in estuarine waters with temperatures ranging from 43 to 82.5 deg. F, and salinities between 2 and 7 parts per thousand (ppt), but rarely above 18 ppt. Delta smelt spawn in freshwater at temperatures from about 44.5 to 59 deg. F between February and June. Spawning takes place in dead-end sloughs and shallow edge waters of channels in the western Delta. Eggs are adhesive and stick to hard substrates, such as rocks, gravel, tree roots, and submerged branches. Critical habitat has been designated in the Sacramento-San Joaquin Delta for Delta smelt, but does not occur in the project area.	**Low.** The Project site is outside of this species range. However, there is the potential to indirect impacts to this species, which occurs in Delta portions of the Sacramento River. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).
Lampetra ayresii River lamprey	--/SSC	Lampreys are anadromous, entering the ocean in late spring and spending three to four months in saltwater before migrating back to freshwater in autumn. Spawning takes place between February and May in tributary streams to select larger rivers (Sacramento/ San Joaquin). Presumably, adults need clean, gravelly riffles in permanent streams for spawning. Ammocoetes require sandy, silty backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 77 deg. F.	**High.** Potential to occur within the Sacramento River year-round and potentially the Yolo Bypass during wet months.

Table 1 (Cont.): Special-Status Fish Species Review Table

Scientific Name Common name	Listing Status NMFS-USFWS/ CDFG	General Habitat Description	Potential for Impacts
Oncorhynchus mykiss Central Valley steelhead	FT/--	Steelhead trout in the Central Valley enter freshwater from the ocean when winter rains provide large amounts of cold water for migration and spawning. They typically spawn in clean gravel within tributaries to mainstem rivers and return to the ocean after spawning, if possible. For one to two years after hatching, juveniles are found in cool, clear, fast-moving permanent streams and rivers where there is ample riparian cover or undercut banks, and where invertebrate life is abundant.	**High.** Potential to occur within the Sacramento River year-round and potentially the Yolo Bypass and Steelhead Creek during wet months. Critical habitat for the Central Valley steelhead has been designated in the Sacramento River, Yolo Bypass, and in Steelhead Creek approximately 6 miles south of the project crossing site. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).
Onchorhynchus tshawytscha Central Valley spring-run chinook	FT/CT	Spring-run chinook salmon enter the Sacramento River as immature fish in spring and early summer and migrate into headwaters where they hold in pools until they spawn. Juveniles emerge from early November through the following April, and typically rear in freshwater for 3 to 15 months. Juveniles emigrate from the tributaries to estuarine waters and the ocean between mid November and June. Some fish remain in the stream until the following October and emigrate as yearlings, usually with the onset of storms starting in October through the following March. Optimal temperatures for growth and survival of chinook range between 41 and 66 deg. F. At approximately 71 to 73 deg. F, major mortality is experienced in wild populations.	**High.** Potential to occur within the Sacramento River year-round and potentially the Yolo Bypass and Steelhead Creek during wet months. Critical habitat has been designated in the Sacramento River and in the Yolo Bypass. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).
Oncorhynchus tshawytscha Central Valley fall- and late-fall-run chinook	--/SSC	Fall-run chinook migration into freshwater occurs in late summer and early fall. Valley reaches of rivers are often too warm to support salmon in summer. Spawning typically occurs on gravel bars within a few days or weeks of entering freshwater. Adults die after spawning. Late-fall-run chinook typically enter the river as four- to five-year-old fish beginning in October, and hold in freshwater for one to three months before spawning. Adapted for spawning in reaches of mainstem rivers, such as the upper Sacramento, which remain cold and deep enough in summer months for rearing of juveniles. Juveniles typically migrate to the ocean after 7 to 13	**High.** Potential to occur within the Sacramento River year-round and potentially the Yolo Bypass and Steelhead Creek during wet months. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).

Table 1 (Cont.): Special-Status Fish Species Review Table

Scientific Name Common name	Listing Status NMFS-USFWS/ CDFG	General Habitat Description	Potential for Impacts
		months in freshwater.	
Onchorhynchus tshawytscha Central Valley winter-run chinook	FE/CE	Winter-run chinook typically migrate upstream as immature fish during winter and spring, then spawn several months later in summer. Most winter-run chinook return to freshwater as three-year-olds, and spawn in clear, cool water released from Shasta Reservoir. Juveniles remain in fresh water for 5 to 10 months, followed by an intermediate time in estuarine waters before entering the ocean. Optimal temperatures for growth and survival of chinook range between 41 and 66 deg. F.	**High.** Potential to occur within the Sacramento River year-round and potentially the Yolo Bypass and Steelhead Creek during wet months. Critical habitat for winter-run chinook has been designated in the Sacramento River from Kenswick Dam to the San Francisco Bay. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).
Pogonichthys macrolepidotus Sacramento splittail	--/SSC	Sacramento splittail are primarily freshwater fish but can tolerate low salinities. They are commonly found in temperatures ranges from 41 to 75 deg. F, but can tolerate temperatures up to 91.5 deg. F for short periods. Adults move upstream during the winter and spring to forage and spawn. Spawning occurs between late February and early July in areas of flooded vegetation (Yolo and Sutter bypasses, low-lying parts of delta islands, and river mouths), though it is most frequent in March and April. Most splittail larvae remain near the spawning sites for 10 to 14 days before moving into offshore habitats.	**High.** Potential to occur within the Sacramento River in the winter and spring, and potentially within the Yolo Bypass during wet months. There are CNDDB-recorded occurrences of this species within the Project site in the Sacramento River (CNDDB 2008).

Table 2: Special-Status Plant Species Review Table

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Impacts	Period of Identification
Astragalus tener var. *tener* Alkali milk-vetch	—/—/1B.2	Playas, valley and foothill grassland in adobe clay, and vernal pools. Restricted to alkaline substrates. 3 to 197 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	Mar. - Jun.
Atriplex cordulata Heartscale	—/—/1B.2	Chenopod scrub, meadows and seeps, and valley and foothill grassland in sandy soils. Restricted to saline or alkaline substrates. 3 to 1,230 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	Apr. - Oct.
Atriplex depressa Brittlescale	—/—/1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools. Restricted to alkaline, clay substrates. 3 to 1,050 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrence of this species approximately 3 south of Line 407 West, just east of the City of Woodland (CNDDB 2008).	May - Oct.
Atriplex joaquiniana San Joaquin spearscale	—/—/1B.2	Chenopod scrub, meadows and seeps, playas, and valley and foothill grassland. Restricted to alkaline substrates. 3 to 2,739 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrence of this species approximately 3 south of Line 407 West, just east of the City of Woodland (CNDDB 2008).	Apr. - Oct.
Balsamorhiza macrolepis var. *macrolepis* Big-scale balsamroot	—/—/1B.2	Chaparral, cismontane woodland, and valley and foothill grassland; sometimes in serpentinite soils. 90 to 1,400 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrence of this species approximately 4 miles northeast of the eastern terminus of Line 407 East (CNDDB 2008).	Mar. - Jun.
California macrophylla Round-leaved filaree	—/—/1B.1	Cismontane woodland and valley and foothill grassland in clay soils. 15 to 1,200 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	Mar. - May
Carex lenticularis var. *limnophila* Lakeshore sedge	—/—/2.2	Bogs and fens, marshes and swamps, and North Coast coniferous forest along shores and beaches. Often in gravelly substrates. 0-6 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	Jun. - Aug.

Table 2 (Cont.): Special-Status Plant Species Review Table

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Impacts	Period of Identification
Clarkia biloba ssp. *brandegeeae* Brandegee's clarkia	—/—/1B.2	Chaparral and cismontane woodland; often along roadcuts. 73 to 915 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	May - Jul.
Cordylanthus mollis ssp. *hispidus* Hispid bird's-beak	—/—/1B.1	Meadows and seeps, playas, and valley and foothill grassland; restricted to alkaline substrates. 1 to 155 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrence of this species approximately 3 south of Line 407 West, just east of the City of Woodland (CNDDB 2008).	Jun. - Sep.
Cordylanthus palmatus Palmate-bracted bird's-beak	FE/CE/1B.1	Chenopod scrub, and valley and foothill grassland; restricted to alkaline substrates. 5 to 155 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrence of this species south of Line 407 West, just east of the City of Woodland (CNDDB 2008).	May - Oct.
Downingia pusilla Dwarf downingia	—/—/2.2	Mesic sites in valley and foothill grasslands and vernal pools. 1 to 1,459 feet in elevation.	**High.** This species was detected on Line 407 East during protocol-level surveys. There several CNDDB-recorded occurrences of this species south, north, and east of Line 407 East (CNDDB 2008).	Mar. - May
Erigeron angustatus Greene's narrow-leaved daisy	—/—/1B.2	Chaparral in serpentinite or volcanic soils. 80 to 290 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	May - Sep.
Fritillaria pluriflora Adobe-lily	—/—/1B.2	Chaparral, cismontane woodland, and valley and foothill grassland; often in adobe soils. 60 to 705 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	Feb. - Apr.
Gratiola heterosepala Boggs Lake hedge-hyssop	—/CE-1B.2	Marshes and swamps, including lake margins, and vernal pools. Restricted to clay substrates. 328 to 7,790 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrences of this species south of Line 407 East, and additional occurrences east of Line 407 East (CNDDB 2008).	Apr. - Aug.

Table 2 (Cont.): Special-Status Plant Species Review Table

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Impacts	Period of Identification
Hesperolinon breweri Brewer's western flax	—/—/1B.2	Chaparral, cismontane woodland, and valley and foothill grassland; usually in serpentinite soils. 30 to 900 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	May - Jul.
Hibiscus lasiocarpus Rose-mallow	—/—/2.2	Freshwater marshes and swamps. 0 to 394 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrence of this species approximately 2 miles north of Line 407 West, along the Sacramento River (CNDDB 2008).	Jun. - Sep.
Juncus leiospermus var. *ahartii* Ahart's dwarf rush	—/—/1B.2	Vernal pools. Restricted to the edges of vernal pools. 30-100 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	Mar. - May
Juncus leiospermus var. *leiospermus* Red Bluff dwarf rush	—/—/1B.1	Chaparral, valley and foothill grassland, cismontane woodlands, vernal pools. Vernally mesic sites. Sometimes on edges of vernal pools. 30-1020 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrence of this species approximately 5 miles northeast of the eastern terminus of Line 407 East (CNDDB 2008).	Mar. - May
Legenere limosa Legenere	—/—/1B.1	Vernal pools. 0 to 3,000 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There are CNDDB-recorded occurrences of this species approximately 3 miles south of Line 407 East (CNDDB 2008).	Apr. - Jun.
Lepidium latipes var. *heckardii* Heckard's pepper-grass	—/—/1B.2	Alkaline flats in valley and foothill grassland. 238 to 656 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There is a CNDDB-recorded occurrences of this species along I-5 approximately 4.5 miles north of the western portion of Line 406 (CNDDB 2008).	Mar. - May

Table 2 (Cont.): Special-Status Plant Species Review Table

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Impacts	Period of Identification
Navarretia leucocephala var. *bakeri* Baker's navarretia	—/—/1B.1	Cismontane woodland, low-elevation conifer forests, meadows and seeps, valley and foothill grasslands, vernal pools. Restricted to vernally mesic sites. 16-5,708 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	Apr. - Jul.
Navarretia mysersii ssp. *myersii* Pincushion navarretia	—/—/1B.1	Vernal pools, valley and foothill grassland. Clay soils within nonnative grassland. Most common in shallower, smaller vernal pools. 20-330 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	May
Orcuttia tenuis Slender orcutt grass	—/—/1B.1	Associated with large, deep vernal pools. 30-1735 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	May - Sep.
Orcuttia viscida Sacramento orcutt grass	FE/SE/1B.1	Associated with large, deep vernal pools. 30-100 meters in elevation.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	Apr. - Jul.
Sagittaria sanfordii Sanford's arrowhead	—/—/1B.2	Assorted shallow freshwater marshes and swamps. 0 to 2,132 feet in elevation.	**None.** This species was not detected during protocol-level surveys. There are CNDDB-recorded occurrences of this species approximately 4 miles southeast of the eastern terminus of Line 407 East (CNDDB 2008).	May - Oct.
Trichocoronis wrightii var. *wrightii* Wright's trichocoronis	—/—/2.1	Meadows and seeps, marshes and swamps, riparian forest, and vernal pools. Restricted to alkaline substrates.	**None.** This species was not detected during protocol-level surveys. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).	May - Sep.

Table 3: Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts
Invertebrates			
Branchinecta conservatio Conservancy fairy shrimp	FT/—	Conservancy fairy shrimp occur primarily in vernal pools, seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Typically, the majority of pools in any vernal pool complex are not inhabited by the species at any one time. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.	**Moderate.** Dry- and wet-season protocol surveys were conducted for the proposed Project on November 5, 6, and 18, 2006 by Helm Biological Consulting (2007), and between December 21, 2006 and May 18, 2007 by Gallaway Consulting, Inc (2007b), to determine the presence or absence of sensitive vernal pool branchiopods, including the conservation fairy shrimp. Cysts belonging to the genus *Branchinecta* were found during dry season surveys; however, due to the similarities in cyst morphology between multiple species belonging to the genus *Branchinecta*, the presence or absence of this species (*Branchinecta conservatio*) could not be concluded based on the dry season survey alone. Wet season surveys were conducted to substantiate the findings of the dry season survey and complete USFWS protocol survey requirements. This species was not found during any of the wet season surveys and is presumed to be absent from the project site. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).
Branchinecta lynchi Vernal pool fairy shrimp	FT/—	Vernal pool fairy shrimp occur primarily in vernal pools, seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Typically, the majority of pools in any vernal pool complex are not inhabited by the species at any one time. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.	**Moderate.** Dry- and wet-season protocol surveys were conducted for the proposed Project on November 5, 6, and 18, 2006 by Helm Biological Consulting (2007), and between December 21, 2006 and May 18, 2007 by Gallaway Consulting, Inc (2007b), to determine the presence or absence of sensitive vernal pool branchiopods, including the vernal pool fairy shrimp. Similar to the conservancy fairy shrimp, the presence of this species (*Branchinecta lynchi*) could not be concluded based on the dry season survey alone. Wet season surveys were conducted to substantiate the findings of the dry season survey and complete USFWS protocol survey requirements. This species

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Branchinecta lynchi Vernal pool fairy shrimp (continued)			was not found during any of the wet season surveys and is presumed to be absent from the project site. There are several CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/—	Associated with elderberry trees (Sambucus spp.) in California's Central Valley during its entire life cycle. The adults eat the elderberry foliage until about June when they mate. Upon hatching the larvae then begin to tunnel into the tree where they will spend 1-2 years eating the interior wood, which is their sole food source.	**High.** Valley elderberry longhorn beetle surveys were conducted for the proposed Project on May 8 and 14, 2007 by Gallaway Consulting, Inc (2007a). Although surveys were conducted during the adult emergence season (March through June), no individual beetles were observed. However, a total of 10 valley elderberry longhorn beetle emergence holes were observed within elderberry bushes that occur along the proposed alignment for Line 407. Based on these results, this species is presumed present. The proposed alignment for Line 407 would occur within 100 feet of habitat that is presumed to be occupied by this species. There is a CNDDB-recorded occurrence of this species approximately 1 mile north of the Project (CNDDB 2008).
Lepidurs packardi Vernal pool tadpole shrimp	FE/—	Vernal pool tadpole shrimp occur primarily in vernal pools, seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Typically, the majority of pools in any vernal pool complex are not inhabited by the species at any one time. Different pools within or between complexes may provide habitat for the tadpole shrimp in alternative years, as climatic conditions vary.	**None.** No vernal pool tadpole shrimp were detected during wet- or dry-season branchiopod surveys This species is presumed absent from the project site. There are several CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Amphibian and Reptiles			
Actinemys marmorata Western pond turtle	—/CSC	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. May move overland up to 325 feet for egg laying.	**Moderate.** The larger canals, sloughs, and creeks throughout the project area provide suitable habitat for the species. Upland areas surrounding these waterways potentially provide suitable nesting habitat. Habitat assessment surveys for the western pond turtle and other reptile and amphibian species were conducted by PG&E biologists on June 12 and 13, November 30, and December 5 and 7, 2006 (PG&E 2006). Although not detected during surveys, this species has a moderate potential to occur along the canals, sloughs, and creeks throughout the Project site and therefore assumed to be present. There are no CNDDB-recorded occurrences of this species within 5 miles south of the Project site (CNDDB 2008).
Ambystoma californiense California tiger salamander	FE/SSC	From low elevations of the Coast Ranges from Sonoma County to Santa Barbara County and in the Central Valley from Colusa County to Tulare County. Breeds in ephemeral pools and permanent waterbodies within grassland and oak woodland habitats where small mammal burrows occur. Small mammal burrows and upland habitats adjacent to aquatic breeding habitats are frequently used as aestivation sites during the non-breeding season.	**High.** Habitat assessment surveys for the California tiger salamander and other reptile and amphibian species were conducted by PG&E biologists on June 12 and 13, November 30, and December 5 and 7, 2006. Although not observed or otherwise detected during the surveys, this species was determined to have a high potential to use the ephemeral pools and waterways, and adjacent upland habitats that occur along the proposed alignment as breeding and dispersal habitat (PG&E 2006); and therefore is assumed present. There are several CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Phrynosoma coronatum California horned lizard	—/SSC	Common in lowlands along sandy washes with scattered low shrubs to provide cover and open areas for basking and loose soils in which they can bury themselves.	**Low.** Grassland habitat is available in the project area; however these areas lack low shrubs and very loose sandy soils for refuge and aestivation. Habitat assessment surveys for the California horned lizard and other reptile and amphibian species were conducted by PG&E biologists on June 12 and 13, November 30, and December 5 and 7, 2006 (PG&E 2006). This species was not detected during surveys and was determined to have a very low potential to occur in the Project area based on the lack of friable soils, upland refugia, low scrubs, and aestivation habitat (PG&E 2006). There are no CNDDB-recorded occurrences of the lizard within 5 miles of the Project (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Rana aurora draytonii California red-legged frog	FT/SSC	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent vegetation.	**Low.** Suitable aquatic habitats include ephemeral and shallow along Curry Creek and Natomas East Main Canal. Upland habitat is limited for refugia and dispersal. Habitat assessment surveys for the California red-legged frog and other reptile and amphibian species were conducted by PG&E biologists on June 12 and 13, November 30, and December 5 and 7, 2006. This species was not observed or otherwise detected during the surveys, and only marginal aquatic and upland habitat was determined to exist along the proposed alignment. Additionally, tadpoles of the California bullfrog, a predatory species to the California red-legged frog, were observed within portions of the proposed alignment that further reduce the likelihood for red-legged frogs to occur. Furthermore, no records of this species exist within 10 miles of the Project area (PG&E 2006, CNDDB 2008). Due to the lack of highly suitable habitat, presence of predatory species, and lack of recorded occurrences within 10 miles of the Project area, this species was determined unlikely to occur within the proposed alignment (PG&E 2006).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Spea hammondii Western spadefoot toad	—/SSC	Inhabits lowlands in open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Breeds in temporary pools and quiet streams.	**High.** Habitat assessment surveys for the western spadefoot toad and other reptile and amphibian species were conducted by PG&E biologists on June 12 and 13, November 30, and December 5 and 7, 2006 (PG&E 2006). Although not detected during surveys, this species was determined to have a moderate to high potential to occur along the vernal pool and seasonal wetland habitat within the Line 407 East segment of the Project site; and therefore is assumed to be present.
Thamnophis gigas Giant garter snake	FT/CT	Marshes, sloughs, irrigation channels, and occasionally in slow-moving streams. Requires emergent vegetation for cover.	**High.** The Project contains suitable foraging, breeding, and refugia habitat for this species. Habitat assessment surveys for the giant garter snake and other reptile and amphibian species were conducted by PG&E biologists on June 12 and 13, November 30, and December 5 and 7, 2006 (PG&E 2006). Although this species was not detected during habitat assessment surveys, it was determined to have a high potential to occur based on the presence of suitable foraging, breeding, and refugia habitat (PG&E 2006). Furthermore, this species has been previously observed and recorded in 42 separate instances in the lowland areas in the proposed alignment for Line 407 East and West (CNDDB 2008) and therefore is assumed to be present. There are several CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Birds			
Agelaius tricolor Tricolored blackbird	—/SSC	Largely endemic to California, most numerous in the Central Valley and nearby vicinity. Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Feeds in grassland and cropland habitats.	**Moderate.** Freshwater marsh habitats and scattered brushy thickets provide marginal nesting habitat. the vegetation, open grassland, and agricultural habitats provide suitable foraging habitat. Habitat assessment surveys for the tricolored blackbird and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, and December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not observed during surveys, it was determined to have a moderate potential to nest and/or forage within the freshwater marsh and riparian type habitats that occur along the proposed alignment (PG&E 2007) and is therefore assumed to be present. There are several CNDDB-recorded occurrences of his species within 5 miles of the Project (CNDDB 2008).
Aquila chrysaetos Golden eagle	—/SSC,CFP	Breeds on cliffs or in large trees or electrical towers, forages in open habitats.	**High.** The species was observed during surveys in the Dunnigan Hills. Habitat assessment surveys for the golden eagle and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was detected during surveys and was determined to have a high potential to forage within the rolling grassland habitat along the Line 406 East segment (PG&E 2007). This species was also determined to have a potential to nest within the isolated trees and tree groves that occur on and in the immediate vicinity of the proposed alignment (PG&E 2007). There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Asio flammeus Short-eared owl	—/SSC	Forages in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Nests on dry ground in a depression concealed in vegetation and lined with grasses, forbs, sticks, and feathers, and occasionally in burrows.	**Moderate.** Grasslands in the L406 (Dunnigan Hills) and Line 407 East areas and open agricultural areas within all three segments provide suitable nesting and foraging habitat. Habitat assessment surveys for the short-eared owl and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not observed during surveys, suitable nesting and foraging habitat was confirmed throughout the open grasslands and agricultural areas along the proposed alignment (PG&E 2007) and is therefore assumed to be present. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Athene cunicularia Western burrowing owl	—/SSC	Open, dry annual or perennial grasslands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals.	**High.** Habitat assessment surveys for burrowing owl and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was observed during surveys and has a high potential to forage and nest throughout the open grasslands and agricultural areas within the Line 406 and Line 407 West segments. The species is not expected to occur within the Line 407 East segment (PG&E 2007). There are CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Branta canadensis leucopareia Aleutian Canada goose	—/SSC	Nests on the Aleutian islands in Alaska and migrates south to the Sacramento and San Joaquin Valleys in winter. Populations are recovering from historically low numbers attributed to the introduction of the Arctic fox to their island breeding grounds. Uses agricultural areas, grasslands, and wetlands. Primarily observed on private ranches near the Stanislaus and San Joaquin rivers.	**Moderate.** Habitat assessment surveys for the Aleutian Canada goose and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not observed during surveys, it was determined to have a moderate potential to winter within the grassland habitat and agricultural land that occurs throughout the proposed alignment (PG&E 2007) and is therefore assumed to be present. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Buteo regalis Ferruginous hawk	—/SSC	Habitats include agricultural flatlands, open prairies, deserts, and semi-arid grasslands featuring scattered trees, rocky mounds or outcrops. May roost or nest on utility structures, trees, shrubs, cliffs, or ground outcroppings. May roost communally and forage in groups on the ground during winter migration. Forages in grasslands and occasionally in other open habitats during migration and winter.	**High.** Habitat assessment surveys for the ferruginous hawk and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not detected during habitat assessment surveys, suitable wintering and foraging habitat was determined to exist within the open grassland and agriculture areas that occur along the proposed alignment for the Line 406 and Line 407 West segments. This species is not expected to occur within the Line 407 East segment based on the lack of an adequate prey base. Suitable breeding and foraging habitat also occurs within the riparian and oak woodland habitats. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Buteo swainsoni Swainson's hawk	—/CT	Nests in open areas with stands of few, dense-topped trees in juniper-sage flats, riparian areas, and oak savannas. Forages in open grasslands, grain, and alfalfa fields (supporting rodent populations) adjacent to nesting opportunities.	**High.** Suitable nesting and foraging habitat is present throughout the scattered trees, open grasslands, and agricultural areas of the Project site. Habitat assessment surveys for the Swainson's hawk and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was observed on numerous occasions during surveys and suitable nesting and foraging habitat was confirmed throughout the scattered trees, open grasslands, and agricultural areas along the proposed alignment (PG&E 2007). There are several CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Charadrius alexandrinus nivosus Western snowy plover	FT/SSC	Nests in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent. Although the majority of snowy plovers are site-faithful, returning to the same breeding site in subsequent breeding seasons, some also disperse within and between years. Birds occasionally nest in exactly the same location as the previous year.	**Low.** Habitat assessment surveys for the western snowy plover and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was not observed during surveys and was determined to have a low potential to nest and/or forage within the limited sandy aquatic areas that occur along the proposed alignment (PG&E 2007). There is a CNDDB-recorded occurrences of this species approximately 3 miles south of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Charadrius montanus Mountain plover	—/SSC	Winter resident. Found on short grasslands and plowed fields of the Central and Imperial valleys, in foothill valleys west of San Joaquin Valley, and in plowed fields of Los Angeles and western San Bernardino counties. Uses open grasslands, plowed fields with little vegetation, and open sagebrush areas.	**High.** Habitat assessment surveys for mountain plover and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was identified foraging in the vicinity of the Line 406 segment during surveys, and was determined to have a moderate potential to winter within the grasslands and agricultural fields that occur along the proposed alignment. There are CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Circus cyaneus Northern harrier	—/SSC	Winter resident throughout most of the state; year-round in the Central Valley and Coast Range. Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields or grasslands.	**High.** Habitat assessment surveys for the northern harrier and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was detected during surveys, and was determined to have a high potential to nest and/or forage within the open grassland and agricultural habitats throughout the proposed alignment (PG&E 2007). There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Coccyzus americanus occidentalis Western yellow-billed cuckoo	—/CE	Nests in riparian forests along broad, lower floodplains of larger river systems. Requires broad, well-developed, low-elevation riparian woodlands of primarily mature cottonwoods and willows. Extirpated from a large portion of the historical range in California with current breeding populations restricted to four major areas (the Sacramento Valley, Kern River, Lower Colorado River and the Prado Basin).	**Moderate.** Habitat assessment surveys for the western yellow-billed cuckoo and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not observed during surveys, it was determined to have a moderate potential to nest and/or forage within the mature riparian habitat that occurs along the proposed alignment for Line 407 West (PG&E 2007) and is therefore assumed present. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Elanus leucurus White-tailed kite	—/SSC, CFP	Nests or roosts in dense, broad-leafed deciduous trees. Forages in herbaceous lowlands with variable tree growth and dense populations of voles.	**High.** Habitat assessment surveys for the white-tailed kite and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was observed during surveys and suitable nesting and foraging habitat was confirmed throughout the scattered trees, open grasslands, and agricultural areas along the proposed alignment (PG&E 2007). There are several CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Empidonax traillii brewsteri Little willow flycatcher	—/CE	Breeds in moist brushy thickets, open second-growth, and riparian woodlands (often with willows or alders) in montane regions (~2000 to 8000 ft). Less than 200 documented nesting pairs. A lower elevation migrant to riparian areas in the spring and fall. Winters in Central and South America.	**Low.** Habitat assessment surveys for the little willow flycatcher and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was not observed during surveys. It was determined to have a potential to migrate through the area during the spring and fall and suitable foraging habitat was confirmed throughout the riparian habitat along the proposed alignment (PG&E 2007). However, nesting habitat is not present in the Project site. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Grus canadensis tabida Greater sandhill crane	—/CT,CFP	Breeds in wetlands and forages in meadows, irrigated pastures, fields, and marshes. Roost together at night in shallow water and commonly feed on grains, seeds, aquatic invertebrates, insects, small reptiles, amphibians, and rodents. Historically wintered on California's Central Valley wetlands. Currently winters in lowland areas of Sacramento, San Joaquin, and Imperial Valleys.	**Moderate.** Habitat assessment surveys for the greater sandhill crane and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not observed during surveys, it was determined to have a moderate potential to winter within the open grassland and agricultural habitat that occurs throughout the proposed alignment (PG&E 2007). There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Haliaeetus leucocephalus Bald eagle	—/CE,CFP	Year-round at ocean shorelines, lake margins, and river courses. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine.	**Moderate.** No breeding habitat occurs within the Project site. Habitat assessment surveys for bald eagle and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was not detected during habitat assessment surveys and no breeding habitat was determined to exist on or in the vicinity of the Project site. However, this species was determined to have a moderate potential to migrate and potentially forage through the general Project area (PG&E 2007). There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Lanius ludovicianus Loggerhead shrike	—/SSC	Found in a variety of habitats with open areas, available perches, and dense shrubs for nesting.	**Moderate.** Habitat assessment surveys for the loggerhead shrike and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was not detected during surveys, however suitable foraging and nesting habitat was determined to exist within the Project site. Therefore, this species was determined to have a moderate potential to nest and forage within the Project site. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Numenius americanus Long-billed curlew	—/SSC	Breeds in upland shortgrass prairies and wet meadows in northeastern California; coastal estuaries, open grasslands, and croplands are used in winter	**Moderate.** Habitat assessment surveys for the long-billed curlew and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not observed during surveys, it was determined to have a moderate potential to winter within the open grassland and agricultural habitat that occurs throughout the proposed alignment (PG&E 2007). There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Plegadis chihi White-faced ibis	—/SSC	Feeds in emergent wetlands (often freshwater), wet meadows, flooded pastures or croplands. Nest sites are located in dense emergent wetlands. Usually forms small nesting colonies. Recently documented population recovery (>6,000) within the Kern NWR (San Joaquin Valley) after marsh restoration efforts. Ranges across southwestern North America.	**High.** Habitat assessment surveys for the white-faced ibis and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was observed along the Line 407 East segment during surveys, and was determined to have a high potential to nest and/or forage within the wetland habitat, grasslands, and agricultural fields that occur throughout the proposed alignment (PG&E 2007). Nesting habitat in the area is marginal due to narrow and sparse nature of emergent wetland vegetation; breeding is not likely to occur. There are CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Progne subis Purple martin	—/SSC	Nests in open and semi-open areas, including savannas, cultivated lands, fields, parks, pastures. Found near lakes, marshes, towns and suburbs. Utilizes natural cavities in trees and cliff niches. Additionally will nest in artificial housing, structures, or landscape features. Often forms colonies.	**Moderate.** Habitat assessment surveys for the purple martin and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not observed during surveys, it was determined to have a moderate potential to nest and/or forage within the scattered isolated trees, small tree groves, and anthropogenic structures that occur along the proposed alignment (PG&E 2007). There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Riparia riparia Bank swallow	—/CT	In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. In migration, flocks with other swallows over many open habitats.	**Moderate.** Habitat assessment surveys for the bank swallow and other avian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). Although this species was not observed during surveys, suitable nesting and foraging habitat was confirmed throughout the vertical or near vertical canals and stream banks along the proposed alignment (PG&E 2007). There are several CNDDB records of the species in the project area (records are along the large river systems in the region). There are CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Mammals			
Antrozous pallidus Pallid bat	—/SSC	Broadly distributed in California from sea level to over 6,000 feet. Roosts in caves, buildings, rock crevices, and tree hollows. Overwinters in summer habitats at lower elevations.	**Moderate.** Habitat assessment surveys for the pallid bat and other mammalian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). This species was not observed during surveys; however, it was determined to have a moderate potential to roost and forage throughout the anthropogenic structures, riparian areas, and scattered trees and groves within the proposed alignment (PG&E 2007). There are CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Lasiurus blossvillii Western red bat	—/SSC	Solitary, foliage-roosting bat. Day roosts in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. Closely associated with riparian habitats; cottonwood stands are considered preferred roost sites. Migrate south in the winter, and return north for breeding. Forage through a wide range of habitat types, feeding on moths, beetles, bees, wasps, flies, cicadas, treehoppers, and other sucking insects.	**Moderate.** Suitable roosting and foraging habitat occurs within the project site. This species is known to occur along the Sacramento River. Suitable roost sites and foraging habitat occurs within the scattered trees, woodland and forest habitats, and riparian and aquatic habitats that occur throughout the proposed alignment. There are no CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

Table 3 (Cont.): Special-Status Wildlife Species Assessment Table

Scientific Name Common name	Listing Status USFWS/CDFG	General Habitat Description	Potential for Impacts
Lasionycteris noctivagans Silver-haired bat	—/SSC	Occur throughout North America scarce through much of its range, and never very abundant. Migratory, moving north through Arizona and New Mexico in the spring. Will use buildings when migrating in prairie states.	**Moderate.** Suitable roost sites and foraging habitat occurs within the scattered trees, woodland and forest habitats, and riparian and aquatic habitats that occur throughout the proposed alignment. This species has a moderate potential to occur based on the presence of suitable habitat and proximity of the Project site to known occurrences. There are CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).
Taxidea taxus American badger	—/SSC	Herbaceous, shrub, and open stages of most habitats with dry, friable soils.	**High.** Habitat assessment surveys for the American badger and other mammalian species were conducted by PG&E biologists on June 12 and 13, November 30, December 5 and 7, 2006; and on June 29, 2007 (PG&E 2007). A dead badger was observed I-505 within the vicinity of the project site during surveys. This species was determined to have a moderate potential to occur within the proposed alignment for Line 406 West near the Dunnigan Hills (PG&E 2007). There are CNDDB-recorded occurrences of this species within 5 miles of the Project site (CNDDB 2008).

E-14: County Goals, Policies, and Objectives Pertaining to Biological Resources

County Goals, Policies and Objectives Pertaining to Biological Resources for PG&E Line 406/407 Natural Gas Pipeline Project Yolo County, Sacramento County, Sutter County, and Placer County, California

State Clearinghouse No. 2007062091

California State Lands Commission EIR No. 740

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SACRAMENTO COUNTY

COUNTY OF SACRAMENTO GENERAL PLAN

The County of Sacramento General Plan was adopted in 1993 (County of Sacramento 1993) and the County currently is in the process of updating this document. On June 28, 2007, the Draft General Plan Update was transmitted to the Department of Environmental Review and Assessment (DERA) to begin the environmental review process. On August 13, 2007, DERA released a Notice of Preparation (NOP) of a Draft EIR for the Sacramento County Draft General Plan Update. Sections of the Conservation Element that address biological resources are Water Resources and Vegetation and Wildlife sections. Strategies, objectives, and policies of these sections that are pertinent to the Project are summarized below.

Section 5: Vegetation and Wildlife

A. Marsh and Riparian Areas

Goal. Healthy, well-managed marsh and riparian woodlands along Sacramento County's waterways.

<u>Habitat Protection</u>

Objective. Marsh and riparian habitat protected.

Policies:

CO-62. Ensure no net loss of marsh and riparian woodland acreage, values or functions.

CO-65. In any cases where complete or selective removal of riparian woodland or scrub habitat is necessary for channel maintenance, public safety, or installation of infrastructure, it will be planned and carried out, or mitigated, so as to minimize unavoidable impacts upon biological resources.

CO-66. Encroachments within the designated floodway of Sacramento waterways shall be consistent with policies to protect marsh and riparian areas.

Habitat Restoration

Objective: Ten percent increase in marsh and riparian woodland habitat, respectively, by 2010.

Policies:

CO-69. Review projects for potential to restore marsh/riparian woodlands, considering effects on vernal pools, ground water, flooding, and proposed fill or removal of marsh and riparian habitat.

CO-70. Public or private projects involving filling or removal of marsh/riparian habitat shall be mitigated outside of natural preserves where on-site mitigation is not desirable or appropriate and shall be mitigated through the purchase of mitigation credits for restored wetlands/riparian areas at no net loss.

CO-72. New or restored marsh/riparian woodlands shall be under ownership of a public agency or subject to a permanent conservation easement.

B. Vernal Pools and Ephemeral Wetlands

Goal: Preserve and enhance high-quality, self-sustaining vernal pool habitats.

Vernal Pool Preserves

Objective: A system of self-sustaining vernal pool preserves representative of the four types of vernal pools in Sacramento.

Policies:

CO-78. Focus vernal pool preservation in permanent open space areas beyond the Urban Area.

CO-79. Strive to link preserves in the County system and create a network that encompasses all vernal pool types.

CO-80. Select vernal pool preserves based on the following evaluation criteria: representativeness, habitat quality, watershed integrity,

defensibility, buffer, preserve size, plant species variety, and presence of special status species.

CO-81. Ensure that vernal pool preserves are large enough to protect vernal pool watersheds, provide an adequate buffer, have sufficient number and extent of pools to support adequate species populations and a range of vernal pool classes.

Urban Development and Vernal Pools

Objective: Development directed so as to avoid concentrated vernal pool areas and achieve a balance between essential growth needs and vernal pool resource protection.

Policies:

CO-83. Ensure no net loss of vernal pool acreage, and/or values and functions, and mitigate any loss in relation to the values of quality of habitat.

CO-84. Evaluate feasible on-site alternatives in the environmental review process that reduce impacts on vernal pools and provide effective on-site preservation in terms of minimum management requirements, effective size, and evaluation criteria identified in the report "Sacramento County Vernal Pools" (1990).

CO-85. Require in-kind compensation for the type and functional values of vernal pools eliminated by development.

CO-86. When on-site preservation or mitigation is infeasible or undesirable, require off-site mitigation at County-approved mitigation banks within Sacramento County.

CO-87. Mitigation for vernal pool loss shall be considered in the environmental review process, and mitigation shall be required based on information contained within the environmental documents on the quality of those resources and their ability to be sustained within an urban setting.

C. Urban Streams

Goal: Natural and open space values of urban stream corridors preserved and protected.

Maintenance of Urban Streams

Objective: Adequately funded maintenance and law enforcement programs to protect natural values of Urban Stream Corridors.

Goals:

CO-125. No grading, clearing, tree cutting, debris disposal or any other despoiling action shall be allowed in Urban Stream Corridors except for normal channel maintenance.

CO-126. Maintain streams to allow natural vegetation in and along streams, commensurate with flood control and public acceptance, to assist in removal of nutrients, pollutants, and silt.

CO-127. The use of special-status plant species, especially candidate 1 or 2 species, shall be encouraged on revegetation plans, if and only if such plant material can be propagated from local genetic stocks without significant adverse impacts upon the existing populations.

Restoration of Urban Streams

Objective: Restoration of channelized creeks to increase natural values.

D. Tree Resources

Goal: Sacramento trees preserved and protected.

Native and Landmark Tree Protection

Objective: Native oak woodlands resources and landmark tree resources preserved and protected for their historic, economic, and environmental values.

Policies:

CO-130. Make every effort to protect and preserve non-oak native, excluding cottonwoods, and landmark trees and protect and preserve

native oak trees measuring 6 inches in diameter at 4.5 feet above ground in urban and rural areas, excluding parcels zoned exclusively for agriculture.

CO-131. Native trees other than oaks, which cannot be protected shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed. In addition, with respect to oaks, a provision for a comparable on-site area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion of the County Tree Coordinator when removal of a mature oak tree is necessary in accordance with consistent policy.

CO-132. If the project site is not capable of supporting all the required replacement trees a sum equivalent to the replacement cost of the number of trees that cannot be accommodated shall be paid to the County's Tree Preservation Fund. The replacement cost of trees shall be established in accordance with the Council of Tree and Landscape Appraiser's standards for appraising trees.

CO-133. For discretionary projects involving native oaks, ensure no net loss of canopy area by:

(1) preserving the main, central portions of consolidated and isolated groves constituting the existing healthy and unhealthy native oak canopy and;

(2) provide an area on-site to mitigate any canopy lost. Native oak mitigation area must be a contiguous area on-site which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration. If on-site mitigation area is not available due to area limitations, developer shall provide off-site mitigation consistent with policy proposed in CO-136.

CO-134. Mitigate for loss of trees for road expansion and development consistent with County Tree Ordinance and General Plan policies.

CO-135. In 15 years the native oak canopy within on-site mitigation areas shall be 50 percent canopy coverage for valley oak and 30 percent canopy coverage for blue oak and other native oaks.

CO-136. If on-site mitigation is not possible given site limitation, off-site mitigation may be considered. Such a mitigation area must meet all of the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity, preferably by transfer of title to an appropriate public entity. Protected woodland habitat could be used as a suitable site for replacement tree plantings required by ordinances or other mitigations.

a. Equal or greater in area to the total area that is included within a radius of 30 feet of the dripline of all trees to be removed;

b. Adjacent to protected stream corridor or other preserved natural areas;

c. Supports a significant number of native broadleaf trees; and

d. Offers good potential for continued regeneration of an integrated woodland community.

E. Rare and Endangered Species

Goal: Increase population of threatened and endangered species found in Sacramento County.

<u>Management of Rare and Endangered Species Habitat</u>

Objective: Riparian and wetland environments managed with sensitivity to threatened species and maintained to the extent feasible in a manner that avoids conflicts with privately owned land and agricultural operations.

Policies:

CO-141. Manage vegetation on public lands with special status species to encourage native species and discourage nonindigenous invasive species.

CO-142. Public land shall be maintained to the extent feasible in a manner that avoids conflicts with privately owned lands and agricultural operations.

Protection of Rare and Endangered Species Habitat

Objective: Habitat suitable for threatened and endangered species identified, protected, interlinked with natural corridors, and where possible, reestablished with viable populations of special-status species.

YOLO COUNTY

YOLO COUNTY GENERAL PLAN

The Yolo County General Plan was adopted in July 1983 (Yolo County 1983) and in 2004 Yolo County began the process of updating this document, and a version was released for public review in September 2008. Policies of the adopted General Plan that are pertinent to the Project are summarized below.

Open Space Policies

OS 3. Agricultural Land. Yolo County shall preserve agricultural land as the principal component of open space.

OS 5. Limiting Facility Extensions. Yolo County shall protect open space lands from urban uses by limiting the extension of existing service facilities, particularly sewers. Where the County does not directly control the provision of such facilities, it shall respond in the negative to proposals to extend services by respective cities or districts and shall respond in the negative to related environmental impact reports produced by the lead agency on such proposals.

Conservation Policies

CON 1. Conservation, Basic. Yolo County shall conserve its land and other resources through available means of land use controls, regulations, and advice and guidance, and through coordination with other elements of this Plan, as amended, and with other agencies.

CON 2. Conservation, Basic Method. Yolo County shall foster conservation of its resources and avoid natural hazards by planning, encouraging, and regulating the development and use of these resources and the areas where they exist.

CON 3. Land as a Resource. Plans, projects, and programs shall treat land as a resource rather than as a commodity.

CON 5. Element Content. In order to avoid conflict with this Plan, as amended, or to avoid environmental hazards, Yolo County shall require conservation of natural resources, in the development and managed utilization of.....other natural resources including gas, oil, and geothermal.

CON 6. Long Term Values. Yolo County shall plan, encourage, and regulate to ensure that natural resources are maintained for their long-term ecological values as well as for their more direct and immediate benefits.

CON 7. Design and Site Development Standards. Yolo County shall establish design and site development standards and shall apply these standards to development to prevent unnecessary disruption of the terrain, vegetation, and significant resource areas. Application of the standards shall include mitigation of potential adverse environmental impacts.

CON 8. Urban Growth / Natural Environment. Urban growth shall be permitted only in accord with and respectful of the natural environment. Particularly this policy shall apply to riverfront lands and adjoining agricultural lands.

CON 9. State Resources. Yolo County shall ensure the protection, maintenance, and wise use of the State's natural resources, especially scarce resources and those that require special control and management.

CON 10. Protection of Resources. Yolo County shall plan, encourage, and regulate public and private agencies to prevent the wasteful exploitation, destruction, or neglect of the State's resources.

CON 11. Soils/Agricultural Use. Yolo County shall encourage the highest agricultural use of good agricultural soils and the development of acceptable agricultural industry. Only agricultural development shall be allowed outside of Urban Area Boundaries and Community Area Plan lines except as a legal replacement of an existing, legal use or as specifically provided elsewhere in this Plan.

CON 12. Soils. Yolo County shall regulate land use and encourage and cooperate with appropriate agencies to conserve, study, and improve soils. Prime soils shall be preserved outside of designated urban areas.

CON 30. Wildlife Habitat. Yolo County shall safeguard existing and encourage development and protection of additional wildlife habitat and shall

coordinate with other agencies and programs to enhance and create wildlife preserves and to preserve and rehabilitate wildlife habitat areas suitable for ecological education sites.

CON 33. Vegetation Conservation. Existing natural vegetation shall be conserved where possible, integrated into new development, and its life and continuity shall be assured by means of Conditional Use Permit procedures applied to permit approvals for new or reconstruction work.

PLACER COUNTY

PLACER COUNTY GENERAL PLAN

The Placer County General Plan was adopted on August 16, 1994 (Placer County 1994). Goals and policies of the current Plan that are pertinent to the Project are summarized below.

Water Resources

Goal 6.A. To protect and enhance the natural qualities of Placer County's streams, creeks, and groundwater.

Policy 6.A.3. The County shall require development projects proposing to encroach into a creek corridor or creek setback to do one or more of the following, in descending order of desirability:

- Avoid the disturbance of riparian vegetation;
- Replace riparian vegetation (on-site, in-kind);
- Restore another section of creek (in-kind); and/or
- Pay a mitigation fee for restoration elsewhere (e.g., wetland mitigation banking program).

Policy 6.A.4. Where creek protection is required or proposed, the County should require public and private development to:

c. Protect creek corridors and their habitat value by actions such as: (1) providing an adequate creek setback, (2) maintaining creek corridors in an essentially natural state, (3) employing creek restoration techniques where restoration is needed to achieve a natural creek corridor, (4) utilizing riparian vegetation within creek

corridors, and where possible, within creek setback areas, (5) prohibiting the planting of invasive, non-native plants within creek corridors or creek setbacks, and (6) avoiding tree removal within creek corridors;

e. Use design, construction, and maintenance techniques that ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or water pollution) and will include erosion and sediment control practices such as: (1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion and shall be left in place until disturbed areas are stabilized with permanent vegetation that will prevent the transport of sediment off site; and/or (2) temporary vegetation sufficient to stabilize disturbed areas.

Policy 6.A.5. The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities.

Policy 6.A.7. The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

Wetland and Riparian Areas

Goal 6.B: To protect wetland communities and related riparian areas throughout Placer County as valuable resources.

Policy 6.B.1. The County shall support the "no net loss" policy for wetland areas regulated by the USACE, the USFWS, and the CDFG. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.

Policy 6.B.2. The County shall require new development to mitigate wetland loss in both regulated and nonregulated wetlands to achieve "no net loss" through any combination of the following, in descending order of desirability: (1) avoidance; (2) where avoidance is not possible, minimization of impacts on the resource; or (3) compensation, including use of a mitigation banking

program that provides the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.

Policy 6.B.3. The County shall discourage direct runoff of pollutants and siltation into wetland areas from outfalls serving nearby urban development. Development shall be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.

Policy 6.B.4. The County shall strive to identify and conserve remaining upland habitat areas adjacent to wetlands and riparian areas that are critical to the survival and nesting of wetland and riparian species.

Policy 6.B.5. The County shall require development that may affect a wetland to employ avoidance, minimization, and/or compensatory mitigation techniques. In evaluating the level of compensation to be required with respect to any given project, (a) on-site mitigation shall be preferred to off-site, and in-kind mitigation shall be preferred to out-of-kind; (b) functional replacement ratios may vary to the extent necessary to incorporate a margin of safety reflecting the expected degree of success associated with the mitigation plan; and (c) acreage replacement ratios may vary depending on the relative functions and values of those wetlands being lost and those being supplied, including compensation for temporal losses. The County shall continue to implement and refine criteria for determining when an alteration to a wetland is considered a less-than-significant impact under CEQA.

Fish and Wildlife Habitat

Goal 6.C: To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.

Policy 6.C.1. The County shall identify and protect significant ecological resource areas and other unique wildlife habitats critical to protecting and sustaining wildlife populations. Significant ecological resource areas include the following:

a. Wetland areas including vernal pools.

b. Stream environment zones.

c. Any habitat for rare, threatened or endangered animals or plants.

d. Critical deer winter ranges (winter and summer), migratory routes and fawning habitat.

e. Large areas of non-fragmented natural habitat, including Blue Oak Woodlands, Valley Foothill Riparian, vernal pool habitat.

f. Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian migratory routes, and known concentration areas of waterfowl within the Pacific Flyway.

g. Important spawning areas for anadramous fish.

Policy 6.C.2. The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

Policy 6.C.5. The County shall require mitigation for development projects where isolated segments of stream habitat are unavoidably altered. Such impacts should be mitigated on-site with in-kind habitat replacement or elsewhere in the stream system through stream or riparian habitat restoration work.

Policy 6.C.6. The County shall support preservation of the habitats of rare, threatened, endangered, and/or other special status species. Federal and State agencies, as well as other resource conservation organizations, shall be encouraged to acquire and manage endangered species' habitats.

Policy 6.C.7. The County shall support the maintenance of suitable habitats for all indigenous species of wildlife, without preference to game or non-game species, through maintenance of habitat diversity.

Policy 6.C.9. The County shall require new private or public developments to preserve and enhance existing native riparian habitat unless public safety concerns require removal of habitat for flood control or other public purposes. In cases where new private or public development results in modification or destruction of riparian habitat for purposes of flood control, the developers shall be responsible for acquiring, restoring, and enhancing at least an equivalent amount of like habitat within or near the project area.

Vegetation

Policy Goal 6.D: To preserve and protect the valuable vegetation resources of Placer County.

Policy 6.D.1. The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually-sensitive areas such as hillsides, ridges, and along important transportation corridors.

Policy 6.D.2. The County shall require developers to use native and compatible non-native species, especially drought-resistant species, to the extent possible in fulfilling landscaping requirements imposed as conditions of discretionary permits or for project mitigation.

Policy 6.D.3. The County shall support the preservation of outstanding areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

Policy 6.D.4. The County shall ensure that landmark trees and major groves of native trees are preserved and protected. In order to maintain these areas in perpetuity, protected areas shall also include younger vegetation with suitable space for growth and reproduction.

Policy 6.D.6. The County shall ensure the conservation of sufficiently large, continuous expanses of native vegetation to provide suitable habitat for maintaining abundant and diverse wildlife.

Policy 6.D.7. The County shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, nutrient catchment, and wildlife habitats. Such communities shall be restored or expanded, where possible.

Policy 6.D.8. The County shall require that new development preserve natural woodlands to the maximum extent possible.

Policy 6.D.13. The County shall support the preservation of native trees and the use of native, drought-tolerant plant materials in all revegetation/landscaping projects.

Policy 6.D.14. The County shall require that new development avoid, as much as possible, ecologically-fragile areas (e.g., areas of rare or endangered species of plants, riparian areas). Where feasible, these areas should be protected through public acquisition of fee title or conservation easements to ensure protection.

COUNTY OF SUTTER GENERAL PLAN

The Sutter County General Plan was adopted on October 13, 1998 (Sutter County 1998). Goals and policies that are pertinent to the Project are summarized below.

Wetland and Riparian Areas

Goal 4B. To protect wetland and riparian areas throughout Sutter County.

Policy 4.B-1. The County shall require new development to fully mitigate the loss of federally regulated wetlands to achieve a "no net loss" through any combination of avoidance, minimization, or compensation.

Policy 4.B-2. The County shall discourage direct discharge of surface runoff into wetland areas. New development shall be designated in such a manner that pollutants and siltation will not significantly affect wetlands.

Policy 4.B-3. The County encourages the preservation and restoration of natural wetland environments when feasible and practical as part of the development review process. Additionally, the County shall encourage and support the Resource Conservation District programs that facilitate those objectives if the programs do not significantly affect agricultural operations.

Policy 4.B-4. The County will encourage the creation and use of wetland mitigation banks as long as their creation and existence will not adversely impact existing and/or planned agricultural or urban development.

Fish and Wildlife Habitat

Goal 4.C: To protect and enhance habitats that support fish and wildlife species.

Policy 4.C-1. The County shall strive to preserve those areas of wildlife habitat designated "high habitat value" as shown on the biological sensitivity map in Chapter 9 of the Background Report.

Policy 4.C-2. The County shall encourage preservation and proper management of those areas designated "moderate habitat value" on the biological sensitivity map in Chapter 9 of the background report.

Policy 4.C-3. The County shall support the preservation and re-establishment of fisheries in the rivers and streams within the County.

Policy 4.C-5. The County supports the preservation and protection of waterfowl resources and their habitat.

Policy 4.C-6. The County encourages the preservation of existing wildlife corridors between natural habitat areas to maintain biodiversity and prevent the creation of biological islands. This would also include promoting the re-establishment of previous corridors where feasible.

Policy 4.C-7. The County encourages the preservation of rare, threatened, or endangered animal species.

Vegetation

Goal 4.D. To preserve and protect the vegetation resources of Sutter County.

Policy 4.D-1. The County shall encourage the preservation of important areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

Policy 4.D-2. The County encourages the preservation of rare, threatened, or endangered plant species.

Policy 4.D-3. The County shall require that new development projects avoid, to the maximum extent possible, ecologically fragile areas.

Policy 4.D-4. The County shall strive to protect major groves of native trees located in the unincorporated areas of the County.

Policy 4.D-5. The County shall encourage the use of native and drought tolerant plant materials in all public and private revegetation/landscaping projects.

Open Space for the Preservation of Natural Resources

Goal 4.E. To conserve, protect, and enhance open space lands and natural resources in Sutter County.

Policy 4.E-1. The County shall support the preservation of natural land forms, natural vegetation, and natural resources as open space to the maximum extent feasible.

Appendix F: Cultural, Paleontological, and Historical Resources

F-1: Line 406 Archaeological Survey Report

ARCHAEOLOGICAL SURVEY REPORT
FOR THE PG&E LINE 406 PIPELINE PROJECT
YOLO COUNTY, CALIFORNIA

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Statement of Confidentiality

This report identifies the locations of cultural resources, which are confidential. As nonrenewable resources, archaeological sites can be significantly impacted by disturbances that can affect their cultural, scientific, and artistic values. Disclosure of this information to the public may be in violation of both federal and state laws. To discourage vandalism and artifact looting, cultural resources locations should be kept confidential and report distribution restricted to those who need to know. Applicable U.S. laws include, but are not be limited to, Section 304 of the National Historic Preservation Act (16 USC 470w-3) and the Archaeological Resources Protection Act (16 USC 470hh). California state laws that apply include, but are not be limited to, Government Code Sections 6250 *et seq.* and 6254 *et seq.*

National Archaeological Data Base Information

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Report Title: Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California

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U.S.G.S. Quadrangles: Esparto, Madison, and Woodland, CA

Acreage: 1,697 acres

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Management Summary

This report presents the findings of an archaeological survey of a 14-mile 1,000-foot wide corridor for the proposed Pacific Gas and Electric Company (PG&E) Line 406 Pipeline in Yolo County. Garcia and Associates conducted the study at the request of CH2M HILL. The California Public Utilities Commission (CPUC) is the project sponsor and the permit applicant and the lead agency under CEQA. This cultural resources study of a proposed pipeline corridor in Yolo County, California, was conducted by Garcia and Associates. This research was conducted at the request of Marjorie Eisert, CH2M HILL, Oakland, California. The study is part of an assessment to support an application by Pacific Gas and Electric Company (PG&E) to amend its California State Lands Commission lease of State lands #PRC 5438.1.

The purposes of this investigation were to identify cultural resources in the area of potential effects (APE) that are eligible or potentially eligible for listing in the National Register of Historic Places (NRHP) and/or the California Register of Historical Resources (CRHR); record archaeological and architectural resources on Department of Parks and Recreation (DPR) forms; and to prepare an Archaeological Survey Report with recommendations for procedures to avoid potentially adverse effects to both evaluated and un-evaluated resources.

The scope of work comprised a record search at the Northwest Information Center of the California Historic Resources Inventory System; historic archival research of maps and documents, consultation with the Native American Heritage Commission and Native American groups and individuals; correspondence with local historical associations, museums and agencies; and a survey of 1,697 acres, as well as the preparation of this report.

Eight archaeological and architectural sites and one archaeological isolate were identified during the fieldwork, which was conducted between December 2006 and March 2007. Two of the sites were already documented and listed on the Historic Resources Inventory (HRI) (Spring 1986). Six of the newly documented sites are from the historic era, while one archaeological isolate is from the prehistoric period. The majority of the historical resources are farm buildings, residences, and irrigation canals. While these two resources have not been formally evaluated for listing on the NRHP/CRHR, they are currently listed in the HRI and should be avoided as they appear to be good examples of late nineteenth and early twentieth century farm buildings.

Garcia and Associates presents four recommendations to mitigate the potential impacts of the proposed activities on known or potentially eligible cultural resources which are included in the recommendations section at the end of this report.

Copies of this report will be filed with the California Historical Resource Information System, Northwest Information Center.

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1.0 Introduction

This report presents the findings of an archaeological survey of a 14-mile, 1,000-foot wide corridor for the proposed Pacific Gas and Electric Company (PG&E) Line 406 Pipeline in Yolo County. Garcia and Associates conducted the study at the request of CH2M HILL. This investigation was conducted to comply with the California Environmental Quality Act (CEQA). The California Public Utilities Commission (CPUC) is the project sponsor and the permit applicant and lead agency under CEQA. This cultural resources study of a proposed pipeline corridor in Yolo County, California, was conducted by Garcia and Associates at the request of Marjorie Eisert, CH2M HILL, Oakland, California. The study is part of an assessment to support an application by Pacific Gas and Electric Company (PG&E) to amend its California State Lands Commission lease of State lands #PRC 5438.1.

The purposes of this investigation were to identify cultural resources in the area of potential effects (APE) that are eligible or potentially eligible for listing in the National Register of Historic Places (NRHP) and/or the California Register of Historical Resources (CRHR); record archaeological and architectural resources on Department of Parks and Recreation (DPR) forms; and to prepare an Archaeological Survey Report with recommendations for procedures to avoid potentially adverse effects to both evaluated and un-evaluated resources.

The cultural resources study consisted of a literature and records search at the Northwest Information Center (NWIC) of the California Historic Resources Inventory System; historic archival research of maps and documents; consultation with the Native American Heritage Commission and Native American groups and individuals; correspondence with local historical associations, museums and agencies; and a survey of 1,697 acres, as well as the preparation of this report. Background research indicated that two recorded historic architectural sites exist within the APE and several potentially historic buildings are located near the APE. There appears to be a moderate potential for the presence of prehistoric archaeological sites within the APE based on the environmental setting and the archaeologically sensitive nature of the general area.

The cultural resources study for the PG&E Line 406 Project was conducted by the following Garcia and Associates personnel:

Principal Investigator: Christophe Descantes, Ph.D. (Anthropology); Historic and Prehistoric Archaeologist; Garcia and Associates, Oakland, California.

Archival Researcher: Bea Cox, B.A. (Anthropology), Archaeologist; Garcia and Associates, San Anselmo, California.

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Senior Archaeologist and Architectural Historian: Carole Denardo, M.A. (Archaeology), Registered Professional Archaeologist (RPA); Senior Archaeologist and Architectural Historian; Garcia and Associates, Lompoc, California.

Archaeological Field Technician: Kruger Frank, B.A. (Anthropology); Archaeologist; Garcia and Associates, San Anselmo, California.

Archaeological Field Technician: Melinda Hickman, B.A. (Anthropology), Archaeologist; Garcia and Associates, San Anselmo, California.

Archaeologist: Bruno Texier, B.A. (Anthropology); Archaeologist; Garcia and Associates, Auburn, California.

1.1 Project Area Location and Description

The 14-mile long project area for the PG&E Line 406 Expansion Project is situated in Yolo County within the United States Geological Survey (USGS) 7.5' quadrangles of Esparto, Madison, and Woodland. The project area includes the following Townships, Ranges, and Sections:

- Section 13 of Township (T) 10N, Range (R) 2E (mdm)
- Sections 1–3 and 10–12 of T10N, R1W
- Sections 1–10 of T10N, R1E

Approximately 4 miles of Line 406 between T10N R2W Section 12 and T10N R1W Section 3 are not included in the Public Lands Survey Grid, and lies within the two land grants: Cañada de Capay and Rio Jesus Maria.

This project's area of potential effects (APE) is an approximately 100-foot wide and 14-mile long corridor as designated by PG&E. The objectives of the survey, however, were to confirm the location of previously recorded cultural resources and to search for new resources within a 1000-foot wide corridor along the proposed path of the Line 406 Pipeline (see survey coverage maps in Appendix A). The trench of the proposed pipeline will be approximately 8 feet deep in order to maintain 5 feet of cover over the pipe.

1.1.1 Project Description

PG&E has developed an investment plan that includes the construction of several new local gas transmission pipelines for the Sacramento Valley Local Transmission System (System). PG&E's current 10-year investment plan for the System includes a new transmission pipeline that extends from Lines 400/401 to Line 172A (Line 406); a new transmission pipeline that extends from Line 172A in the town of Yolo east to Line 123 in Roseville (Line 407); and a new Distribution Feeder Main (DFM) that extends from Line 407 south to the Sacramento Metropolitan Air Park (Metro Air Park).

Line 406 will be 30 inches in diameter, approximately 14 miles long, and will run between existing Lines 400/401 and existing Line 172A within Yolo County. From Lines 400/401, the pipeline will head east across agricultural fields to County Road (CR) 87, where it will jog south to CR 19. The route will proceed east under CR 87 and across more agricultural fields to Highway (Hwy) 505. After crossing under Hwy 505, the route will align with CR 17. From this point, Line 406 will continue east along CR 17 to a point at the east end of the Dunnigan Hills, where it will jog north for approximately 2,500 feet. At this point, the route will head east along farm roads and cross under Interstate Hwy 5. On the east side of Interstate Hwy 5, Line 406 will continue east to a tie-in point with Line 172A and Line 407 West.

The project will also include the construction of additional appurtenances necessary for operation of the four line segments. Four fenced, aboveground pressure limiting, pressure regulating, and metering stations will be constructed along Line 406 and Line 407 to ensure that proper pressures are maintained in the transmission system and to reduce the pressure of the gas before delivering it to the distribution pipeline system. Two pressure limiting stations, located at the connection of Lines 400/401 and Line 406, and at the connection of Line 172 and Line 407 West, will cover an area of approximately 100 feet by 100 feet. Two pressure regulating stations, located near the corner of Powerline Road and West Elverta Road along the Metro Air Park DFM, and near the corner of Baseline Road and Watt Avenue along the Line 407 East segment, will be constructed in yards approximately 35 feet by 75 feet. Main line bridle valves

and blow-off stacks will be installed within the fenced yards. Other components necessary to the operation of the pipeline include aboveground line-markers and electrolysis test stations

1.2 Regulatory Setting

1.2.1 State Regulations

California Environmental Quality Act (CEQA)

The CEQA Statute and Guidelines include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in or formally determined eligible for the National Register, the California Register, or local registers. CEQA further defines a "historical resource" as a resource that meets any of the following criteria:

1. A resource listed in, or determined to be eligible for listing in, the National Register of Historic Places or California Register of Historical Resources.

2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. A resource identified as significant (e.g., rated 1-5) in a historical resource survey meeting the requirements of Public Resource Code Section 5024.1(g) (Department of Parks and Recreation Form 523), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

4. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register of Historical Resources (CEQA Guidelines Section 15064.5).

5. A resource that is determined by a local agency to be historically or culturally significant even though it does not meet the other four criteria listed here (e.g., Article 10 of the San Francisco Planning Code).

1.2.2 California Register of Historical Resources

CRHR Criteria of Evaluation

All resources listed in or formally determined eligible for the National Register are eligible for the California Register of Historical Resources (California Register). The California Register is a listing of State of California resources that are significant within the context of California's history. The California Register is a state-wide program of similar scope to the National Register. In addition, properties designated under municipal or county ordinances are also eligible for listing in the California Register. A historic resource must be significant at the local, state, or national level under one or more of the following criteria that are defined in the California Code of Regulations Title 14, Chapter 11.5, Section 4850.

1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or

2. It is associated with the lives of persons important to local, California, or national history; or

3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or

4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

The California Register criteria are similar to National Register criteria, and any resource that meets the above criteria is considered an historical resource under CEQA.

1.2.3 Regulations Concerning Discovery of Human Remains

California Public Resources Code §5097.98: *Notification of Native American human remains, descendants; disposition of human remains and associated grave goods*, mandates that the lead agency adhere to the following regulations when a project results in the identification or disturbance of Native American human remains.

(a) Whenever the commission receives notification of a discovery of Native American human remains from a county coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. The descendents may, with the permission of the owner of the land, or his or her authorized representative, inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The descendents shall complete their inspection and make their recommendation within 24 hours of their notification by the Native American Heritage Commission. The recommendation may include the scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

(b) Whenever the commission is unable to identify a descendent, or the descendent identified fails to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the descendent and the mediation provided for in subdivision (k) of Section 5097.94 fails to provide measures acceptable to the landowner, the landowner or his or her authorized- representative shall reinter the human remains an items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.

(c) Notwithstanding the provisions of Section 5097.9, the provisions of this section, including those actions taken by the landowner or his or her authorized representative to implement this section and any action taken to implement an agreement developed pursuant to subdivision (l) of Section 5097.94, shall be exempt from the requirements of the California Environmental Quality Act (Division 13 (commencing with Section 21000)).

(d) Notwithstanding the provisions of Section 30244, the provisions of this section, including those actions taken by the landowner or his or her authorized representative to implement this section, and any action taken to implement an agreement developed pursuant to subdivision (1) of Section 5097.94 shall be exempt from the requirements of the California Coastal Act of 1976 (Division 20 (commencing with Section 30000)).

2.0 Environmental Setting

2.1 Climate

Yolo County and the Central Valley have a Mediterranean climate characterized by hot, dry summers and temperate, wet winters. However, the county receives a marine air influence from the Delta regions to the south that moderates the temperature extremes of the Central Valley. Moratto (1984:171) describes mean temperatures in January falling between 40 and 50º F. Summers are hot with July average temperatures ranging between 70 and 90º F. Mean annual precipitation for the Central Valley is approximately 20 inches.

2.2 Natural Setting

Yolo County is located at the southern end of the Sacramento Valley, in the Great Central Valley of California. The proposed route of the Line 406 Pipeline contains a combination of topographic features. The eastern section of the project area consists of nearly level flat plains, while the central third is largely composed of rolling terraces in the Dunnigan Hills. The western third of the project area consists of more flat plains and ends at the Capay Hills foothills.

Cache Creek is south of the APE and is a major landscape feature across Yolo County, flowing through the Capay Valley, across the lands north of Esparto, south of the Dunnigan Hills, and then north of Woodland, into its settling basin on the Yolo Bypass. Irrigation conveyances and intermittent tributaries were found in the APE.

According to the United States Department of Agriculture (1997), Yolo alluvial fans are found in the Great Valley geomorphic province. The low fluviate plain sections of the APE comprise Cenozoic nonmarine sedimentary rocks and alluvial deposits which may have buried prehistoric archaeological sites.

Vegetation today is characterized by grasses of primarily European origin, although in the past, oak parkland and native grasses predominated. Animal life in the project area includes coyotes, deer, rabbits, and rodents, as well as domesticated sheep and cattle. Former inhabitants include grizzly bear, wolf, tule elk, and pronghorn antelope.

2.3 Paleoenvironment of the Region

The western United States has been subjected to a series of climatic fluctuations over the last several millennia; the central interior valley portion of California is no exception. Warm and dry episodes have been variably followed by intermittent cool and moist periods. The Holocene (the period since the Pleistocene, or roughly the last 10,000 years) has seen six cool periods followed by five warm periods. The Altithermal Period, ending around 2,900 years ago, was a warm and dry episode that produced wide-ranging effects throughout the west, leading to changes in animal migrations as well as plant productivity and distribution. A cooler period followed for the next 1,400 years, followed by yet another warm and dry period which began about 600 years ago and remains to the present day.

2.3.1 Geomorphic Context

Research shows that late Pleistocene and early Holocene land surfaces are often overlain by alluvium that is generally less then 6,000 years old (Helley et al. 1979). Buried soil profiles (paleosols) occurring on these old land surfaces are used as stratigraphic markers to indicate depositional history at different

locations around the San Francisco Bay and at associated inland valleys in California (Meyer and Rosenthal 1997). Archaeological sites occurring in these areas, therefore, may have been buried and/or eroded by these processes, particularly during the mid-to-late Holocene.

The purpose of analyzing the geomorphologic contexts of the project area is to identify areas where subsurface archaeological deposits are likely to occur. Information regarding sediment types in the APE, combined with factors such as proximity to water, slope of terrain, and soil type provide data to create a picture of the geological and depositional evolution to help archaeologists predict buried site locations. The following sections describe the natural stratigraphy, sediments, and soils within the APE to predict where cultural deposits may be located.

Sediments, Soils, and Landforms

Sediments are organic or inorganic materials that have been transported and deposited by geological processes such as water, wind, or ice. *Soils* are rock and mineral particles mixed with organic matter formed in place by the alteration of rock and sediments (Allen et al. 1999). A *paleosol* is a formerly stable surface or horizon that was once potentially attractive and available as a human living surface. However, these stable surfaces are often buried beneath large deposits of alluvial soils or artificial fill; the study of landscape evolution for the project area can therefore lead to the identification of areas of cultural sensitivity and thus predict where archaeological deposits might be buried. *Alluvial soils* are derived from sedimentary and metasedimentary rocks and were formed in fine-grained deposits including loam, silty clay, and clay loam. *Basin soils* are derived from sedimentary rocks that have produced fine-grained alluvial deposits including clay, clay loam, and silty clay loam.

The subsurface horizontal and vertical landscape of sediments and soils within the APE is based on geotechnical research presented in a feasibility and routing study report prepared by CH2M HILL (2006). The geotechnical conditions described in this section are based on literature review, cursory study of aerial photographs, and a field reconnaissance of the APE conducted by CH2M HILL.

The APE is located along the southwestern margin of the Sacramento Valley in Central California. Topographic conditions vary across the study area, which may be roughly divided into three geographic regions. The western portion of the study area includes the relatively flat terrain of Hungry Hollow, the central portion of the APE includes the Dunnigan Hills, and the eastern portion of the APE includes relatively flat terrain along the western edge of the Sacramento Valley. Small dry tributaries are found along the APE. Cache Creek, which carries substantial flows from the mountainous coastal ranges west of the Sacramento Valley, is south of the APE by at least 1 mile (eastern extremity of APE).

Line 406

The APE is in the west-central portion of California's Great Valley physiographic province. Sediments deposited within the Great Valley include alluvial, lacustrine, and marine deposits of Cretaceous, Tertiary, and Quaternary age. The APE is underlain by consolidated Tertiary and Quaternary alluvial deposits of the Tehama and Red Bluff formations; unconsolidated Quaternary alluvial deposits of the Modesto-Riverbank Formation; and unconsolidated Holocene alluvial basin and channel deposits (CH2M HILL 2006:2-7). Helley and Barker (1979) have mapped the geologic units of Yolo County as illustrated in Figure 1. The Holocene-aged alluvial deposits are the only ones to potentially encompass buried prehistoric archaeological resources, as there are no known archaeological deposits older than 10,000 years recorded in California.

The Proposed Pipeline alignment of Line 406 crosses four geologic units: Tpth, Qoa, Qa, and Qhb (see Figure 1). The oldest geologic unit within the Line 406 project area is the Pliocene-age (5 to 1.6 million years ago) Tehama Formation (Helley and Harwood 1985; Wagner et al. 1987). This formation consists

of sand and siltsone marked by lenses of pebbly conglomerate. Tehama Formation sediments are exposed within the Line 406 project areas in the hilly portions of the APE (Dunnigan Hills). The Pliocene Tehama Formation (Tpth) is poorly consolidated, nonmarine, gray to maroon siltstone, sandstone, tuff, and conglomerate.

Red Bluff Formation sediments are distinctive, bright-red weathered gravels, exposed within the Line 406 APE as caps on Tehama Formation deposits in the Dunnigan Hills. These Pleistocene formation sediments date between 450,000 years ago and 1.1 million years ago (Helley and Harwood 1985). Late and early Pleistocene alluvium (Qoa) consists of sand, silt, clay, and gravel deposits with little or none of the original geomorphic expression preserved.

Loosely consolidated alluvial fan deposits of Modesto Formation fill the flat, low-slope regions within the APE of Line 406 (Helley and Harwood 1985; Wagner et al. 1987). Modesto Formation sediments consist of tan-gray gravelly sand, silt, and clay. The age of this formation is approximately 12,000 – 40,000 years ago based on radiocarbon dating (Marchand and Allwardt 1981).

Holocene and late Pleistocene alluvium (Qa) is comprised of sand, silt, and gravel deposited in fan, valley fill, terrace, or basin environments. Holocene-age (less than 10,000 years old) basin deposits (QhB) generally consist of fine-grained silty and clayey soils occupying flat-floored basins. These deposits are found in the western section of the Line 406 APE. Holocene-age levee and channel deposits typically consist of fine- to coarse-grained sandy, silty and gravelly soils and are mapped in a relatively thin strip in the eastern region of the Line 406 APE. Although not shown in large-scale mapping, localized deposits of Holocene-age sediments likely occur within and adjacent to creek channels that cross and once crossed the APE. These Holocene-age deposits would be the most likely to contain buried archaeological resources. The portion of the APE which crosses through the QhB Holocene aged deposits depicted in the figure below would likely be the only segment of the Line 406 that would have the potential for buried prehistoric cultural deposits.

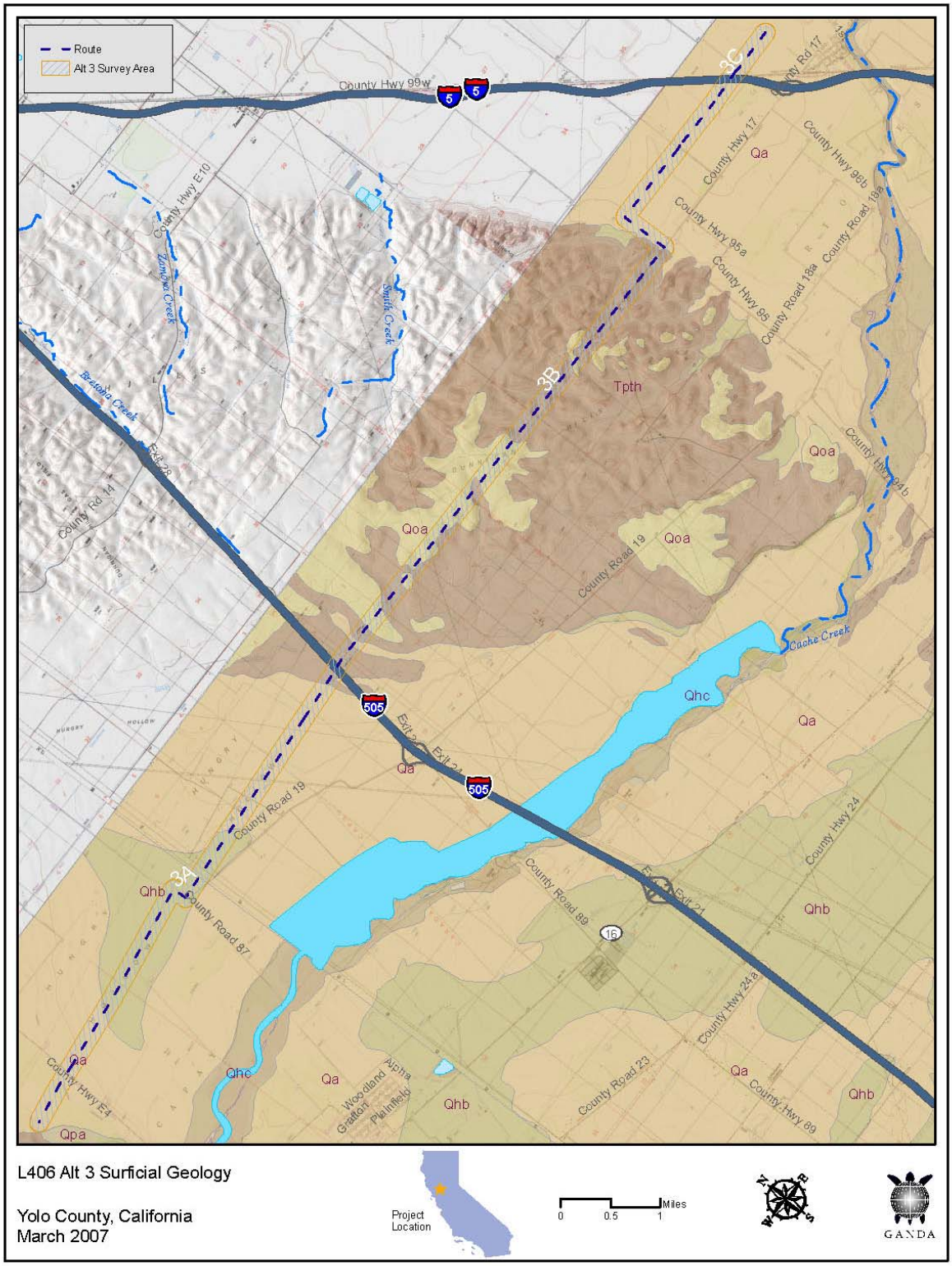

Figure 1. Surficial Geology of Line 406 APE.

Soils

Fifteen soil map units from 12 soil series were found within the APE corridor. Mapped soil units (CH2M HILL 2006) in the Line 406 APE and a description of the soil properties along with the probability for finding buried archaeological sites are presented in Table 1. The trenching will disturb 8 feet (or 96 inches) of surface soil. Below is a discussion of the soils in the three sections of the APE and the potential of encountering buried archaeological deposits.

Line 406 Sections

The deep soils in the western section of the APE have the most soil diversity with eight different soil series: Capay, Pescadero, Corning, Hillgate, Tehama, Marvin, Myers, and Willows. The Tehama loam is unlikely to contain archaeological sites because it is Pliocene in age, but the Capay silty clay (Ca), Hillgate loam (HcA), Marvin silty clay loam (Mf), Myers clay (Ms), Pescadero silty clay (Pb), and the Willows clay (Wm) in the flat sections of the APE have moderate potential for containing buried archaeological deposits. However, aforementioned soils that are underlain by Holocene-age basin deposits (Qhb) have a high potential for buried archaeological resources because archaeological sites have not been found in contexts older than 10,000 years in this area. Indeed, an archaeological isolate (Y-17) was found in Marvin silty clay loam.

Soil mapping units in the central section of the APE in the Dunnigan Hills tend to be shallow (less than 6 feet) and consist of Corning and Sehorn Series soils. These soils have a low potential for buried archaeological deposits.

The deep soils in the flat eastern section of the APE comprise three series: Brentwood, Rincon, and Yolo. Rincon Brentwood silt clay loam (BrA), Yolo silt loam (Ya), and Yolo silty clay loam (Yb) soils have a high likelihood of containing archaeological sites because of their age (Holocene), their proximity to Cache Creek, and the existence of other archaeological sites found in these contexts. Far Western Anthropological Research Group, Inc. (2007) has recently identified an extensive prehistoric archaeological site (EW-1/H) on Yolo silty clay loam soils located on Yolo Ridge along the channel of Cache Creek Slough.

2.3.2 Summary

The potential for encountering buried archaeological deposits within the APE was determined by considering three factors: the age and depth of the sediments and soils; the distance to water sources; and the known archaeological sites in the area.

While the older geologic deposits (Tpth and Qoa) found in the Dunnigan hills have a low potential for buried prehistoric archaeological deposits, the lithic resources in the area may have been extracted for tool manufacturing by the prehistoric population. The Holocene-age alluvial deposits (QhB) of the western and eastern portions of Line 406 likely contain buried soils, which may include buried archaeological deposits. The eastern and western sections of the APE have a high potential for buried archaeological sites due to the Holocene-age alluvium and level ground surfaces. Spot monitoring in areas of high sensitivity (high potential) for buried archaeological deposits or prehistoric surface deposits is recommended, particularly when Holocene-age deposits, located within flat ground, and close proximity to a water source (e.g., EW-1/H (Far Western 2007); CA-YOL-1 (Treganza et al. 1965)).

Table 1. Summary of Soil Properties in Proposed Pipeline Project Area, Yolo County, California (Source: CH2M HILL 2006).

Map Unit	Name	Parent Material	Taxonmic Class	Bedrock	Depth Range	Potential for Buried Surfaces
BrA	Brentwood silty clay loam, 0 to 2 percent	Alluvium from sedimentary rock	Fine, montmorillonitic, thermic Typic Xerochrepts	Deep	0-60 in.	High
Ca	Capay silty clay	Alluvium from sedimentary rock	Fine, montmorillonitic, thermic Typic Chromoxererts	Deep	0-64 in.	Moderate
CtD2	Corning gravelly loam, 2 to 15 percent slopes, eroded	Mixed gravelly alluvium	Fine, montmorillonitic, thermic Typic Palexeralfs	Deep	0-60 in.	Low
HcA	Hillgate loam, 0 to 2 percent slopes	Alluvium from sedimentary rock	Fine, montmorillonitic, thermic Typic Palexeralfs	Deep	0-70 in.	Moderate
Mf	Marvin silty clay loam	Alluvium from sedimentary rock	Fine, montmorillonite, thermic Aquic Haploxeralfs	Deep	--------	High
Ms	Myers clay	Alluvium from sedimentary rock	Fine, montmorillonite, thermic Entic Chromoxererts	Deep	0-60 in.	Moderate
Pb	Pescadero silty clay, saline-alkali	Alluvium from sedimentary rock	Fine, montmorillonite, thermic Typic Natraqualfs	Deep	0-72 in.	Moderate
Rg	Rincon silty clay loam	Weathered from sedimentary rock	Fine, montmorillonite, thermic Mollic Haploxeralfs	Deep	0-72 in.	High
SkD	Sehorn clay, 2 to 15 percent slopes	Alluvium from sedimentary rock	Fine, montmorillonite, thermic Entic Chromoxererts	Shallow	0-38 in.	Low
SmD	Sehorn-Balcom complex, 2 to 15 percent slopes	60% Sehorn Clay, 30% Balcom silty clay loam	Fine, montmorillonite, thermic Entic Chromoxererts	Shallow	0-38 in.	Low
SmE2	Sehorn-Balcom complex, 15 to 30 percent slopes, eroded	50% Sehorn Clay, 40% Balcom silty clay loam	Fine, montmorillonite, thermic Entic Chromoxererts	Shallow	0-38 in.	Low
TaA	Tehama loam, 0 to 2 percent	Mixed alluvium from sedimentary rock	Fine-loamy, mixed, thermic Typic Haploxeralfs	Deep	0-63 in.	Very Low
Wm	Willows clay, marly variant	Alluvium from sedimentary rocks	Fine, montmorillonitic, thermic Typic Pelloxererts	Deep	0-60 in.	Moderate
Ya	Yolo silt loam	Alluvium from sedimentary rock	Fine-silty, mixed, nonacid, thermic typic Xerorthents	Deep	0-65 in.	High
Yb	Yolo silty clay loam	Alluvium from sedimentary rock	Fine-silty, mixed, nonacid, thermic Typic Xerorthents	Deep	0-60 in.	High

3.0 Cultural Setting

Prehistoric archaeological sites in this portion of Yolo County tend to be situated at the base of hills, near ecotones, alluvial flats, and near sources of water confluences, including springs. The project area terrain is a combination of foothills and plains with seasonal creek runoffs in the valleys between them. Some creeks are bounded by dense low vegetation and oak (*Quercus* sp.) trees. The plains have been cultivated for agriculture, mainly vineyards, and most of the foothills are used for cattle and sheep pastures.

The land has been heavily developed for agriculture. Cattle and sheep farms, introduced in the 1930s, dominate the landscape today along with vineyards and winery operations. Prehistoric sites in the region range from seasonal camp sites to very large village sites, seasonal habitation sites, and burial sites. The types of prehistoric artifacts found include scrapers, drills, shell beads, *manos*, *metates*, cores, cobble tools, fire-affected rock, groundstones, flaked stone tool debitage, middens, faunal and floral remains and human remains or burials. Historic sites include farm houses, farm complexes with several outbuildings, ranches, schools, churches, and historic structures such as bridges and storage tanks. Two historic resources listed on the Historic Resources Inventory, YOL-HRI-4/106 and YOL-HRI-4/114, were previously recorded and evaluated as appearing eligible (code 4) for listing on the National Register.

3.1 Prehistoric Overview

There are three general patterns of cultural adaptation throughout the Central Valley based on artifact assemblages during the period between 5000 and 200 BP. The three primary time periods are the Early Period (5000–2500 BP), the Middle Period (2500–1300 BP), and the Late Period (1300–200 BP or contact). There are numerous subphases for each period (Bennyhoff and Hughes 1987). Milliken and Bennyhoff (1993) refined and simplified this sequence in 1993 to the Early Period (5000–1500 BP), the Lower, Middle, and Upper Middle Period (1100–500 BP), and the Late Period, Phase 1 and 2 (900–200 BP), as well as the Historic Period beginning in A.D. 1800). Although the Central Valley Region may have been inhabited by humans as early as 10,000 years ago, the evidence of early human use is likely buried by alluvial deposits that have accumulated during the last several thousand years (Moratto 1984). More is known about the later periods of human history.

The Central California Taxonomic System (CCTS) is a cultural sequence that delineated three central California horizons: Early, Middle, and Late. The general culture history of the CCTS, which originally relied heavily on burial methods, was later expanded to include general ways in which people adapted to their environment (Beardsley 1954). Fredrickson (1973:7–8) identified regional patterns that were relevant for the Central Valley Region, with a pattern defined as:

> "…an adaptive mode extending across one or more regions, characterized by particular technological skills and devices, particular economic modes, including participation in trade networks and practices surrounding wealth, and by particular mortuary and ceremonial practices."

Three such patterns, which overlap in adjoining areas, are recognized for central California: the Windmiller, the Berkeley, and the Augustine Patterns.

The **Early Period/Windmiller Pattern** sites are most often found in the Early Period (5000–2500 B.P.), but are known to extend into the Middle or Archaic Period (Moratto 1984:210). Situated in

riverine, marshland, or valley floor settings as well as on small knolls above prehistoric seasonal floodplains, most Windmiller Pattern village sites contain burials that are oriented to the west (Moratto 1984:203). These sites contain large amounts of mortuary artifacts with indications of social hierarchy, and often include large projectile points and a variety of fishing gear such as net weights, bone hooks, and spear points. The archaeological assemblages of this period contain numerous projectile points including large obsidian concave base and stemmed points as well as rectangular *Olivella* beads with a wide range of faunal remains (Erlandson and Jones 2002). In addition, evidence of trade and interaction is inferred from the presence of non-local utilitarian and ceremonial items. Faunal remains imply a hunting economy that included both large and small mammals. This pattern was focused primarily on the lower Sacramento-San Joaquin Valley and Delta, and these people may have entered the region with this adaptation more or less fully developed.

The **Middle Period/Berkeley Pattern** has been dated from 3,000 B.P. to 1,500 B.P. This corresponds to Fredrickson's Archaic Period that was further divided into Early, Middle, and Late (Fredrickson 1973). Fredrickson defined the Berkeley Pattern by the economic adaptive strategies based around the extensive and rich tidal marsh environment of the San Francisco Bay at the time. Early representations of the Berkeley Pattern resemble the Windmiller Pattern but later shift to large shellmounds located near water sources with the presence of projectile points and atlatls, suggesting that hunting was still an important part of subsistence. The Berkeley Pattern expanded eastward to the Central Valley around 2,500 years ago, slowly replacing the Windmiller people (Moratto 1984:209). Berkeley sites are found in diverse environmental settings, with riverine settings prevalent. This pattern has a greater emphasis on the exploitation of the acorn as a staple. Unlike the Windmiller Pattern, burials are tightly flexed and have no consistent orientation. Projectile points become progressively more regularized in shape and somewhat smaller over time. The initial Berkeley Pattern may represent the spread of proto-Miwok and Costanoans from their hypothesized lower Sacramento Valley/Delta homeland.

The widespread **Late Period/Augustine Pattern** coincides with the Late or Emergent Period, from circa 1,300 B.P. to European contact. This period is also divided into the Middle/Late Transition (1300–800 BP) and Late Period (800 BP–contact). The Augustine Pattern reflects a change in subsistence and land use patterns to those of the ethnographically known people (Patwin) of the historic era. Intensive fishing, hunting, and harvesting of acorns and small hard seeds typify this period (Moratto 1984:211). The Augustine Pattern is characterized by a general increase in population, settlements, and a more regularized exchange system and increased evidence of ceremonialism. Exchange became well developed, and an even more intensive emphasis was placed on the use of acorns, as evidenced by the presence in the archaeological record of shaped mortars and pestles and numerous hopper mortars. Distinctive artifacts in this pattern include small notched and serrated projectile points indicative of the introduction and spread of the bow-and-arrow; bone awls used in basketry; clay effigies; bone whistles; stone pipes; and occasional pottery. Cremation and flexed burials are also prevalent. Ornamental artifacts (*Olivella* beads and *Haliotis* ornaments) become increasingly common in burials, suggesting an increase in social status and ranking. Spanish explorers and missions disrupted this cultural pattern in the latter half of the eighteenth century (Moratto 1984:283).

3.2 Ethnographic Overview

The study area is located in the center of an area ethnographically recorded as Patwin territory. The Sacramento River Valley is characterized by dense vegetation, with open grasslands to the west of the Sacramento River region and on the eastern slope of the coast range. The open grassland, subject to

winter flooding and very dry summers, was occupied sparsely and seasonally by the Patwin. Tribelets in the hills lived in the numerous intermontane valleys, particularly along drainages. Larger villages were inhabited by the Patwin along the Sacramento River, within the valleys of the foothills, and along major creeks such as the Putah and Cache (Johnson 1978).

The city of Yolo, which sits on a portion of Cache Creek, has been identified as the village site of *Churup*. The name *Yolo* is derived from the Patwin Indian word *Yoloy* meaning place of the [tule] rushes (Derr 1990). Subsistence hunting and fishing and plant seed collection were the means of survival. Housing was in earth-covered, semi-subterranean round structures built in the foothill region. Favored locations for these structures in the winter were higher spots along streams that flowed into the open valleys. In the summer, the Patwin moved away from the main water courses into the hills or mountains. Structures included ceremonial dance houses, family houses, sweathouses, and menstrual huts (Johnson 1978).

3.3 Historic-period Overview

Portions of the following information have been excerpted from the Yolo County, California website (www.yolocounty.org) and the City of Woodland, California website (http://www.ci.woodland.ca.us/history.pdf).

Yolo County was one of the original 27 counties created when California became a state in 1850. It is bounded by the Sacramento River on the east and the coastal mountains to the west. The plain in between has a rich soil built up from centuries of sediment deposition from Sacramento River flooding.

As indicated above, “Yolo” is derived from the native Patwin Indian word *yoloy* meaning “abounding in the rushes”. Most Patwin groups occupied the major river courses and tributary drainages of their territory, such as the Sacramento River, Cache, and Putah creeks, and in some cases, springs. Other historians believe it to be the name of the Indian chief Yodo, or the Indian village of Yodoi.

The first recorded contact with Westerners occurred in the late 1820s. These included Spanish missionaries as well as trappers and hunters who could be found along the banks of "Cache Creek"—named by French-Canadian trappers. The proselytization and enslavement of the Patwin by the Spanish missionaries rapidly and dramatically reduced their numbers through hardship and disease. A malarial epidemic in 1830–33 and a smallpox epidemic in 1837 decimated much of the surviving population.

Modern historical development of the county was the result of two main factors: its rich soil and climatic conditions, and its good transportation systems.

In 1842 the Mexican government granted William Gordon two leagues of land (the Guesissosi grant) on both sides of Cache Creek from the western hills to the Sacramento River. He is said to have grown wheat and other crops in the fertile soils of the area. One historical document notes that the first laborers used by the earliest farmers of Woodland in the 1850s were the native Patwin peoples.

The survey area for this study passed through two land grants: Cañada de Capay and Rio Jesus Maria. The 40,078.58-acre land grant Cañada de Capay was confirmed to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant (26,637.42) to J. M. Harbin et al. on July 3, 1858.

In 1846 the nine-league Rancho Canada de Capay, extending from the western edge of Gordon's grant through the north end of the Capay Valley, was granted to the three Berryessa brothers. Livestock production became the principal economic activity of rancheros and their followers.

Money earned in the gold fields of California financed the purchase and cultivation of much of the farmland in Yolo County. The variety of crops grown in the region included alfalfa, tobacco, peanuts, grapes, rice, sugar beets, various grains, and row crops. Wineries, livestock, and dairy operations were also important agricultural operations. Ranch lands with sheep and agricultural fields of alfalfa fields were identified in the APE.

Irrigation was a major contributor to the agricultural success of the region. The first irrigation canal was developed in 1856 by James Moore (Moore's Ditch), who owned exclusive water rights to Cache Creek. The agricultural fields of the APE had historically important water conveyances, such as the Hungry Hollow Canal and the Goodnow Slough that are being actively used. Several minor irrigation ditches and canals were also identified in the survey area.

Railroads played an important role in the development of the region because they facilitated the transport of agricultural products to market, and goods to local residents. In 1869, the California Pacific Railroad Company constructed a line between Davis (formerly Davisville) and Marysville with a Woodland station. The rail line expanded and was acquired by Southern Pacific Railroad.

Over time, modern highways replaced railroads as the dominant form of transportation. Interstate 505, in the eastern section of the project area, is part of California's initial system of interstate highways, submitted by the state June 27, 1945, and approved August 7, 1947 (California Department of Transportation 1984). The 32.98 mile long highway cuts south from I-5 in Yolo County to I-80 near Vacaville. The alignment for Interstate 5 was adopted and acquisition of the rights-of-way began in 1959. Interstate 5 opened in 1973. Both highways cross the path of the proposed Line 406 Pipeline.

4.0 Methods

4.1 Records Search and Literature Review

On December 30, 2005, Garcia and Associates prepared a cultural resource constraints analysis report based on a Northwest Information Center (NWIC) of the California Historic Resources Information Service (CHRIS) records search and a windshield survey of the study area in Yolo County, California (Cox et al. 2005). This previous report discussed cultural resource constraints associated with three proposed routing alternatives (1, 2A, 2B, and 3) for the Yolo Pipeline as outlined by PG&E. The study area, as designated by PG&E, was bounded by: Interstate Highway 5 to the east; the Coastal Range mountain slope to the west; the Yolo and Colusa County line to the north; and County Roads 18 and 19 and a portion of Cache Creek to the south.

The records search of the NWIC/CHRIS was performed on November 9–11, 2005. The records search included a review of all site records and study reports on file within a one-mile radius of the project area. The records search and literature review for this study were conducted in order to: (1) determine whether known cultural resources had been recorded within or adjacent to the project area, and (2) assess the likelihood of unrecorded cultural resources based on archaeological, ethnographic, and historical documents and literature, and on the environmental setting of nearby sites. Included in the review were the *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976) and the California Office of Historic Preservation's *Five Views: An Ethnic Historic Site Survey for California* (CA-OHP 1988), *California Historical Landmarks* (CA-OHP 1990), *California Points of Historical Interest* (CA-OHP 1992), and the *Historic Properties Directory Listing by City* (CA-OHP 2003). The *Historic Properties Directory* includes the National Register of Historic Places and the California Register of Historical Resources, and the most recent listings (through August 2005) of the California Historical Landmarks and California Points of Historical Interest.

Based on this research and the location of the study area not far from Cache Creek, it was concluded that there was a strong possibility of encountering prehistoric cultural material, ranging from isolates to lithic debris scatters and burials. Several farm buildings of potential historical significance were also observed during the windshield survey. No buried archaeological sites are expected in rolling hills because of the lack of alluvial sediments. While this report does not include a detailed analysis of the soils and sediments, there is a higher probability for prehistoric living surfaces (paleosols) in areas close to fresh water that are buried under deep alluvial deposits. The natural occurring chert cobbles in the area may have also been exploited by prehistoric peoples.

4.1.1 Native American Consultation and Historical Agencies Contacted

As part of the consultation process with Native American organizations and individuals, Garcia and Associates contacted the Native American Heritage Commission (NAHC) on March 2, 2007 with a request for information about sacred lands that may be located within the project area (see Appendix C). A search of the Sacred Lands file housed at the NAHC did not result in the identification of any sacred lands within the proposed study area. On March 7, 2007, the NAHC provided a list of five local groups and individuals to contact for further information regarding local knowledge of sacred lands.

Consultation letters were sent to five individuals from these local groups on March 8, 2007. The recipients included Mr. Bill Combs, Mr. Kesner Flores and Mr. Marshall McKay of the Rumsey

Indian Rancheria of Wintun, Ms. Elaine Patterson of the Cortina Band of Indians, and the Wintun Environmental Protection Agency. Garcia and Associates included a project description and three maps with a request to be notified if they could provide any information about the project area or if they had concerns about the project. Follow-up phone calls were made to each of the Native American groups. In an e-mail, Mr. Kesner Flores recommended monitoring and a discovery plan (see e-mail Appendix C). Mr. Flores was telephoned to discuss his concerns. Despite the fact that Cache Creek is 1 to 5 miles away from the project area, Mr. Flores believes that some of the tributaries may actually be much closer to the project area. He does not believe that an on-site monitor is necessary, but thinks that spot checking and a discovery plan for inadvertent discoveries will be appropriate (March 28, 2007). Follow-up phone calls to the other Native American contacts were attempted, but direct contact could not be made. Messages were left for these individuals; to date, no responses have been received.

Garcia and Associates personnel also contacted the Yolo County Historical Museum (Gibson House), the Yolo County Historical Society, and the Yolo County Archives on March 2, 2007 (see Appendix C). To date, no responses have been received.

An archival visit was conducted at the Yolo County Archives, and the Bancroft Library and the Water Resources Center Archives at the University of California, Berkeley. Historic General Land Office (GLO) plat maps were requested from the Bureau of Land Management in Sacramento. The Yolo County Flood Control and Water Conservation District were also contacted for historical information on the irrigation canals and sloughs in the project area. Finally, land owners were interviewed for historical information on cultural resources on their properties.

4.2 Field Survey

Two surveys were conducted in the project area. The first survey was a windshield survey on November 17, 2005 to help determine the probability of unrecorded cultural resources within or adjacent to the original study area, based on the environmental setting and available historical documents and literature. The second survey was an intensive pedestrian survey of the Line 406 Route 3 Pipeline Project Area (see Appendix A for the survey area covered).

Between December 2006 and February 2007, eight days were spent surveying the Alternative Route 3 corridor. Generally, three persons, spaced 25 meters (82 feet) apart, walked 12 transects within the 1,000-foot-wide Route 3 corridor; however, a two-person crew spaced 40 meters (131 feet) apart surveyed a segment approximately 3.5 miles long north of County Road 17 and east of Interstate 505.

Garcia and Associates archaeologists looked for evidence of prehistoric cultural resources such as obsidian and chert flaked-stone tools (e.g., projectile points, knives, choppers), middens (culturally darkened soil containing heat-affected rock, burials, artifacts, animal bone, or shellfish remains), and/or stone milling equipment, such as mortars and pestles. Historic resources of interest included bridges, canals, ditches, backfilled privies, wells, and refuse pits, concrete, stone, or adobe walls or foundations, and concentrations of metal, glass, and ceramic refuse.

Previously recorded and new cultural resources were photographed and their locational coordinates were recorded (or re-recorded) with a GPS unit. Point locational data were recorded for the archaeological sites, and line data were recorded for the linear features, such as the irrigation ditches. A Trimble Geo XT GPS Datalogger unit was used in combination with site records and photos to relocate the historic resources in the survey area. Newly-found cultural resources were recorded with

the GPS unit and drawn on a field map. The GPS data files were downloaded and post-processed with GPS Pathfinder Office 3.1 software. In Pathfinder Office, raw data files were differentially corrected to the base station nearest to the project area. The corrected files were exported as ArcView shapefiles into an ArcMap 9.1 GIS project. GIS layers provided by PG&E were used as base files for the project. The GIS data from the survey were used to determine which identified historic resources were in the survey area and to generate the project map for this report.

Three days spanning March 19–21, 2007 were spent recording cultural resources more than 50 years old. Where appropriate, cultural resources were documented as prescribed by the California Office of Historic Preservation (1995). Appendix D contains the Department of Parks and Recreation site records.

5.0 Findings

5.1 Archival Records Search

This section discusses the findings of the archival records search for the Alternative Route 3, which has slightly changed since the field survey for this investigation, but is still well within the boundaries of the original APE. A discussion of the results for the entire APE can be found in Cox et al. (2005).

Three previous cultural resources surveys have been conducted within a one-mile radius of the original Route 3 alternative Line 406 pipeline project area. The first archaeological survey (S-020007) covered the Cache Creek and Yolo Bypass areas, east of Interstate 5, but within one mile of the project area boundary (Shapiro and Syda 1997). The eastern end of Route 3 circumvents a heavily occupied habitation site in the city of Yolo by approximately half a mile. The study found seven sites in and around the present city of Yolo, which sits on a portion of Cache Creek, which has been identified as the village site of *Churup*. There, sites included a village site of several acres, with associated sites, including burials (CA-YOL-135). The landowner has found many artifacts, including obsidian projectile points, blades, drills, and scrapers. The boundaries of this site are unknown. There are six known sites in the immediate area of the town, including CA-YOL-187, with additional burials reported. The sites are all in close proximity of Cache Creek.

The second archaeological field survey (S-023627), conducted by Harper (1974) for Caltrans, and covering an area from Interstate 5 to Russell Boulevard near Winters, did not identify any cultural resources.

The third archaeological study within a mile of the project area (S-005156) was conducted by Treganza et al. (1965). This study crosses the proposed route of Line 406. The survey was 250-plus miles along the western side of the Sacramento Valley along the Tehama-Colusa Canal. At present, the Canal runs south from Red Bluff, ending near Cordilla in the region of Suisun Bay. Although five village sites and 19 archaeological sites were found during the three-year survey, only one, CA-YOL-1, is close to the proposed route of Line 406. CA-YOL-1, a large village site covering two acres next to Cache Creek, is situated approximately two miles south of the proposed path for Line 406. The site, which was probably destroyed by the Tehama-Colusa Canal, had artifacts ranging from points to obsidian fragments, clam shell beads, and some bones.

The investigation of 10 GLO maps of the survey area ranging from 1851 to 1869 did not indicate any potential historical buildings or structures in the survey area, except for eight short, unrecorded roads crossing present-day County Road 17 from Sections 1–3 in the 10 N Township, 1 E Range. It is clear, however, that the general area was occupied and used for agricultural purposes as early as 1858. Demerleys Field, identified in a 1864 GLO map (NW ¼, Section 3, 10 N Township, 1 E Range) is in the path of the Line 406 Pipeline. Canals emanating from Cache Creek were not present, but several fields were located adjacent to the creek. The survey area for this study passed through two land grants: Cañada de Capay and Rio Jesus Maria. The 40,078.58-acre land grant Cañada de Capay was confirmed to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant (26,637.42) to J. M. Harbin et al. on July 3, 1858.

Two previously recorded historical resources were found in the study area. The John Ritchie House (35265 County Road 17), YOL-HRI-4/106, is a two-story vernacular house of no particular style estimated to have been built in 1860. Several small old buildings are also on the property, such as a barn, a smokehouse, and bunk houses. The Herman Richter House (13464 County Road 97F), YOL-

HRI-4/114, built in 1929, is a large two-story Mediterranean Revival house. The house is constructed of brick. Several redwood buildings (e.g., a smokehouse, a granary, a barn, and several sheds) are located within the study area. A single-story house (13460 County Road 97F), built in the 1860s, is part of the same property. Site records for both of these properties were updated (see Appendix D).

5.2 Field Survey Results

The archaeological visibility of the landscape was excellent, with the ground surface clear of obstructions such as overgrowth and conducive for the identification of cultural resources. The survey area comprised agricultural fields and ranch lands of low grass fields, much of which had been previously disturbed by road construction, agriculture, and pastoral use of the land. Part of the grazing lands in the survey area appeared to have been recently burned (a fire storm swept through the area in September 2006). Carcasses of several burned animals, predominantly sheep, were noticed in the grazing areas. None of the bone scatters had any archaeological significance.

Weathered cobbles ranging from sub-rounded to sub-angular in shape were found on the ground surface. A large quantity of chert and other cryptocrystalline rocks were found, but no flakes or archaeological artifacts were identified. Other lithic fragments included limestone cobbles. Several suspected owl burrows were observed during the survey. On December 5, 2006, GANDA archaeologists flagged these locations and notified PG&E biologists who were also in the field.

Eight cultural resources and one isolate of suitable age were identified in the Line 406 survey area: one prehistoric and eight historic in age. Table 1 provides a summary of the cultural resources identified during the survey. Two of the historic resources, YOL-HRI-4/106 and YOL-HRI-4/114, were already registered in the State of California's Historic Resources Inventory. Site records for both previously recorded historic resources were updated for this investigation. Specific details on the documented resources can be found in Appendix D, where the DPR site records are located. A DPR form was not necessary for Y-17 because it is a prehistoric archaeological isolate.

Certain cultural resources found during the survey were not recorded on DPR forms because they were either outside the survey boundary or they are less than 50 years of age (See Table 2). 'Movable stock', also known as, old vehicles, trailers, plows, disc machines, and other such materials over 50 years of age in the survey area, were not recorded on DPR forms. The many mechanized water pumps situated at the sites of wells, and associated with the agricultural fields, were also not recorded.

In addition, numerous ditches of indeterminate age along the sides of roads and agricultural fields, were not documented on DPR form as some of the irrigation conveyances contained trash and appeared to have been recently maintained and in present use. Two irrigation canals/sloughs, however, were found to be over 50 years old: the Hungry Hollow Canal (Y-9) and the Goodnow Slough (Y-3). The path and characteristics of these conveyances within the APE were recorded and are included in Appendix B.

Table 2. Summary of cultural resources within the Line 406 Pipeline survey area and their likelihood of eligibility for listing on the NRHP/CRHR.

Site #	Description	Age Category	Status	*Distance to Line 406	Eligibility Criteria
YOL-HRI-4/106	John Ritchie House & other buildings	Historic	DPR Update	530 feet	c, d
YOL-HRI-4/114	Herman Richter House & other buildings	Historic	DPR Update	107 feet	c
Y-3	Goodnow Slough	Historic	New DPR	Crosses alignment	a
Y-6	Dump in drainage	Historic	New DPR	340 feet	NA
Y-7	Three barns & two residences	Historic	New DPR	**135 feet	c
Y-9	Hungry Hollow Canal	Historic	New DPR	Crosses alignment	a
Y-17	Chert uniface or retouched flake	Prehistoric	Documented	290 feet	NA
Y-20	One house & barn	Historic	New DPR	125 feet	c
Y-21	Southern Pacific Railroad Section	Historic	New DPR	Crosses alignment	a

* distance from the center of the proposed Pipeline path to the closest historical resource
** two undocumented historic residences are less than 50 feet from the centerline of the proposed Pipeline path
NA not applicable

Table 3. Cultural resources not documented in the Line 406 Pipeline Survey Area.

Site #	Description	Age Category	Reason
Y-1	Concrete ditch	Unknown	Date unknown
Y-2	Barn	Historic	Outside survey area
Y-4	Concrete pad, metal trough and brick-lined well	Historic	Outside survey area
Y-5	Horseshoe with square nails	Historic	Outside survey area
Y-5a	Historic Windmill and four trees	Historic	Outside survey area
Y-8	Long irrigation ditch (spur of China Slough)	Historic	Date unknown
Y-10	Earthen berm ditch with modern trash	Unknown	Date unknown
Y-11	Ditch	Unknown	Date unknown
Y-12	Electric Johnson water well pump	Unknown	Date unknown
Y-13	Water well with electric pump	Unknown	Date unknown
Y-14	Earthen ditch	Unknown	Date unknown
Y-15	Earthen canal	Unknown	Date unknown
Y-16	Earthen ditch	Unknown	Date unknown
Y-18	Wooden corral	Unknown	Outside survey area
Y-19	Human-made pond	Modern	Less than 50 years of age

5.2.1 Previously Recorded Cultural Resources

A general description of the eight cultural resources and one archaeological isolate identified in the survey area is given below. More specific details are found in the DPR site records in Appendix D. None of the cultural resources below have been formally evaluated for the eligibility to the NRHP/CRHR, however, we have made a preliminary assessment of whether each resource appears to meet the eligibility requirements for listing on the NRHP/CRHR.

YOL-HRI-4/106

This historical resource contains both historic era buildings and associated historical archaeological deposits. The John Ritchie House is a two-story vernacular house of no particular style estimated to have been built in 1860. The historic resource has been previously recorded in DPR forms (1986), but it has not been evaluated for listing in the National or California Register. Several small old buildings are also on the property, such as a barn, a smokehouse, and bunk houses. The northwest corner of the property parcel is within 500 feet of the proposed Pipeline path, but the house itself and the associated historic buildings are near the outer 500-foot project area survey limits of the proposed Pipeline path.

Although the resource is presently unoccupied, it is still in use and maintained by Bruce Rodegerdts for agricultural purposes. The property has several buildings of historic age that are in fair condition: a vernacular house, barn, smoke house, and two bunkhouses. The China Slough, located behind the property, has evidence of eroding historic trash (e.g., nineteenth century liquor and medicinal bottles). This archaeological resource likely has information value because of its association with the John Ritchie property. There are also 11 trees along the property lining the southern side of County Road 17, as well as trees on the opposite side of the road (Figure 2), which are in the survey area. The historical resource is an historic archaeological site because of the historic midden in the slough. The site has potential for contributing to historical interpretations of late nineteenth century and early twentieth agricultural life in Yolo County, and therefore may be eligible for listing on the National and California Registers.

Figure 2. County Road 17 facing East with trees along both sides of the road. Buildings of HRI-4/106 are on the right side of the photograph.

YOL-HRI-4/114

The Herman Richter House (13464 County Road 97F), YOL-HRI-4/114, built in 1927, is a large two-story Mediterranean Revival house. A stage coach station once stood near this home, with a trail passing through the present ranch. Several redwood buildings (e.g., a smokehouse, a granary, a barn, a bird house, and several sheds built in the late 1800s and early 1900s) and a second residence are located within the project survey area. According to the owner, the one single-story house (13460 County Road 97F) was built between 1865 and 1875, and still has the original foundation. It was a two-storied home before it was renovated in 1949. All of the buildings are very well maintained, in

excellent condition, and show evidence of renovation with modern materials. Both residences, which have well-groomed gardens (Figure 3), are the closest buildings on the property to the proposed Line 406 pipeline. The closest residence (Mediterranean Revival House) to the Pipeline right-of-way is 107 feet from the center of the proposed pipeline path. The gardens of both residences, however, are much closer to the Pipeline Path.

This historical resource has been recorded on DPR forms, but has not been formally evaluated for its potential for listing on the NRHP/CRHR. However, it appears likely that this resource would be potentially eligible.

5.2.2 Newly Identified Cultural Resources

Y-3

The Goodnow Slough is a long earthen-walled irrigation canal that passes through the survey area in two locations on the eastern side of Interstate 505 and crosses the path of the proposed Pipeline. Its depth and width vary considerably. Several smaller irrigation ditches feed in and out of the slough. The construction date for the slough is not clear, but the slough is found on a map from a 1967 report entitled *A Reconnaissance Study to Investigate the Feasibility of the Hungry Hollow Watershed Project* by the State of California Division of Soil Conservation.

The Goodnow Slough has not been evaluated for listing on the NRHP/CRHR. However, a preliminary assessment of the resources indicates that it is likely eligible for listing.

Figure 3. Garden and southern elevation of residence at 13460 CR 97F.

Y-6

Y-6 is an historic archaeological site located 340 feet south of the center of the Pipeline Path in a dry shallow gulch. A windmill-powered water pump, trough, and four trees are about 300 feet to the west, and may at one time have been associated with the site. Today, the two locations are separated by a wire fence. Artifacts are eroding out of the sidewalls of the gulch, from top to bottom. Most of the artifacts appear to be household and agricultural items, such as fragments of plates, concrete, iron sheet metal, and window and bottle glass.

The historical resource has not been evaluated for its potential eligibility for listing on the NRHP or the CRHR; however, the site is outside the APE, and therefore does not require formal evaluation because it will not be impacted by the project.

Y-7

Y-7 is a historical resource at 32840 County Road 17 that has a residence and three farm buildings from the historic era. According to the owner, the farm buildings consist of a granary built in 1881 and two barns built in the 1940s. It was later discovered that the residence, which appeared young because of extensive renovations conducted the previous year, was actually constructed in 1927. The closest farm building is 135 feet from the Pipeline Path center line, but the residence is less than 50 feet. Another residence directly across the road (less than 50 feet from the center of the Pipeline Path), which has also been renovated, was also probably built more than 50 years ago. All of the aforementioned buildings are in use.

The buildings at 32840 County Road 17 have not been evaluated for their potential for eligibility for listing on the NRHP/CRHR; however, a preliminary assessment of the resources indicates that it is likely eligible for listing.

Y-9

Passing through the middle of an orchard, Site Y-9 (Hungry Hollow Canal) is a long and wide earthen-walled canal that enters the southeast portion of the survey area and crosses the path of the Line 406 gas pipeline. The water in this canal originates from Cache Creek and passes through Capay Dam and West Adams Canal before spurring to Hungry Hollow Canal. The canal was likely built before 1914, the construction date of Hungry Hollow Bridge, which crosses a branch of Hungry Hollow Creek.

Two stepped concrete foundations (former bridge abutments) are an interesting feature of the canal. The bridge foundation is directly in the path of the Pipeline. The date of manufacture for this bridge is unknown, but it is likely from the historic era. The bridge once connected to dirt access roads on either side of the canal. The bridge would have spanned approximately 25 feet. The bridge abutments are in poor condition.

The historical resource has not been evaluated for listing on the NRHP/CRHR, however, a preliminary assessment of the resources indicates that it is likely eligible for listing.

Y-17

One prehistoric archaeological isolate, in the form of a broken Franciscan uniface or retouched flake, was identified in the middle of a plowed field (175 feet amsl), not far from two farm complexes

(Figure 4). It is predominantly brown in color with white lines and green portions. The artifact was flagged but not collected. A month later, the flagging was found, but the artifact was not.

The tool exhibits evidence of a bulb of percussion and retouch scars. It measures 56 mm long, 32 mm wide, and is 11 mm thick (Figure 5). It is assumed to be an isolate because no other artifacts or features were found associated with this find. The artifact is approximately 290 feet from the center of the proposed Line 406 Pipeline path.

An isolate is not eligible for listing on the NRHP/CRHR. Its presence, however, might indicate buried archaeological deposits.

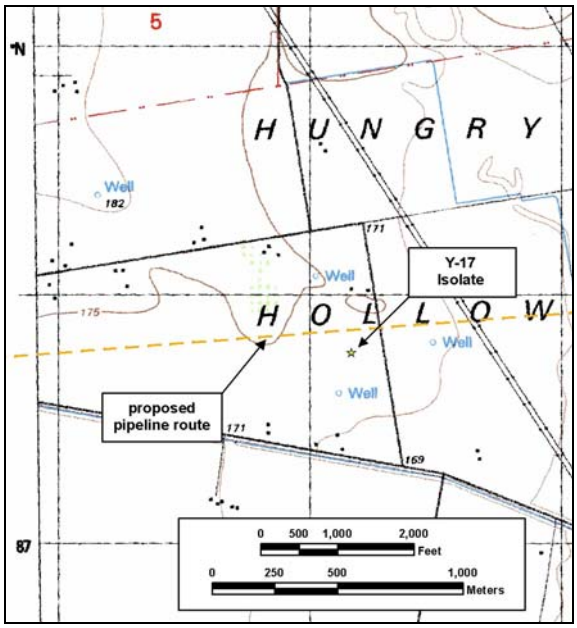

Figure 4. Y-17 location in an unsectioned portion of the Rancho Cañada de Capay land grant, Madison USGS 7.5' Quad.

Figure 5. Dorsal side of the uniface retouched flake.

Y-20

Site Y-20 is an historic site at 30220 County Road 17. The site includes a residence and a barn over 50 years of age. The exact ages of the buildings were not known to the present landowner. The property is presently a pheasant farm.

The residence, which is in fair to poor condition, is approximately 84 feet from the northern edge of CR 17. The residence has undergone much renovation. It has siding consisting of red-painted wood planks that is covered in several places by tar paper.

This second building is situated northwest of the residence and is in fair to poor condition. The siding of the barn comprises red-painted wooden boards (9 inches wide). The eastern façade has two large doors. Only round-headed nails fasten the boards to the frame of the barn. The roof consists of rusted corrugated iron sheets. Renovations and repairs to the barn have been made with sheets of metal and plywood. The barn is presently used to store hay and agricultural equipment. There is a long hedge of prickly pear cactus plants along a wooden fence in front of the residence on the north side of the road. This cactus hedge is part of the cultural landscape and is probably more than 50 years old (Figure 6).

Site Y-20 has not been formally evaluated for its eligibility for listing on the NRHP/CRHR.

Y-21

Site Y-21 consists of the historic alignment of the former Northern Railway Company. The recorded segment is now the Southern Pacific Railroad and actively in use. This segment parallels Interstate 5, and is oriented in a northwest-southeast direction. The tracks sit on a raised bed of ballast made of sub-angular basalt rocks, approximately 2.5 feet high. According to Larkey and Walters (1987:47), railroad construction was started in 1875. It was completed sometime before 1879, as depicted in the Yolo County atlas (Yolo County 1879). The railroad crosses the proposed path of Line 406.

The historical resource has not been evaluated for listing in the NRHP/CRHR, however, a preliminary assessment of the resources indicates that it is likely eligible for listing.

Figure 6. Cactus hedge of Y-21 along the northern side of County Road 17, facing northeast.

6.0 Conclusions and Management Recommendations

Eight sites and one isolate were identified during the fieldwork, which was conducted between December 2006 and March 2007. Two of the sites were already recorded and listed on the Historic Resources Inventory (1986) as examples of late nineteenth and early twentieth century farm buildings. Six of the newly recorded sites are from the historic era, while one isolated artifact is from the prehistoric period. The majority of the historical resources are farm buildings, residences, and irrigation canals.

Based on the proposed project activities and the historical resources identified in the archival and archaeological investigations, the following recommendations are provided. No additional archaeological investigations are necessary unless archaeological resources or human remains are encountered during ground disturbing activities.

1) A discovery and monitoring plan should be prepared prior to the start of project implementation. The preparation of a discovery and monitoring plan would provide detailed procedures for the treatment of cultural resources found as a result of accidental discoveries during construction as well as detailed locations for monitoring in potentially sensitive areas within the APE, where cultural resources are most likely to be identified. Mr. Kesner Flores, a Native American contact (see Appendix C), recommended spot monitoring and the preparation of a discovery plan. Arrangements with Mr. Flores should be made to facilitate spot monitoring. The preparation and implementation of a detailed discovery and monitoring plan would minimize potential impacts.

2) Inadvertent discoveries are a possibility when conducting earth-disturbing activities. A brief worker education program prior to earth-disturbing activities would train construction workers on how to identify and avoid archaeological resources in the event of inadvertent discoveries.

3) It is recommended that all eight of the historical sites and all associated features be avoided. If in the course of project planning if it is determined that the project is going to have a direct impact on a historical resource then the site will need to be formally evaluated for the California Register for Historical Places.

4) One prehistoric archaeological isolate (Y-17) was identified in an agricultural field outside the APE, 290 feet away from the center of the proposed Pipeline path. No further management is recommended. However, this isolated artifact could be an indication of additional archaeological deposits in this location and that excavation activities could disturb archaeological deposits in this area. It is recommended that a qualified archaeologist monitor any excavation activities within 100 feet of the location of the isolated artifact.

Table 4. Recommendations for cultural resources.

Site #	Description	NRHP/CRHR Status	Recommendation
YOL-HRI-4/106	John Ritchie House & other buildings	Unevaluated	Avoid or evaluate
YOL-HRI-4/114	Herman Richter House & other buildings	Unevaluated	Avoid or evaluate
Y-3	Goodnow Slough	Unevaluated	Avoid or evaluate
Y-6	Dump in drainage	Unevaluated	Outside APE
Y-7	Three barns & two residences	Unevaluated	Avoid or evaluate
Y-9	Hungry Hollow Canal	Unevaluated	Avoid or evaluate
Y-17	Chert uniface or retouched flake	Unevaluated	Monitor within 100 feet of isolate location
Y-20	One house & barn	Unevaluated	Avoid or evaluate
Y-21	Southern Pacific Railroad Section	Unevaluated	Avoid or evaluate

6.1 Unanticipated Discoveries

Should any archaeological materials be discovered during ground-disturbing activities all work within the immediate vicinity should halt until a qualified archaeologist can evaluate the discovery and provide recommendations. Buried historic features could include filled privies, wells, trash and pits, along with concentrations of adobe, stone, or concrete walls or foundations, and concentrations of ceramic, glass, or metal materials. Native American archaeological materials could include obsidian and chert flaked stone tools (such as projectile points and knives), midden (darken soil created culturally from use and containing heat-affected rock, artifacts, animal bones, or shellfish remains), and/or groundstone implements (such as mortars and pestles). Any cultural resources identified during monitoring shall be considered eligible to the National Register of Historic Places until proven otherwise.

6.2 Human Remains

There is also the possibility of encountering human remains either in association with prehistoric occupation sites or separately. Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial and Section 5097.99 of the Public Resources Code defines the obtaining or possession of Native American remains or grave goods to be a felony. If human remains are encountered as a result of construction activities, any work in the vicinity should stop and the County Coroner contacted immediately. At the same time, a qualified archaeologist should be contacted to evaluate the situation. If the human remains are Native American in origin, then the Coroner must notify the Native American Heritage Commission within 24 hours of this identification.

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Yolo County
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Appendix B: Correspondence

2 March 2007

Ms. Debbie Pilas-Treadway
California Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Re: Pacific Gas and Electric (PG&E) Company Line 406 Expansion in Yolo County

Dear Ms. Pilas-Treadway:

Garcia and Associates (GANDA) are carrying out an archaeological survey and preparing a CEQA document for PG&E. The Pacific Gas and Electric Company is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

The table below lists the Townships, Ranges, and Sections of the project area.

TOWNSHIP	RANGE	SECTION	LANDGRANT
		0	Canada de Capay
		0	Rio Jesus Maria
		0	Wetlands
10N	01E	6	
10N	01E	5	
10N	01E	4	
10N	01E	3	
10N	01E	2	
10N	01E	1	
10N	01E	7	
10N	01E	8	
10N	01E	9	
10N	01E	10	
10N	01W	2	
10N	01W	1	
10N	01W	3	
10N	01W	10	
10N	01W	11	
10N	01W	12	
10N	02E	13	

Please note that approximately 4 miles of Line 406 between T10N R2W Section 12 and T10N R1W Section 03 are not included in the Public Lands Survey Grid.

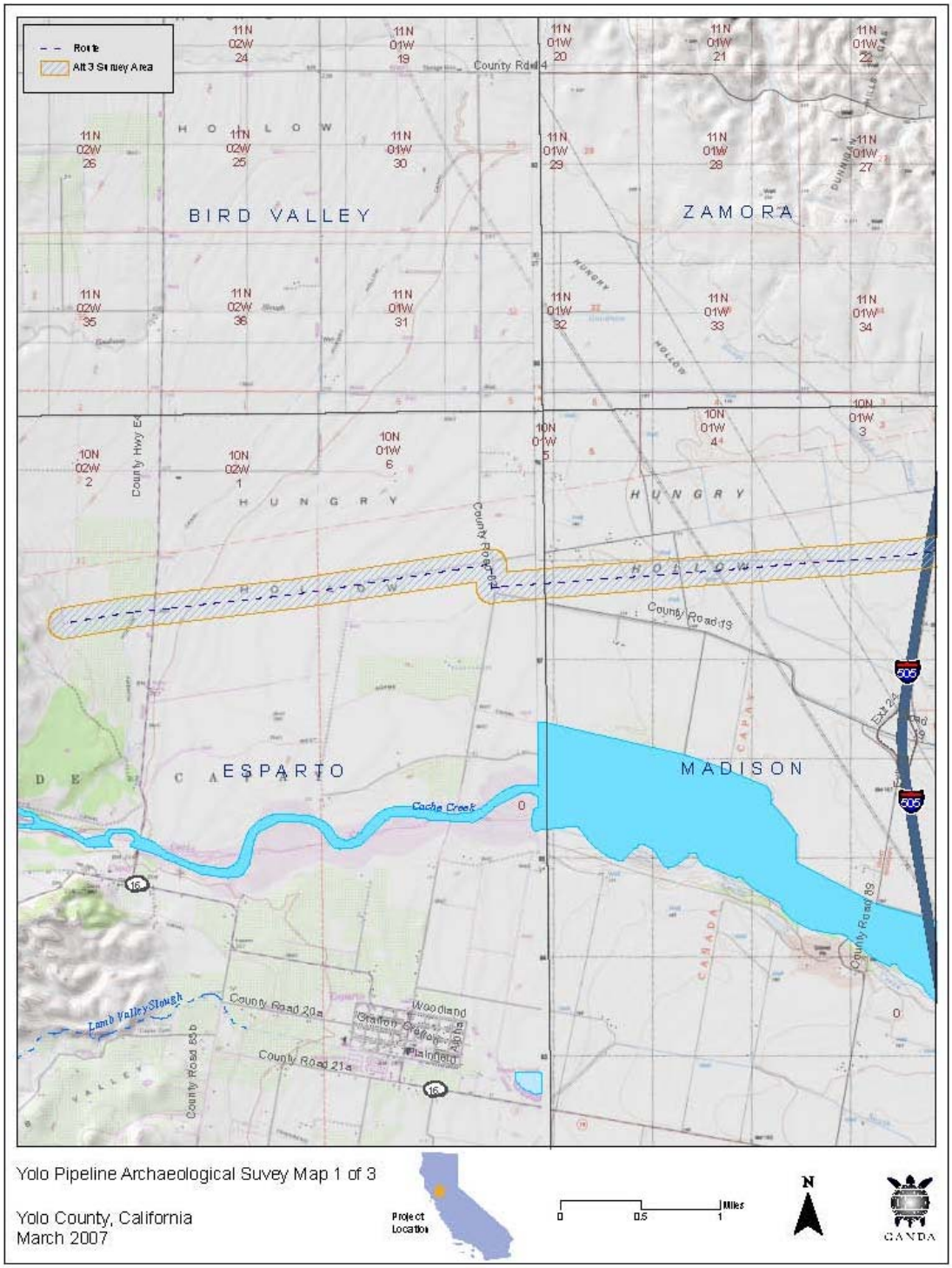
Please search your inventory of sacred lands and other known resources for properties that may be affected by the project and provide us with a contact list of Native American groups and inventory for further contact.

Please contact me at (510) 891-0024 if you have questions regarding this project or require any additional information. Thank you for your time.

Sincerely,

Christophe Descantes, PhD
Archaeologist
Garcia and Associates

Enclosures (3)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ZAMORA
HUNGRY HOLLOW
ESPARTO
MADISON
Cache Creek
Lamb Valley Slough
County Road 19
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County Road 21a
County Road 85b
County Road 89
Woodland
Yolo Pipeline Archaeological Suvey Map 1 of 3
Yolo County, California
March 2007
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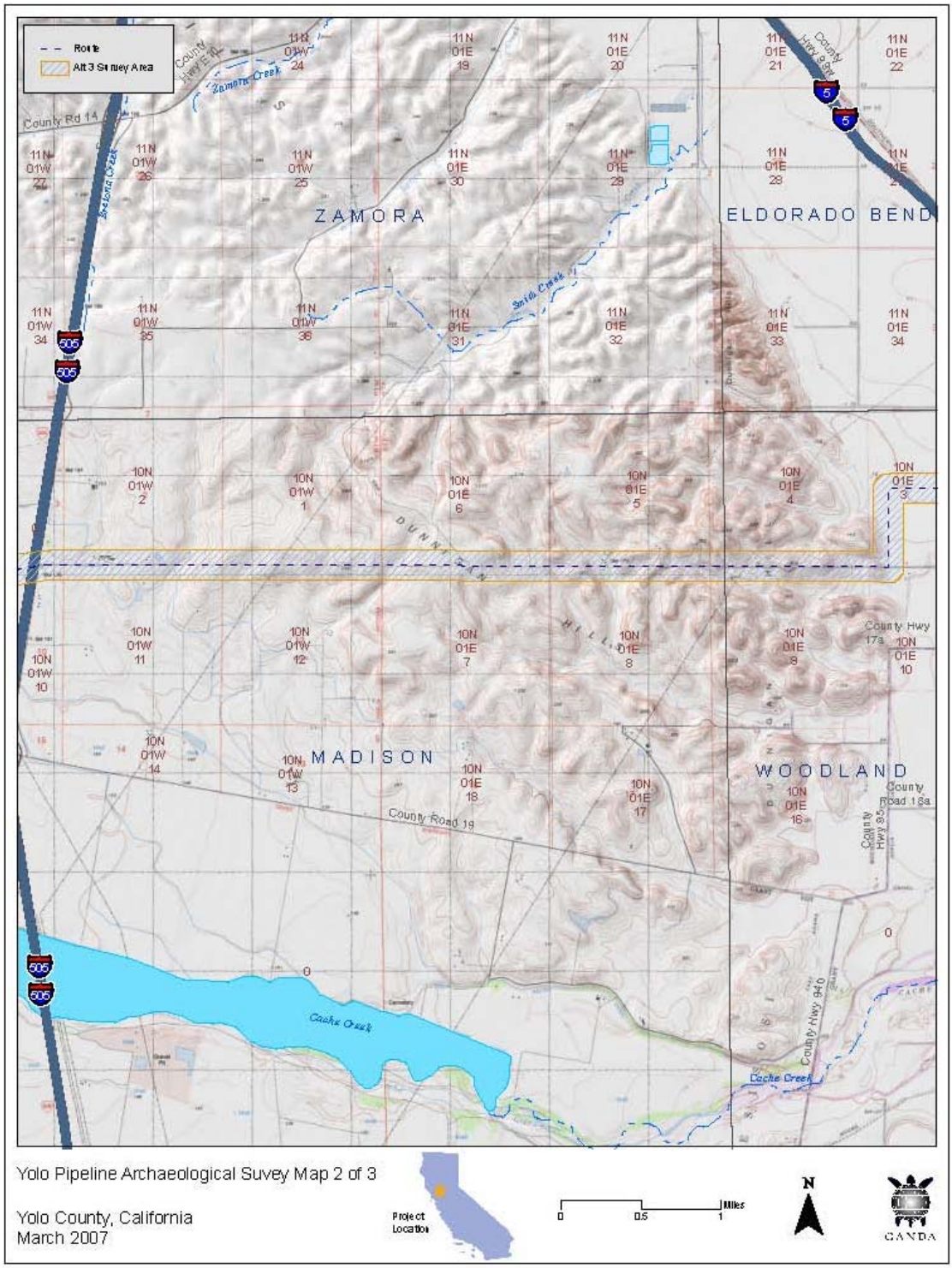
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ELDORADO BEND
MADISON
WOODLAND
Zamora Creek
Cache Creek
County Rd 14
County Road 19
County Road 18a
County Hwy 94B
County Hwy 95
County Hwy 17a
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Yolo County, California
March 2007
Project Location
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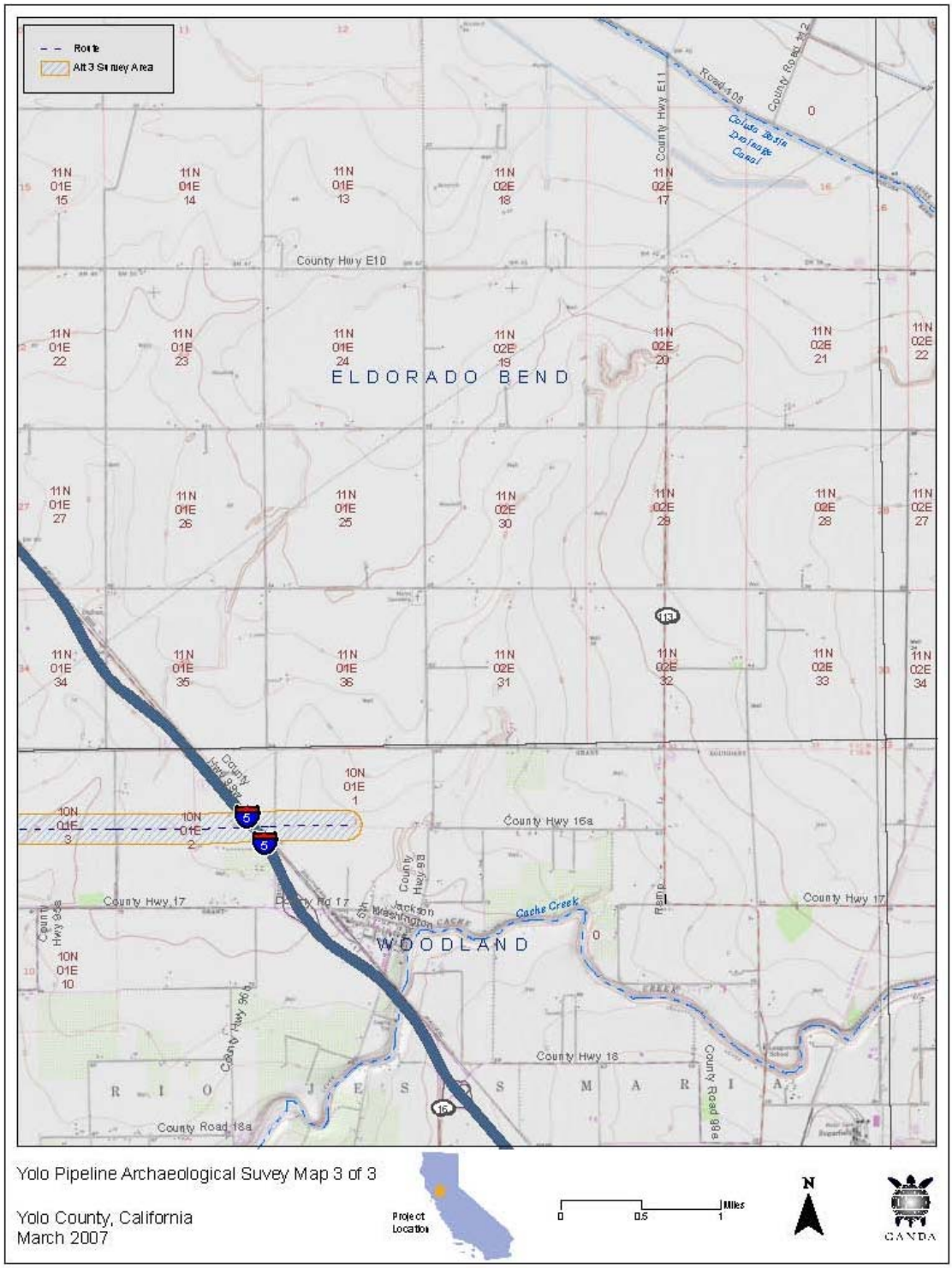
GANDA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Alt 3 Survey Area
County Hwy E11
County Hwy E10
ELDORADO BEND
County Hwy 16a
County Hwy 17
Cache Creek
WOODLAND
County Hwy 18
County Road 98a
County Road 18a
RIO JESS MARIA
Yolo Pipeline Archaeological Suvey Map 3 of 3
Yolo County, California
March 2007
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GANDA

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4038
Fax (916) 657-5390
Web Site www.nahc.ca.gov

March 7, 2007

Christophe Descantes
Archaeologist
Garcia and Associates

Sent by Fax: 415-458-5829
Number of Pages: 2

Re: Proposed PG&E Co Line 406 Expansion, Yolo County.

Dear Mr. Descantes:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Yolo County
March 7, 2007

Cortina Band of Indians
Elaine Patterson, Chairperson
PO Box 1630
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax
Wintun / Patwin

Wintun Environmental Protection Agency
P.O. Box 1839
Williams , CA 95987
corwepa@hotmail.com
(530) 473-3318
(530) 473-3319
(530) 473-3320 - Fax
Wintun (Patwin)

Cortina Band of Indians
Bill Combs, Vice Chairperson
PO Box 1630
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax
Wintun / Patwin

Rumsey Indian Rancheria of Wintun
Marshall McKay, Chairperson
P.O. Box 18
Brooks , CA 95606
mmckay@rumseywintu-nsn.
(530) 796-3400
(530) 796-2143 Fax
Wintun (Patwin)

Rumsey Indian Rancheria of Wintun
Kesner Flores, Cultural Resources Specialist
PO Box 1047
Wheatland , CA 95692
cainagpra@hotmail.com
925-586-8919
Wintun / Patwin

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed PG&E Co Line 406 Expansion, Yolo County

2 March 2007

Yolo County Archives
226 Buckeye Street
Woodland, CA 95695

Re: Pacific Gas and Electric (PG&E) Company Line 406 Expansion in Yolo County

Dear Sir/Madam:

Garcia and Associates (GANDA) are carrying out an archaeological survey and preparing a CEQA document for PG&E. The Pacific Gas and Electric Company is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

I am writing you to further our effort to identify cultural resources that potentially may be affected by the proposed project. We would appreciate any information you have concerning cultural resources in or adjacent to the proposed project area. Cultural resources can be, but are not limited to, archaeological sites from both prehistoric and historic times, historical places, important, or exemplary building, or locations of culturally important community events. If you have information on specific resources or hold relevant collections that should be reviewed by us as part of our resource identification effort.

Please contact me at (510) 891-0024 if you have questions regarding this project or require any additional information. Thank you for your time.

Sincerely,

Christophe Descantes, PhD
Staff Archaeologist
Garcia and Associates

Enclosures (3)

2 March 2007

Yolo County Historical Museum (Gibson House)
512 Gibson Road
Woodland, CA 95695

Re: Pacific Gas and Electric (PG&E) Company Line 406 Expansion in Yolo County

Dear Sir/Madam:

Garcia and Associates (GANDA) are carrying out an archaeological survey and preparing a CEQA document for PG&E. The Pacific Gas and Electric Company is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

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Please contact me at (510) 891-0024 if you have questions regarding this project or require any additional information. Thank you for your time.

Sincerely,

Christophe Descantes, PhD
Staff Archaeologist
Garcia and Associates

Enclosures (3)

2 March 2007

Yolo County Historical Society
P.O. Box 1447
Woodland, CA 95776

Re: Pacific Gas and Electric (PG&E) Company Line 406 Expansion in Yolo County

Dear Sir/Madam:

Garcia and Associates (GANDA) are carrying out an archaeological survey and preparing a CEQA document for PG&E. The Pacific Gas and Electric Company is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

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Please contact me at (510) 891-0024 if you have questions regarding this project or require any additional information. Thank you for your time.

Sincerely,

Christophe Descantes, PhD
Staff Archaeologist
Garcia and Associates

Enclosures (3)

8 March 2007

Mr. Marshall McKay, Chairperson
Rumsey Indian Rancheria of Wintun
PO Box 18
Brooks, CA 95606

Re: Pacific Gas and Electric Company Line 406 Expansion in Yolo County

Dear Mr. McKay:

Garcia and Associates is carrying out an archaeological survey and preparing a CEQA document for the Pacific Gas and Electric Company (PG&E). The PG&E is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

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10N	01W	11	
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10N	02E	13	

Please note that approximately 4 miles of Line 406 between T10N R2W Section 12 and T10N R1W Section 03 are not included in the Public Lands Survey Grid.

An important element of our investigation is to identify sites, resources, or locations of cultural importance to the local Native American community. A search of the sacred lands file by the Native American Heritage Commission failed to identify Native American resources in or near the project area. However, they recommended that we contact you for your knowledge of resources in the project area. We would like to provide you with the opportunity to contribute information about cultural resources, traditional gathering areas, or sacred lands in the study area. If you have no concerns but you know of others who might, then we would appreciate it if you could contact us with the names and phone numbers of these individuals.

Please contact me at (510) 891-0024 with any information or concerns you may have. I will be contacting you by phone in the next week or two to make sure you received this letter and to answer any questions you may have about the project. Thank you for your time and consideration in this matter.

Sincerely,

Christophe Descantes, PhD
Archaeologist
Garcia and Associates

Enclosures (3)

8 March 2007

Ms. Elaine Patterson, Chairperson
Cortina Band of Indians
PO Box 1630
Williams, CA 95236

Re: Pacific Gas and Electric Company Line 406 Expansion in Yolo County

Dear Ms. Patterson:

Garcia and Associates is carrying out an archaeological survey and preparing a CEQA document for the Pacific Gas and Electric Company (PG&E). The PG&E is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

The table below lists the Townships, Ranges, and Sections of the project area.

TOWNSHIP	RANGE	SECTION	LANDGRANT
		0	Canada de Capay
		0	Rio Jesus Maria
		0	Wetlands
10N	01E	6	
10N	01E	5	
10N	01E	4	
10N	01E	3	
10N	01E	2	
10N	01E	1	
10N	01E	7	
10N	01E	8	
10N	01E	9	
10N	01E	10	
10N	01W	2	
10N	01W	1	
10N	01W	3	
10N	01W	10	
10N	01W	11	
10N	01W	12	
10N	02E	13	

Please note that approximately 4 miles of Line 406 between T10N R2W Section 12 and T10N R1W Section 03 are not included in the Public Lands Survey Grid.

Please search your inventory of sacred lands and other known resources for properties that may be affected by the project and provide us with a contact list of Native American groups and inventory for further contact.

Please contact me at (510) 891-0024 if you have questions regarding this project or require any additional information. Thank you for your time.

Sincerely,

Christophe Descantes, PhD
Archaeologist
Garcia and Associates

Enclosures (3)

8 March 2007

Mr. Bill Combs, Vice Chairperson
PO Box 1630
Williams, CA 95236

Re: Pacific Gas and Electric Company Line 406 Expansion in Yolo County

Dear Mr. Combs:

Garcia and Associates is carrying out an archaeological survey and preparing a CEQA document for the Pacific Gas and Electric Company (PG&E). The PG&E is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

The table below lists the Townships, Ranges, and Sections of the project area.

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10N	01E	5	
10N	01E	4	
10N	01E	3	
10N	01E	2	
10N	01E	1	
10N	01E	7	
10N	01E	8	
10N	01E	9	
10N	01E	10	
10N	01W	2	
10N	01W	1	
10N	01W	3	
10N	01W	10	
10N	01W	11	
10N	01W	12	
10N	02E	13	

Please note that approximately 4 miles of Line 406 between T10N R2W Section 12 and T10N R1W Section 03 are not included in the Public Lands Survey Grid.

An important element of our investigation is to identify sites, resources, or locations of cultural importance to the local Native American community. A search of the sacred lands file by the Native American Heritage Commission failed to identify Native American resources in or near the project area. However, they recommended that we contact you for your knowledge of resources in the project area. We would like to provide you with the opportunity to contribute information about cultural resources, traditional gathering areas, or sacred lands in the study area. If you have no concerns but you know of others who might, then we would appreciate it if you could contact us with the names and phone numbers of these individuals.

Please contact me at (510) 891-0024 with any information or concerns you may have. I will be contacting you by phone in the next week or two to make sure you received this letter and to answer any questions you may have about the project. Thank you for your time and consideration in this matter.

Sincerely,

Christophe Descantes, PhD
Archaeologist
Garcia and Associates

Enclosures (3)

8 March 2007

Wintun Environmental Protection Agency
PO Box 1839
Williams, CA 95987

Re: Pacific Gas and Electric Company Line 406 Expansion in Yolo County

Dear Representatives of Wintun Environmental Protection Agency:

Garcia and Associates is carrying out an archaeological survey and preparing a CEQA document for the Pacific Gas and Electric Company (PG&E). The PG&E is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

The table below lists the Townships, Ranges, and Sections of the project area.

TOWNSHIP	RANGE	SECTION	LANDGRANT
		0	Canada de Capay
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		0	Wetlands
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10N	01E	3	
10N	01E	2	
10N	01E	1	
10N	01E	7	
10N	01E	8	
10N	01E	9	
10N	01E	10	
10N	01W	2	
10N	01W	1	
10N	01W	3	
10N	01W	10	
10N	01W	11	
10N	01W	12	
10N	02E	13	

Please note that approximately 4 miles of Line 406 between T10N R2W Section 12 and T10N R1W Section 03 are not included in the Public Lands Survey Grid.

An important element of our investigation is to identify sites, resources, or locations of cultural importance to the local Native American community. A search of the sacred lands file by the Native American Heritage Commission failed to identify Native American resources in or near the project area. However, they recommended that we contact you for your knowledge of resources in the project area. We would like to provide you with the opportunity to contribute information about cultural resources, traditional gathering areas, or sacred lands in the study area. If you have no concerns but you know of others who might, then we would appreciate it if you could contact us with the names and phone numbers of these individuals.

Please contact me at (510) 891-0024 with any information or concerns you may have. I will be contacting you by phone in the next week or two to make sure you received this letter and to answer any questions you may have about the project. Thank you for your time and consideration in this matter.

Sincerely,

Christophe Descantes, PhD
Archaeologist
Garcia and Associates

Enclosures (3)

8 March 2007

Mr. Kesner Flores, Cultural Resources Specialist
Rumsey Indian Rancheria of Wintun
PO Box 1047
Wheatland, CA 95692

Re: Pacific Gas and Electric Company Line 406 Expansion in Yolo County

Dear Mr. Flores:

Garcia and Associates is carrying out an archaeological survey and preparing a CEQA document for the Pacific Gas and Electric Company (PG&E). The PG&E is planning to construct the Line 406 Expansion Project in California's Central Valley in Yolo County. The natural gas transmission pipeline is needed to serve ongoing residential and commercial load growth projected in the area to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system.

The table below lists the Townships, Ranges, and Sections of the project area.

TOWNSHIP	RANGE	SECTION	LANDGRANT
		0	Canada de Capay
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10N	01E	2	
10N	01E	1	
10N	01E	7	
10N	01E	8	
10N	01E	9	
10N	01E	10	
10N	01W	2	
10N	01W	1	
10N	01W	3	
10N	01W	10	
10N	01W	11	
10N	01W	12	
10N	02E	13	

Please note that approximately 4 miles of Line 406 between T10N R2W Section 12 and T10N R1W Section 03 are not included in the Public Lands Survey Grid.

An important element of our investigation is to identify sites, resources, or locations of cultural importance to the local Native American community. A search of the sacred lands file by the Native American Heritage Commission failed to identify Native American resources in or near the project area. However, they recommended that we contact you for your knowledge of resources in the project area. We would like to provide you with the opportunity to contribute information about cultural resources, traditional gathering areas, or sacred lands in the study area. If you have no concerns but you know of others who might, then we would appreciate it if you could contact us with the names and phone numbers of these individuals.

Please contact me at (510) 891-0024 with any information or concerns you may have. I will be contacting you by phone in the next week or two to make sure you received this letter and to answer any questions you may have about the project. Thank you for your time and consideration in this matter.

Sincerely,

Christophe Descantes, PhD
Archaeologist
Garcia and Associates

Enclosures (3)

Christophe Descantes

From: Kesner Flores [calnagpra@hotmail.com]
Sent: Wednesday, March 28, 2007 8:48 PM
To: Christophe Descantes
Subject: RE: Proposed Line 406 PG&E Project

After reveiwing the proposed sight, I find that is a moderate potential for finds. I know of near the area and finds are usually subsurface because of sedimentation of Cache Creeks flow over the years. I would recoment the need for monitor and a discovery plan. Please keep me informed of your intentions.. Thank you.

Kesner Flores
Kapay Associates, Inc.
P.O. Box 1047
Wheatland, Ca 95692

Cell Phone: 925-586-8919

Just a thought:

Things may seem difficult, the waters may be rough, but to never try, means we go no where at all. Work together and we can do anything we dream of...

From: *"Christophe Descantes" <cdescantes@garciaandassociates.com>*
To: *<calnagpra@hotmail.com>*
Subject: *Proposed Line 406 PG&E Project*
Date: *Tue, 27 Mar 2007 15:32:05 -0800*

Dear Mr. Flores,

I just telephoned you. Please find the letter I sent you attached.

Thank you for considering my request.

Sincerely,
Christophe Descantes

Christophe DESCANTES, PhD
Archaeologist
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612-2826, USA
tel (510) 891.0024
fax (510) 891.0027

<< KesnerFloresletter.pdf >>

Table 5. Consultation Phone Log

Name	Contact Info.	Date	Notes
Elaine Patterson	(530) 473.3274	03/30/2007	Could not reach Ms. Patterson. Left message with receptionist.
Bill Combs	(530) 473.3274	03/29/2007	Could not reach Mr. Combs. Left message with receptionist.
Bill Combs Wintun EPA	(530) 473.3274	03/27/2007	Could not reach Mr. Combs. Left message with receptionist.
Marshall MacKay	(530) 796.3400	03/29/2007	Letter was forwarded to lawyers.
Kesner Flores	(925) 586-8919 e-mail	03/28/2007	Would like a cultural monitor for spot checking & a discovery plan; see copy of letter below.

Appendix C: DPR Site Records

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Y-3

P1. Other Identifier: Goodnow Slough

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County** Yolo **and**

***b. USGS 7.5' Quad** Madison, Calif. **Date** 1992 **T** 10N; **R** 1W; SW ¼ **of** SW ¼ **of Sec** 2; Mt. Diablo **B.M.**

c. Address **City** **Zip**

d. UTM: Zone 10; *NAD 83:* 591217 mE/ 4288102 mN *(Datum: Slough culvert crossing County Road 17)*

e. Other Locational Data: Elevation: 175 feet amsl.

This segment of the Goodnow Slough crosses County Road 17 through a culvert. To reach this segment, take Exit 24 of Interstate 505 and travel north along County Road 90A. Upon reaching County Road 17, turn eastwards and travel 0.23 mile (1,230 feet). There is a communications tower just west of the slough on the north side of County Road 17.

***P3a. Description:** The Goodnow Slough canal is a long earthen-walled canal presently in use that measures approx. 18 feet wide and 4 feet 4 inches deep. "Goodnow" is a landholding family name that can be found on plat maps dating from the 1870s (housed in the Yolo County Archives). The construction date for the slough is not clear, but it is found on a map from a 1967 report entitled *A Reconnaissance Study to Investigate the Feasibility of the Hungry Hollow Watershed Project* by the Division of Soil Conservation in the Department of Conservation of the State of California.

***P3b. Resource Attributes:** AH6. Water conveyance systems.

***P4. Resources Present:** ☐Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: Eastern overview of Goodnow Slough; ditch is on the south side of County Road 17 and at this point parallel to CR 17; 03/19/2007; IMG_1368.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Yolo County Flood Control & Water Conservation District
34274 State Highway 16
Woodland, CA 95695

***P8. Recorded by:**
C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:** 03/19/2007

***P10. Survey Type:** Intensive

***P11. Report Citation:**

Descantes, Christophe

2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☒Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (list)

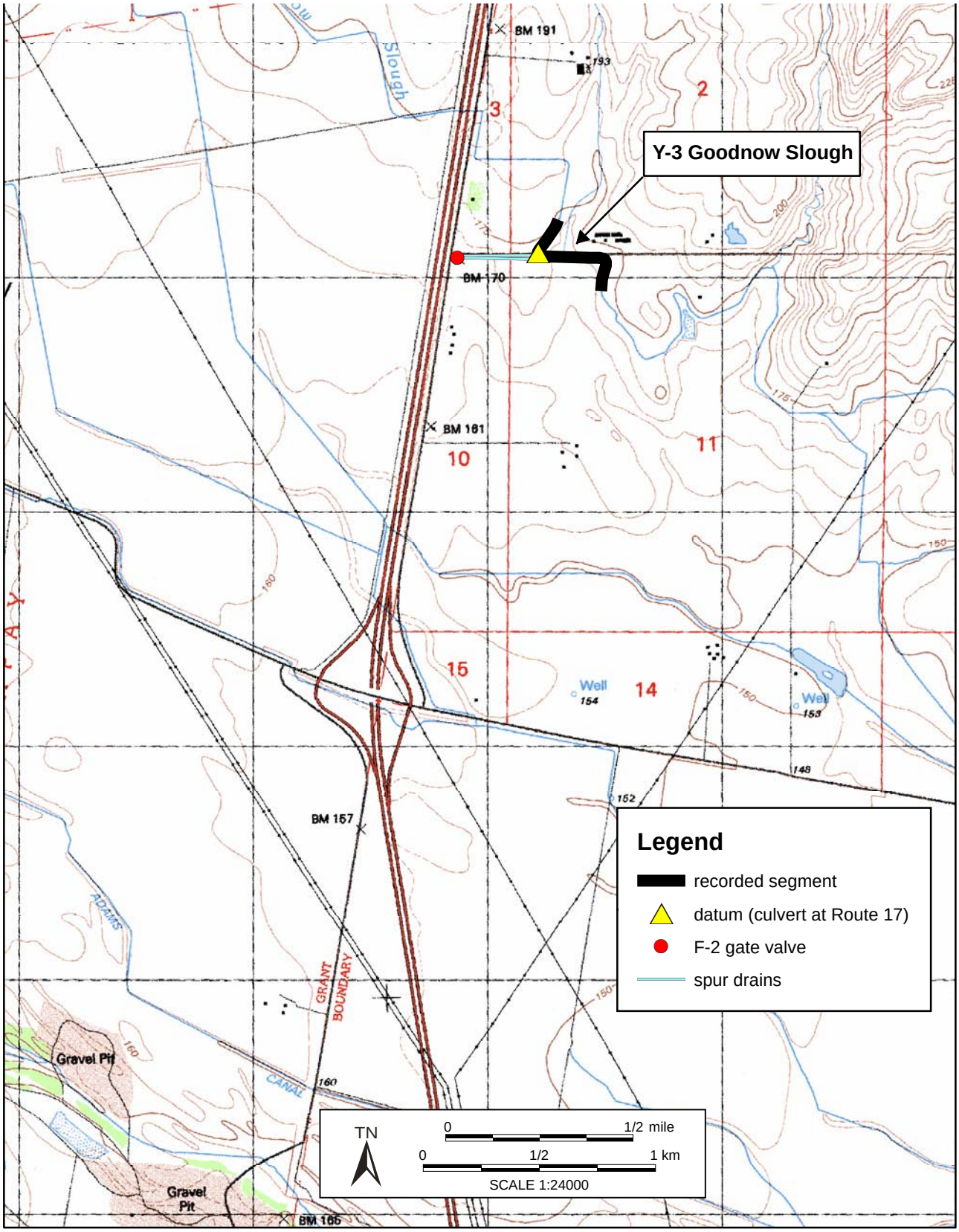
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

 ***Resource Name or #** Y-3 Goodnow Slough

***Map Name:** Madison, Calif. ***Scale:** 1:24000 ***Date of Map:** 1992



 ***Required Information**

State of California ♦ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LINEAR FEATURE RECORD

Primary #
HRI #
Trinomial

 Resource Name or #: (Assigned by recorder) Y-3

L1. Historic and/or Common Name: Goodnow Slough

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:** _____

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.)

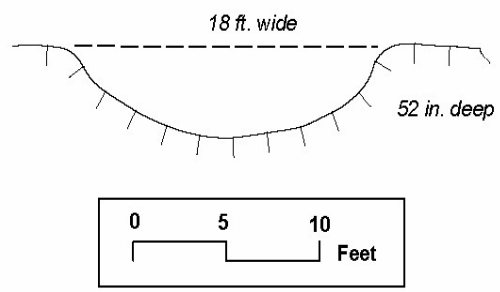
UTM: Zone 10; *NAD 83:* 591217 mE/ 4288102 mN *(Datum: Slough culvert crossing County Road 17).* This segment of the Goodnow Slough crosses County Road 17 through a culvert. To reach this segment of the slough, take Exit 24 of Interstate 505 and travel north along County Road 90A. Upon reaching County Road 17, turn eastwards and travel 1,230 feet to where the slough crosses the road. There is a communications tower just west of the slough on the north side of County Road 17.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This segment of the Goodnow slough is a man-made channel constructed of earthen walls. It connects to two modern canal spurs on the south side of County Road 17. The dimensions of these spurs are variable, but they tend to have earthen walls and evidence of modern trash. The slough appears to begin at Bald Mountain in the Capay Hills as shown in a map from a report entitled *A Reconnaissance Study to Investigate the Feasibility of the Hungry Hollow Watershed Project* by the Division of Soil Conservation in the Department of Conservation of the State of California. At this point, it can only be stated with certainty that the slough was built before 1967, however, the Yolo County Flood Control & Water Conservation District believes this slough was constructed more than 50 years ago.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

- **a. Top Width**_____18 feet
- **b. Bottom Width**_____none (open rounded "U")
- **c. Height or Depth**_____4 feet - 4 inches
- **d. Length of Segment** _____1966 feet

L4e. Sketch of Cross-Section (include scale) Facing: North



L5. Associated Resources:
Two modern ditch spurs along the south side of County Road 17 connecting with the main ditch with two gate valves, and a corrugated metal culvert crossing the road (datum).

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.):
This segment of the Goodnow Slough is situated on level ground in fenced grass pasture lands.

L8a. Photograph, Map or Drawing

L7. Integrity Considerations:
The canal is in excellent condition and is presently in use and actively maintained.

L8b. Description of Photo, Map, or Drawing (View, scale, etc.)
Overview of the Goodnow Slough north of County Road 17, facing north; 03/19/2007; IMG_1367.

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)

C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

L11. Date: 03/19/2007

Southerly overview of Goodnow Slough situated in grazing lands south of County Road 17; 03/19/2007; IMG_1369.

Southwestern overview of two ditch gates opening into two parallel spurs off the Goodnow Slough; 03/20/2007; IMG_1389.

Reference:

Division of Soil Conservation in the Depts. of Conservation of the State of California
1967 A Reconnaissance Study to Investigate the Feasibility of the Hungry Hollow Watershed Project. Sacramento, Calif.

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Y-6

P1. Other Identifier:

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County** Yolo **and**

***b. USGS 7.5' Quad** Madison*, Calif. **Date** 1992 **T** 10N **; R** 1E **;** NW **¼ of** NW **¼ of Sec** 8 **;** Mt. Diablo **B.M.**

c. Address **City** **Zip**

d. UTM: Zone 10; *NAD 83:* 596044 mE/ 4287944 mN *(Center of artifact concentration)*

e. Other Locational Data: Elevation: 155 feet amsl.

The site is situated on the portion of County Road (CR) 17 that is between Interstate 5 and 505. It is also approximately 0.3 miles west of the easternmost gate on CR 17 (or 32840 CR 17). The site is located approximately 400 feet south CR 17. The remnants of a nearby settlement site consisting of a row of 4 trees, a trough, a well, and a windmill are located 160 feet to the west, and may at one time have been associated with the site. Today the two locations are separated by a wire fence[section line], *(see Continuation Sheet, page 5)*.

***P3a. Description:** This historic resource consists of historic refuse deposit. It is located in a presently dry shallow gulch. Artifacts are eroding out of the sidewalls of the gulch, from top to bottom. Most of the artifacts appear to be household and agricultural items, and include bottle glass, ceramic, concrete rubble, window pane, and iron sheet metal. The gulch profile, which ranges in depth from 1 to 6 feet, has a soil interface approximately 2 feet below the ground surface that has sub-angular to sub-rounded chert cobbles; the topsoil is dark brown, whereas the subsoil is lighter in color. The gulch appears to be a seasonal low energy water course, which flows from north to south.

***P3b. Resource Attributes:** AH4. Privies/dumps/trash scatters.

***P4. Resources Present:** ☐Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: Southern overview of gulch with historic trash; 03/20/2007; IMG_1397

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Thomas Horgan
10 Abbey Court
Woodland, CA 95697

***P8. Recorded by:**
C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:** 03/20/2007

***P10. Survey Type:** Intensive

***P11. Report Citation:**

Descantes, Christophe
2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☒Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☒Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☒Artifact Record ☐Photograph Record ☐ Other (list)

ARCHAEOLOGICAL SITE RECORD

***A1. Dimensions: a. Length:** 80 m. (N/S) × **b. Width:** 20 m. (E/W)
Method of Measurement: ☐ Paced ☐ Taped ☐ Visual estimate ☒ Other: GPS data collected with a Trimble Geo XT.
Method of Determination (Check any that apply.): ☒ Artifacts ☐ Features ☐ Soil ☐ Vegetation ☐ Topography
☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (Explain):

Reliability of Determination: ☐ High ☒ Medium ☐ Low Explain:

Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined
☒Disturbances ☒ Vegetation ☐ Other (Explain): Some artifacts were displaced downstream. More artifacts may exist above the gulch under the grass cover.

A2. Depth: ☐ None ☒ Unknown Method of Determination:
***A3. Human Remains:** ☐ Present ☒Absent ☐ Possible ☐ Unknown (Explain):

***A4. Features** (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.):
None observed.

***A5. Cultural Constituents (**Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.):
The site is located within a shallow, intermittent drainage, between 1 and 6 feet deep. The artifacts tend to be sparsely distributed in the gulch, with one artifact concentration in the center of the site. Most of the artifacts appear to be household and agricultural items, and include bottle glass, ceramic, concrete rubble, window pane, and iron sheet metal *(see Artifact Record, page 7).*

***A6. Were Specimens Collected?** ☒ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

***A7. Site Condition:** ☐ Good ☒ Fair ☐ Poor (Describe disturbances.): The artifacts are eroding out of the side walls of the gulch and downstream.

***A8. Nearest Water** (Type, distance, and direction.)**:** Well and windmill located 160 feet to the west.

***A9. Elevation:** 155 feet amsl

A10. Environmental Setting (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.)**:** The site is situated in hilly grassland pastures. The ground surface has evidence of sub-rounded chert nodules. The ground surface gently slopes down from north to south.

A11. Historical Information: None available, except a little oral history from Ms. Horgan at 32840 County Road 17. Her father-in-law bought the area that includes the historical dump and the nearby windmill in the 1920s or 30s. The area used to be called Burn's field before Mr. Horgan purchased the property. The windmill-powered water pump is for sheep and cattle.

***A12. Age:** ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐ 1880-1914 ☒ 1914-1945
☒ Post 1945 ☒ Undetermined Describe position in regional prehistoric chronology or factual historic dates if known:

A13. Interpretations (Discuss data potential, function[s], ethnic affiliation, and other interpretations): This resource consists of a household and agricultural refuse deposit potentially associated with a former residence nearby. Some artifacts are now eroding down the seasonal stream. The artifacts are very few in number and sparse.

A14. Remarks: No research was conducted of determine the association of this site with any particular person or residence .

A15. References (Documents, informants, maps, and other references): None

A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record.):
Original Media/Negatives Kept at: Garcia and Associates, 1512 Franklin St., #100, Oakland, CA 94612

***A17. Form Prepared by:** C. Descantes and B. Texier **Date:** 03/20/2007
Affiliation and Address: Garcia and Associates, 1512 Franklin St., #100, Oakland, CA 94612

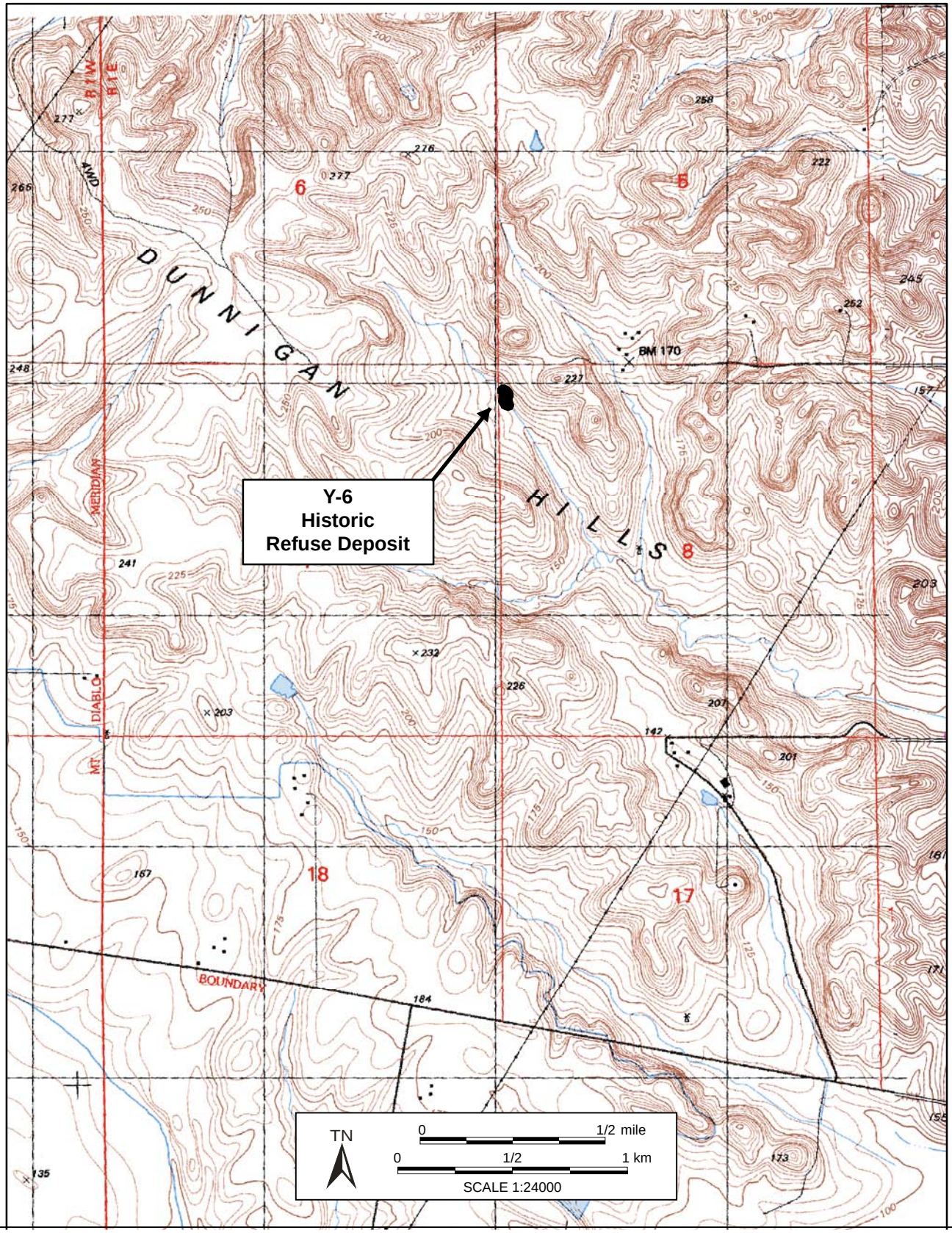
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 3 **of** 7 ***Resource Name or #** Y-6 Historic Refuse Deposit

***Map Name:** Madison, Calif. ***Scale:** 1:24000 ***Date of Map:** 1992



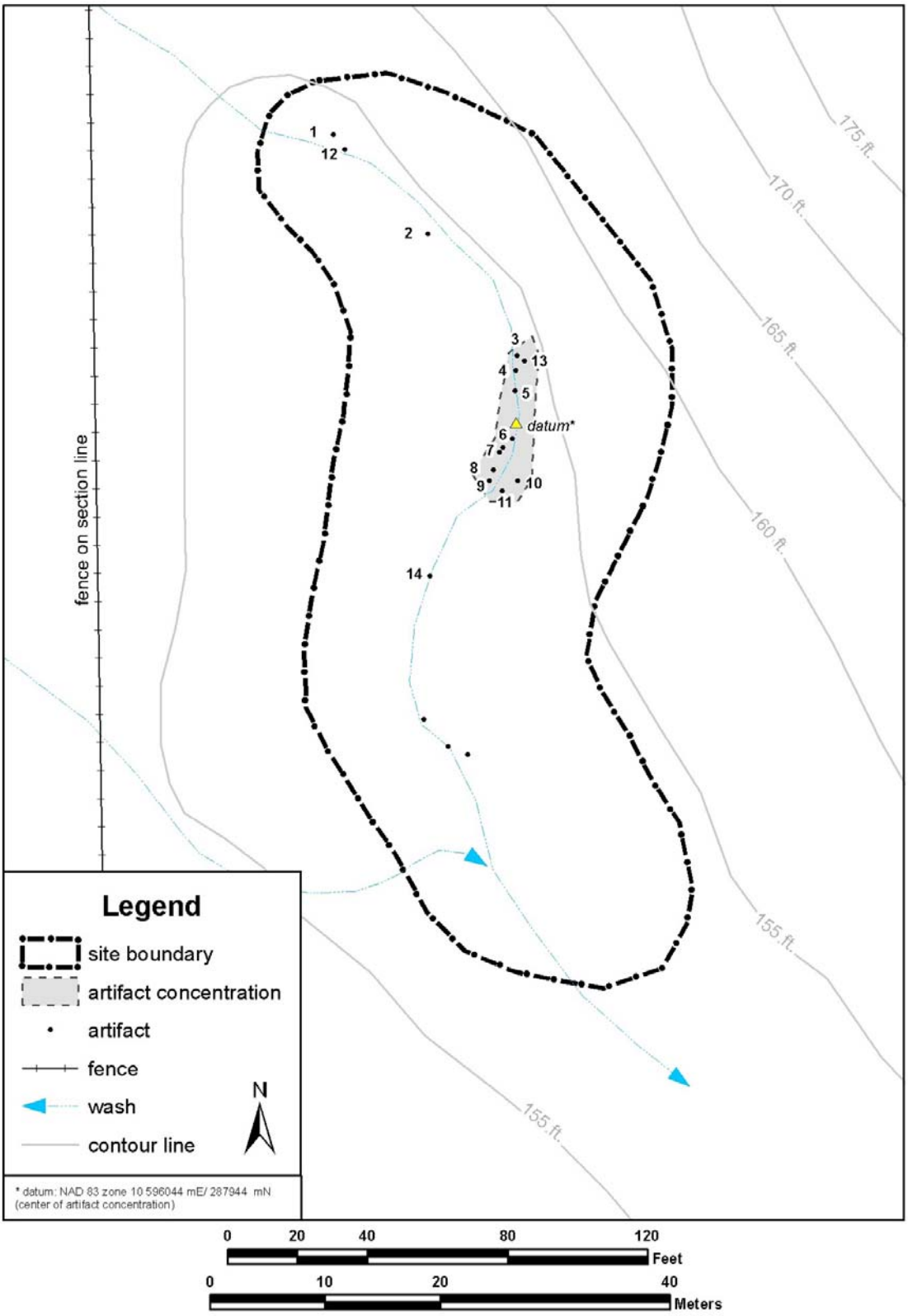
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

SKETCH MAP

Primary #
HRI#
Trinomial

Page 4 **of** 7 **Resource Name or #:** Y-6

***Drawn By:** B. Texier ***Date:** 03/21/2007



Southwesterly overview of water well with windmill, row of four trees, trough, and water tank, located 160 feet west of the Y-6 historic trash dump; 03/20/2007; IMG_1393.

Artifact 14: Thin ferrous sheet metal plate with regularly spaced perforations for fastening; 03/20/2007; IMG_1405.

Artifact 4: Whiteware fragment with floral transfer polychrome and gilding from a serving dish, on gulch floor at Site Y-6; 03/20/2007; IMG_1402.

Artifact 17 and 4: Ferrous barrel hoop, glass jug fragments and concrete, exposed in cut bank at Site Y-6; 03/20/2007; IMG_1404.

State of California ♞ The Resources Agency
Department of Parks and Recreation

Primary#
Trinomial

ARTIFACT RECORD

Page 7 **of** 7 **Resource Name or #** (Assigned by recorder) Y-6
Location Where Collected Specimens are Curated: N/A

Artifact #	Type	Condition	Description *(form, material, etc.)*	Dimensions (cm) LxWxTH	Locational Data *(UTMs NAD 83 Zone 10 MDM)*	Sketch/ Photo	Collected ?
1	Fe	F	Sheet metal half in ground	14”x?x.17”	596029 mE / 4287970 mN	No	No
2	G	F	Colorless bottle glass	2”x1”x.13”	596037 mE / 4287962 mN	No	No
3	Fe	F	Circular sheet metal	14”x1”x.4”	596045 mE / 4287951 mN	Yes	No
4	C	F	Whiteware oval serving dish with gold guilding/transfer print	6”x3.5”x.25”	596044 mE / 4287950 mN	Yes	No
5	G	F	Duraglas bottle bottom, concrete	2.4” dia	596044 mE / 4287948 mN	Yes	No
6	G	F	Colorless bottle glass	2.5”=base 1.25”=height .19”=thick	596044 mE / 4287944 mN	No	No
7	Fe	F	Barrel hoop	1’x1.25”x.13”	596043 mE / 4287943 mN	Yes	No
8	G	F	Colorless flat glass	2.25”x1.75”x.44”	596044 mE / 4287941 mN	No	No
9	G	F	Cobalt blue glass container	.13”x.4”x.19”	596042 mE / 4287940 mN	No	No
10	Fe	F	Two sheet metal straps	11.5”x1.13”x.13”	596045 mE / 4287940 mN	No	No
11	Fe	F	Sheet metal strip	8”=base, 4”=height, .06”=thick	596043 mE / 4287940 mN	No	No
12	Fe	F	Triangular metal sheet	19”x9.5”xthin	596030 mE / 4287969 mN	Yes	No
13	Fe	F	Amorphous metal, concrete	8”x4”xthin	596045 mE / 4287951 mN	No	No
14	Fe	F	Rectangular sheet metal	33”x1.13”x.06”	596037 mE / 4287932 mN	Yes	No
15	C	F	Terra cotta	3.5”x3”x.3”	596045 mE / 4287951 mN	No	No
16	Co	F	chunk	16”x8”x”	596045 mE / 4287951 mN	No	No
17	G	F	Colorless liquor bottle	4.75”X3.63”x2.25”	596043 mE / 4287943 mN	No	No
18	Fe	F	Sheet metal	7.06”x1.13”x.06”	596042 mE / 4287940 mN	No	No
19	Fe	F	Sheet metal strip	7.25”x.13”x.13”	596045 mE / 4287940 mN	No	No

Type Key: (list abbreviations used)

C=Ceramic	**Fe=Ferrous**
Co=Concrete	**G=Glass**
dia=diameter	

Condition Key:

F	Fragmentary
C	Complete
Other:	

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Y-7

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Yolo

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Madison **Date:** 1992 **T** 10N ; **R**1E; SE ¼ **of** SW ¼ **of Sec** 5**;** M.D.M **B.M.**

c. Address: 32840 County Road 17 **City:** Woodland **Zip:** 95695

d. UTM: NAD 83 **Zone:** 10 ; 596534 **mE/** 4288128 **mN** (G.P.S.) *(southeast corner of metal barn/granary)*

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 175 feet amsl

This property is located at the easternmost gate across County Road 17 between Interstates 5 and 505. There is a 1904 USGS datum (169 feet) on the side of the road in front of the property.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Historically, as well as today, agriculture has been Yolo County's primary industry and this barn and associated farm reflects small rural dry-grain crop operations throughout the region. The historic property has four farm buildings, including a granary (Building No. 1), two barns (Building Nos. 2 & 3), and a residence (Building No. 4), that are more than 50 years old. The property is presently occupied, and also features several modern buildings including residences, horse stables, and storage sheds. Movable stock, such as farming equipment and vintage motorized vehicles were also noted on the property. According to a personal communication with Carol Knight, the main residence at 32840 County Road 17 was built in the 1920s. In 2006, the exterior walls were re-sided and it received a new roof. (See continuation sheets for historic farm building descriptions)

***P3b. Resource Attributes:** (List attributes and codes) HP33. Farm/ranch

***P4. Resources Present:** ☒Building ☒Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #)
Overview of farm buildings, facing east; 12/05/2006/ ; 1.jpg

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Harold Horgan
32840 County Road 17, Woodland, CA 95695

***P8. Recorded by:** (Name, affiliation, and address)
C. Descantes, B.Texier, and C. Denardo
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:** 03/20/2007

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
Descantes, Christophe
2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☒Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

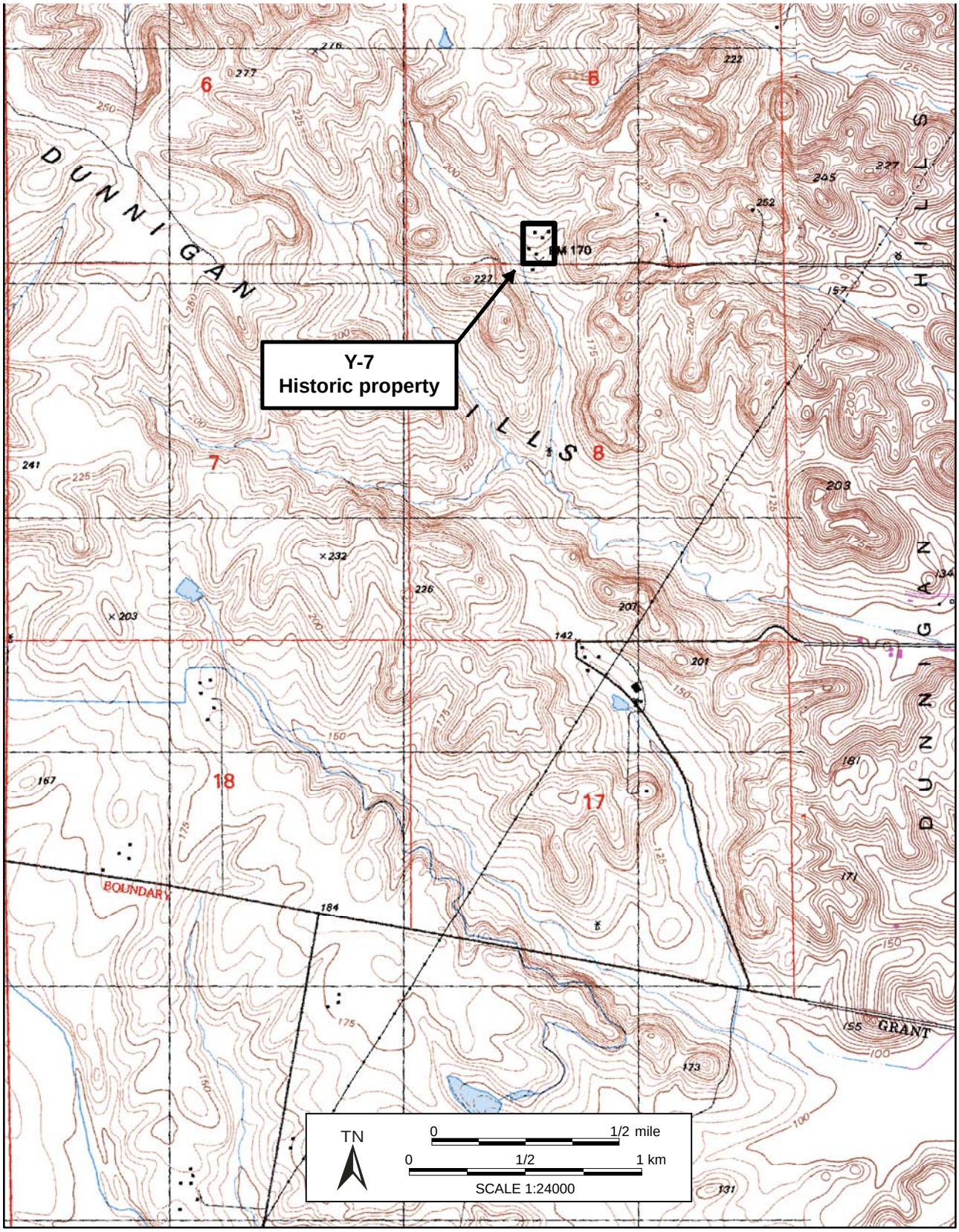
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 2 **of** 6 ***Resource Name or #** Y-7

***Map Name:** Madison, Calif. ***Scale:** 1:24000 ***Date of Map:** 1992



***Recorded by:** C. Descantes, B. Texier, and C. Denardo ***Date:** 03/21/2007 ☒ Continuation ☐ Update

Farm Building No. 1 is a tall, narrow two-story building built in the 1940s as a granary, but now used for storage. It is at the southwestern portion of the property and measures 50 feet long x 25 feet wide x 25 feet high. The building is timber-framed and the exterior walls are clad with vertical galvanized metal panels. The eastern quarter of the building has a concrete slab foundation; the remainder of the building features a dirt floor with a concrete footing along the perimeter. The building is side-gabled with a steeply pitched roof sheathed with corrugated iron panels, and there is a cupola along the roof ridgeline. The gabled roof cupola mimics the tall narrow form of the granary building; it is entirely clad with vertical galvanized metal panels. It is probable that the cupola once featured louvers for ventilation.

Fenestration on the north façade includes two evenly spaced windows below the roofline. One of the windows has a hinged sheet metal door and the other displays a single fixed pane. There is a large door opening at the east end of the façade and a more recently installed human door to the west of it. Similar to the façade, the south elevation features two windows at the roofline; one is broken but once had six-panes, while the other has been replaced with a single pane. A large sliding door clad with galvanized metal panels is at the east end of the south elevation. Fenestration on the east elevation includes a window at each end, below the gable. The one on the south end has a single pane, whereas the glass is missing from the window at the north end. A square hole pierces the center of the elevation, and above it are two evenly spaced pipes which extend downward. Centered below the gable at the west elevation is an open human doorway that leads onto a redwood balcony with wood rails and supports.

Granaries were commonly constructed with an upper grain storeroom and storage space below. The building was constructed with few windows to minimize invasions from rodents and other pests. However, the cupola was probably once vented using louvers to prevent spontaneous combustion, although it is also possible that there had been a door in the cupola to allow grain to be delivered into the building by an elevated conveyor. It is likely that the two pipes extending down on the east elevation were used for easy access to the grain for feeding livestock. Structurally, the former granary is in good condition; however, there have been modifications made to some of the windows, the cupola has been modified, and the balcony is a recent addition.

Southeastern overview of northern façade and western elevation of Building No.1, the granary at Y-7; 03/21/2007; IMG_1467.

Farm Building #2 is northwest of Farm Building No. 1 and measures approximately 81 feet long x 56 feet wide, excluding the shed-roof projection on the north elevation. The barn was built in 1881 and appears to be the oldest building on the property. It exhibits two-stories and a wide expanse roofline. The moderate pitched front-gabled roof is sheathed with corrugated iron panels. The barn has a concrete foundation with a dirt floor, although concrete slabs cover sections of the floor. The timber-framed barn is sided with vertical wood planks on all, but the west elevation, and displays both cut nails and round-headed nails. Corrugated metal siding covers the west elevation. The east façade of the building features a large sliding wood-plank door in the center with an overhead track equipped with pulleys. New wood panels (or T-1-11 plywood) replace wood planks at either side of the door. The west elevation displays a smaller corrugated metal sliding door with an overhead track and pulleys on the west end. There is evidence that there was once a large door at the center of the elevation, similar to the one on the façade, but the door was later replaced by corrugated metal siding. The north elevation features a shed-roof extended roofline that is supported by wood posts. The extension is open–sided and miscellaneous equipment is stored under it. The only windows on the barn are on the south elevation. There are four aluminum-framed 1:1 pane windows spaced across the side of the building. The recently repaired barn is presently used for storing farming equipment, although it is likely that it was once used for livestock and/or hay storage. The replacement of wood plank cladding with corrugated metal panels and the addition of aluminium sliders on the south elevation have affected the integrity of the building.

Overview of east façade and north elevation of hay/horse barn at Y-7, facing southwest; 03/21/2007; IMG_1473.

References:

Halsted, Byron D. (editor). *Barns, Sheds, and Outbuildings: Placement, Design, and Construction.* Chambersberg, Pennsylvania: Alan C. Hood & Company, 1994.

Noble, Allen G., and Richard K. Cleek. *The Old Barn Book: A Field Guide to North American Barns & Other Farm Structures*. New Brunswick, New Jersey: Rutgers University Press, 1995.

Farm Building No. 3 is east of Farm Building No. 2 and measures approximately 50 feet long x 32 feet wide. According to the owner, the barn was constructed in the 1940s. The barn is two-stories with a wide expanse roofline and moderate pitched front-gabled roof. It has timber-framing and the roof and exterior walls are clad with corrugated metal panels. The barn has a concrete foundation with a dirt floor. The west façade of the building features a swinging corrugated panel door on the north end, although fenestration is absent. The barn presently houses horses and/or other livestock. A fence abutting the building is used as a horse pen.

Farm Building Nos. 4 and 5 comprise two renovated residences that were first constructed more than 50 years ago. It was only after the fieldwork that it was learned from the owner that these buildings were of historic age. Consequently, no descriptive details or photographs were taken. Building No. 5 is actually on the other side (southern side) of County Road 17.

Overview of west façade and north elevation of the horse barn (Farm Building No. 3) at Y-7, facing southeast, 03/21/2007.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

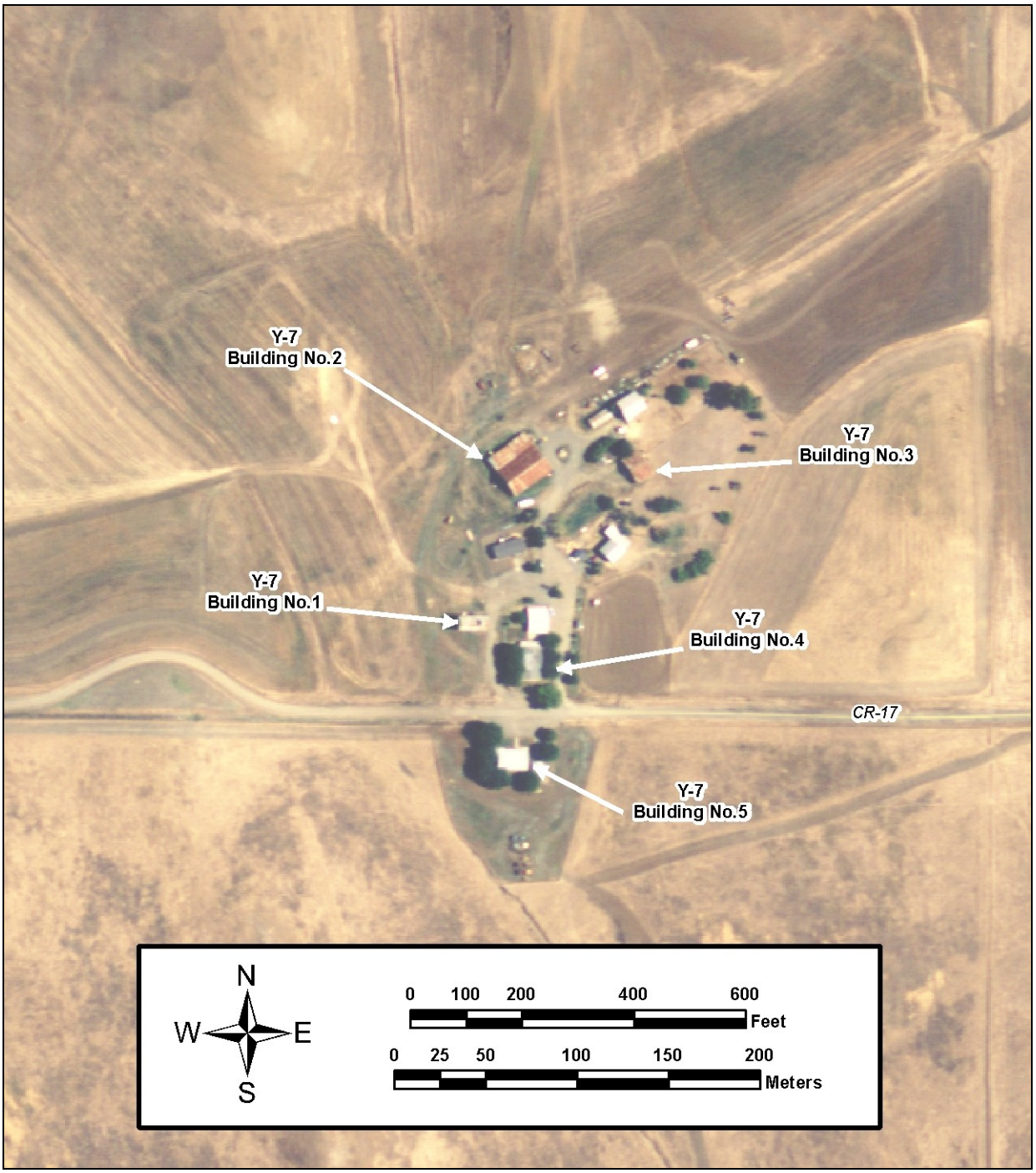
SKETCH MAP

Primary #
HRI#
Trinomial _____

***Resource Name or #** (Assigned by recorder) Y-7

***Recorded by:** C. Descantes, B. Texier, C. Denardo

***Date:** 03/21/2007 ☒ Continuation ☐ Update



*Required information

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Y-9

P1. Other Identifier: Hungry Hollow Canal

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County** Yolo **and**

***b. USGS 7.5' Quad** Esparto, Calif. **Date** 1993 **T** ; **R** ; Unsectioned portion of Rancho Cañada de Capay, M.D.M.

c. Address **City** **Zip**

d. UTM: NAD 83 **Zone** 10; 582814 **mE/** 4287460 **mN** *(center of eastern bridge abutment, Y-9a)*

e. Other Locational Data:

This segment of the canal is in the Cañada de Capay landgrant. The bridge can be accessed by following a dirt access road off of County Highway 85.

***P3a. Description:** This linear historic resource consists of the Hungy Hollow Canal. The canal was likely built before 1914, as revealed by the Hungry Hollow Bridge, a structure that was constructed in 1914. The bridge was formerly owned by the Clear Lake Water Company. An archival search at the Yolo County Library Archives uncovered a blueprint dated January 8 1945 for the construction of a culvert crossing for County Road 86 by the Clear Lake Water Company. The canal is a long earthen-walled ditch presently in use that measures approximately 25 feet wide and 9 feet deep. The irrigation water in this canal originates from Cache Creek and passes through the Capay Dam and the West Adams Canal before spurring to the Hungry Hollow Canal. One feature, the remnants of a concrete bridge foundation (Y-9a), was recorded in 2007 *(see Contination Sheet, page 4)*.

***P3b. Resource Attributes:** AH2. Foundations/structure pads. AH6. Water conveyance systems.

***P4. Resources Present:** ☐Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: Southwestern overview of Hungry Hollow Canal from bridge abutment; 03/21/2007; IMG_1364

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Yolo County Flood Control & Water Conservation Distric
34274 State Highway 16
Woodland, CA 95695

***P8. Recorded by:**
C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:**
03/19/2007

***P10. Survey Type:** Intensive

***P11. Report Citation:**

Descantes, Christophe

2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☒Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (list)

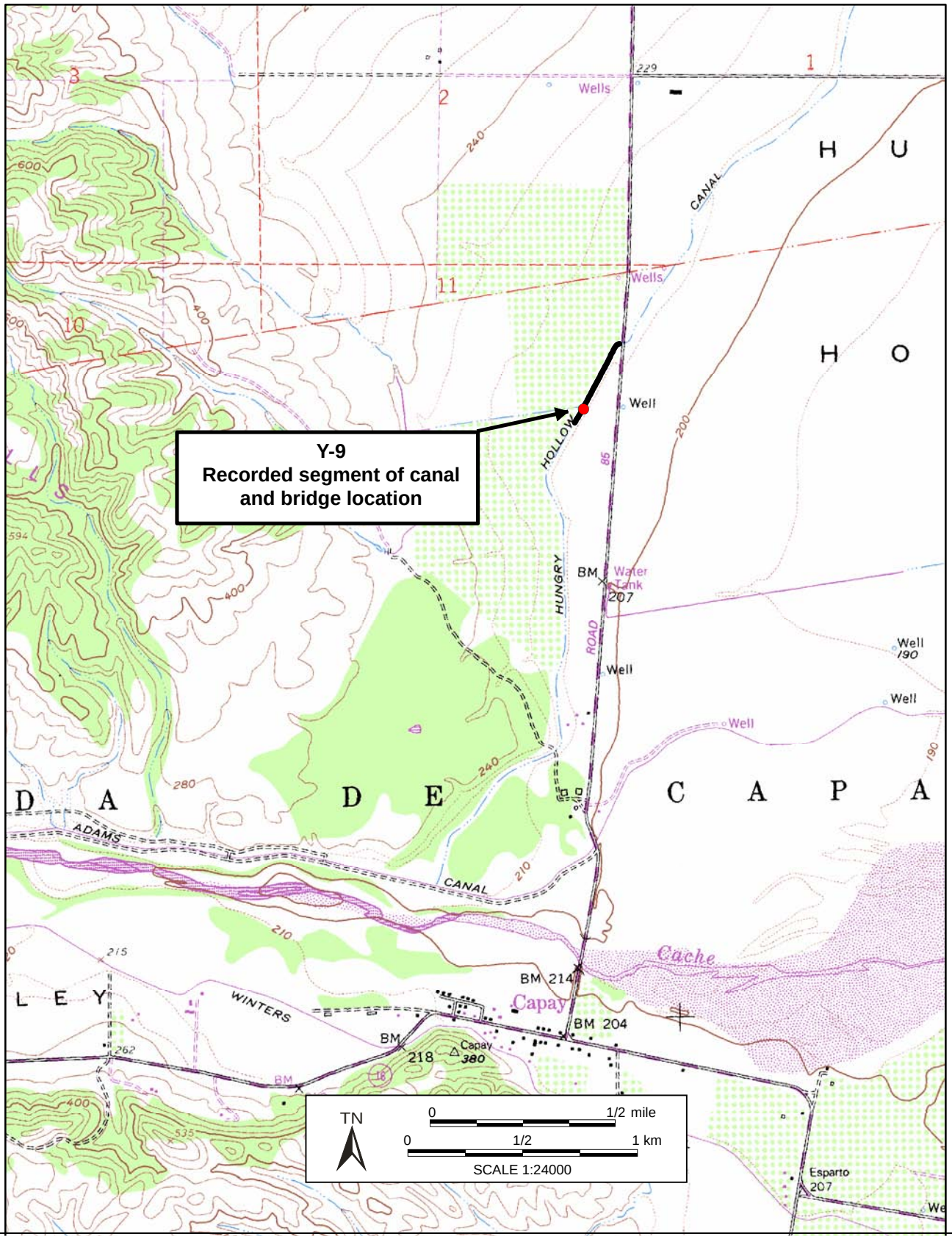
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

 ***Resource Name or #** Y-9 Hungry Hollow Canal

***Map Name:** Esparto, Calif. ***Scale:** 1:24000 ***Date of Map:** 1993



 ***Required Information**

L1. Historic and/or Common Name: Hungry Hollow Canal

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:**

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)

The segment location is located at UTMs 582814 mE/4287460 mN (NAD 83, Zone 10). The canal segment passes through the middle of an orchard.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

The Hungry Hollow Canal was only recorded for 1300 feet. It is a long earthen-walled canal presently in use that measures approximately 25 feet wide and 9 feet deep. The irrigation water in this canal originates from Cache Creek and passes through the Capay Dam and the West Adams Canal before spurring to the Hungry Hollow Canal.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

a. Top Width: 25 feet
b. Bottom Width: unobtainable
c. Height or Depth: 5 feet 10 inches
d. Length of Segment: 1300 feet recorded

L5. Associated Resources:

Y9a, concrete bridge abutments *(see Continuation sheet, page 4).*

L4e. Sketch of Cross-Section (include scale) **Facing:**

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

This segment of the Hungry Hollow canal is on a relatively level ground surface passing through the middle of an orchard on the west side of County Highway 85.

L7. Integrity Considerations: The canal is in good condition, in use, and actively maintained.

L8a. Photograph, Map or Drawing

L8b. Description of Photo, Map, or Drawing (View, scale, etc.)

Northeastern overview of Hungry Hollow Canal; 03/19/2007; IMG_1365

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)

C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

L11. Date: 03/19/2007

P3a. Description: *(continued from page 1)*

Feature Y-9a: This feature consists of the remnants of a bridge that once crossed the Hungry Hollow Canal. Its concrete foundations are situated on either side of the earthen canal. Only the stepped (likely for the beams of the bridge) foundations of the bridge are in existence. The date of manufacture for this bridge is unknown, but it is likely from the historic era. The bridge once connected to dirt access roads on either side of the canal. The bridge would have spanned approx. 25 feet. The height of the foundations or abutments from the canal ground level is approx. 5 feet 10 inches. The eastern bridge abutment measures approx. 20.5 feet long, 34 inches thick at the present water level, and 14 inches thick above the water level. The ledge for the beams is approx. 18 inches wide. The bridge is in poor condition; rusted metal rebar is exposed in broken portions of the foundations.

Southeastern overview of the eastern bridge abutment of Feature Y-9a; 02/23/2007; IMG_003

Northwestern overview of Feature Y-9a; 03/19/2007; IMG_1363.

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Y-20

P1. Other Identifier: Pheasant farm

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County** Yolo **and**
***b. USGS 7.5' Quad** Madison, Calif. **Date** 1992 **T** 10N **; R** 1W **;** SW **¼ of** SW **¼ of Sec** 2**;** Mt. Diablo **B.M.**
c. Address 30220 County Road 17. **City** Woodland **Zip** 95695
d. UTM: Zone 10; *NAD 83:* 591472 **mE/** 4288130 **mN** *(southwest corner of Building No.1)*
e. Other Locational Data: This property is located on the north side of County Road 17, which corresponds to the section line between Sections 2 and 11.

***P3a. Description:** Two historic buildings are present on the property presently used as a pheasant farm, including a residence (Building No. 1) and a barn (Building No. 2). Several other buildings on the farm property are less than 50 years of age, including bunk houses, storage areas, bird cages, and other outbuildings. The historic residence is surrounded by a perimeter of mature trees approximately seven feet from the house. A prickly cactus hedge at the north side of County Road (CR) 17, is a historic cultural landscape feature on the property. (see Continuation sheet 7 for more descriptive details of Buildings No. 1 and No. 2.)

***P3b. Resource Attributes:** HP33. Farm/ranch; HP2. Single family property

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: Overview of the north and west elevations of Building No.1; 03/19/2007; IMG_1381

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Mr. L. C. Smith
30530 County Road 17
Woodland, CA 95695

***P8. Recorded by:**
C. Descantes, B.Texier, and C. Denardo
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:** 03/19/2007 ***P10. Survey Type:** Reconnaissance

***P11. Report Citation:**
Descantes, Christophe
2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (list)

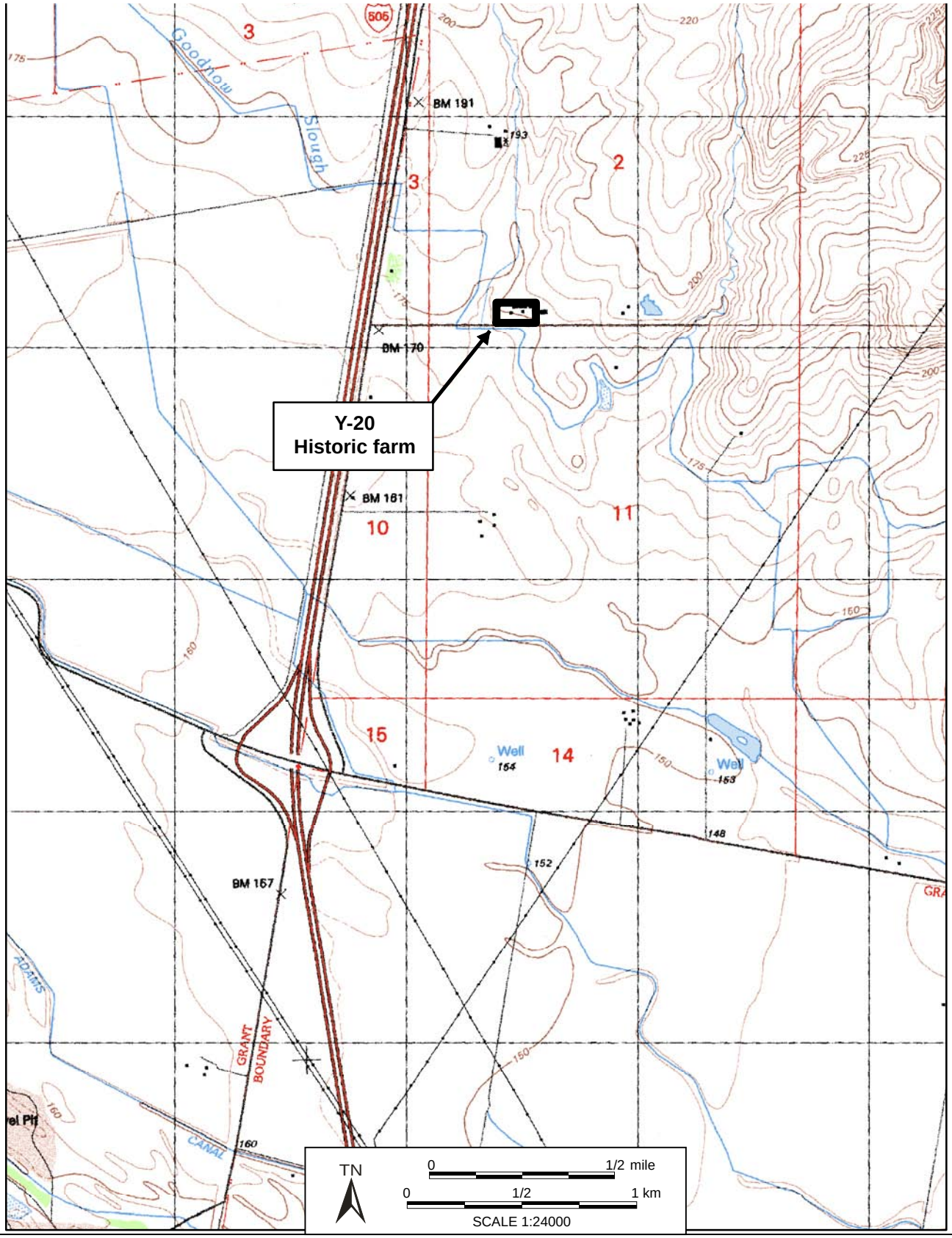
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

 *Resource Name or # Y-20 Historic Farm

*Map Name: Madison, Calif. *Scale: 1:24000 *Date of Map: 1992



 *Required Information

Building No. 1 is approximately 84 feet from the north edge of CR 17, and measures approximately 39 feet long x 36.5 feet wide. The main block of the building is one-and-one-half stories high and has a pier-and-post foundation. The roof is sheathed with composition roofing and the exterior walls are clad with horizontal clapboard siding, wrapped in several places with tar paper. A tall metal stovepipe extends from the slope of the roof of the one-story addition at the north side of the main block. The current entrance is at the east end of the addition. It features a six-paneled door flanked by a pair of 9-paned windows on the south side and two wood-framed single paned fixed windows on the north side. The east facing, gable end of the main block depicts an aluminum slider at each end. (See continuation sheet for more description of this building)

The north elevation of Building No. 1 features a ribbon of three aluminum sliders at the east end, a larger wood-framed double-hung window in the center, and three additional odd sized windows at the west end. A small shed-roofed addition extends north from the west end of the length-wide addition; it features a door at the east end and a single screened window at the center of the west elevation. A small shed-roofed addition, about the size of a closet, is centered under the gable of the west elevation. Two aluminum sliders are on each side of the small addition and a third, smaller aluminum slider is on the one-story addition at the north end. It appears that the original façade is on the south side, although the wooden six-panel door does not appear to be used for entry. Two aluminum slider windows, similar in size to those on the east elevation are at each side of the door; a large air conditioning unit is seated on a wood-frame and attached to the window at the east end. The main block of the building has the appearance of a mail order house of balloon-frame construction popular in the late nineteenth to early twentieth century. However, the building has been modified through a rambling progression of later additions and shed attachments. (See continuation sheet for barn description)

Northwest of the farm residence is a large historic barn (Building No. 2) measuring 72 feet long x 38.5 feet wide. Numerous bunk houses and storage buildings are nearby the barn. It is front-gabled and the roof is sheathed with corrugated iron panels; it exhibits flared ends. The barn lacks a foundation and there is evidence of termite damage. The walls are clad with vertical wood planks, generally about 9 inches wide. The age of the historic building has not been determined, but during the inventory, it was noted that only round-headed nails were used during construction of this building.

The east façade features a large sliding door, with an overhead track and pulleys, centered under the gable. There is some evidence that the door opening was once much taller, but it was later reduced in size. Another large doorway is at the south end of the façade and there are no windows on this side of the building.

The only fenestration on the south elevation is a rectangular cut-out on the lower portion of the wall which appears at the west end. The fascia is loose along the east end of the roofline and the west end of the elevation is unstable. It appears to be buckling from items piled against the wall inside the building.

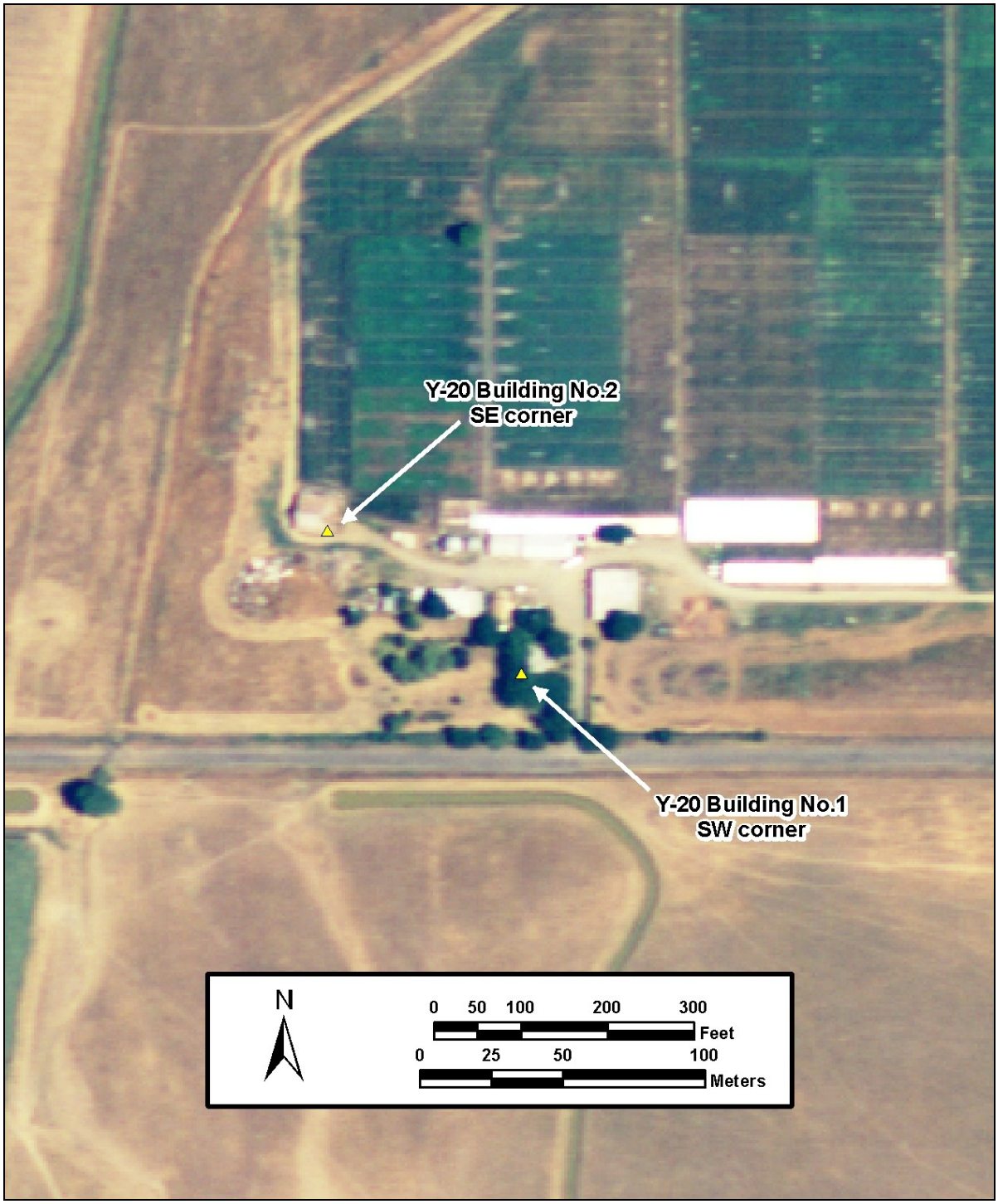
The barn is presently being used for storing hay and agricultural equipment; however, it abuts a large pheasant cage. As a result, there are poultry feeders are piled high and strewn about next to the building's north and west elevations. The south end of the west elevation features two doorways at the south end that are now unstable. Two more adjacent doorways are present on the north end. Centered under the gable is a large linear piece of sheet metal used to repair the wall. Throughout the building additional maintenance repairs have been made with metal sheets and plywood. It is in fair to poor condition.

References:

Halsted, Byron D. (editor). *Barns, Sheds, and Outbuildings: Placement, Design, and Construction*. Chambersberg, Pennsylvania: Alan C. Hood & Company, 1994.

Noble, Allen G., and Richard K. Cleek. *The Old Barn Book: A Field Guide to North American Barns & Other Farm Structures*. New Brunswick, New Jersey: Rutgers University Press, 1995.

*Recorded by C. Descantes, B.Texier, and C. Denardo *Date 03/19/2007 ☒ Continuation ☐ Update



Building No.2: Northwestern overview of east façade and south elevation of the barn at Y-20; 03/19/2007; IMG_1384.

Building No.2: Southeastern overview of the north and west elevations of the barn at Y-20; 03/19/2007; IMG_1388.

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Y-21

P1. Other Identifier: Southern Pacific Railway track

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Yolo

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Woodland **Date:** 1981 **T** 10N; **R** 1E; NE ¼ **of** SE ¼ **of Sec** 2; M.D.M. **B.M.**

c. Address: **City:** **Zip:**

d. UTM: NAD Zone: 10 ; 602300 **mE/** 4288896 **mN**

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) **Elevation:** 72 feet amsl

The railway segment is situated a few hundred feet east of Interstate 5. It can be reached by taking the Yolo 542 Exit off I-5 and traveling northwards along County Road 99W.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This resource consists of the historic alignment of the Northern Railway Company. The recorded segment is now the Southern Pacific Railroad and actively in use. This segment parallels Interstate 5, and is oriented in a northwest-southeast direction. The tracks sit on a raised bed of ballast made of sub-angular basalt rocks, approximately 2.5 feet high. The raised bed extends 9 feet on either side of the tracks. The railway tracks are separated by 62 inches. According to Larkey and Walters (1987:47), the railroad construction was started in 1875. It was completed sometime before 1879, as depicted in the Yolo County Atlas (Yolo County 1879).

***P3b. Resource Attributes:** AH7. Roads/trails/railroad grades.

***P4. Resources Present:** ☐Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #)
Overview of the Southern Pacific Railroad tracks, facing southwest; 03/21/2007; Camera Pictures 001.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Southern Pacific Railroad
Headquarters: San Francisco

***P8. Recorded by:** (Name, affiliation, and address)
C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:** 03/21/2007

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

Descantes, Christophe
2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☒Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

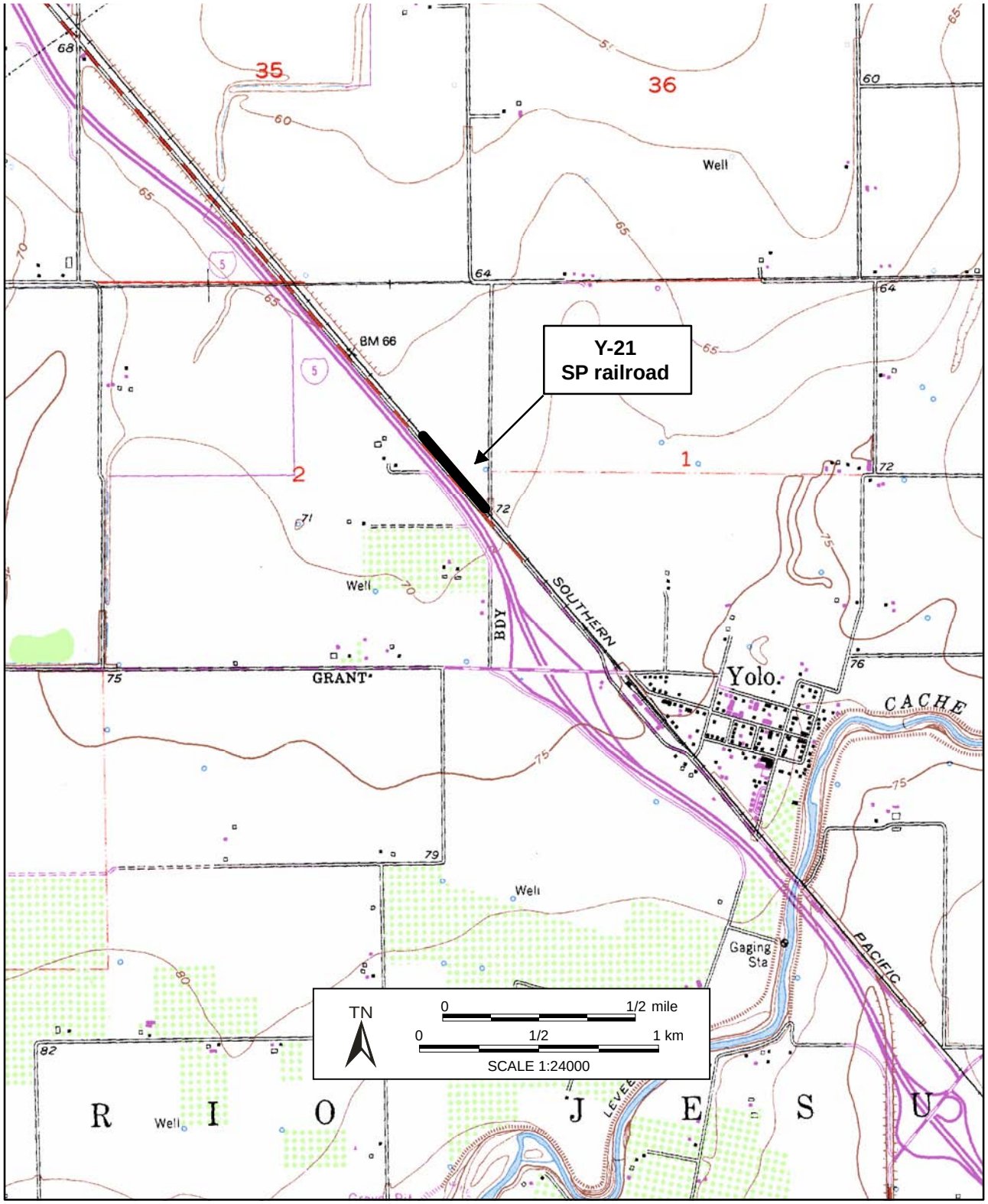
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #** Y-21 Souther Pacific Railroad

***Map Name:** Woodland, Calif. ***Scale:** 1:24000 ***Date of Map:** 1981



*Required Information

State of California ♦ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LINEAR FEATURE RECORD

Primary #
HRI #
Trinomial

 Resource Name or #: (Assigned by recorder) Y-21

L1. Historic and/or Common Name: Southern Pacific Railroad

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:** _____

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.)

The recorded railway segment is situated a few hundred feet east of Interstate 5. It can be reached by taking the Yolo 542 Exit off I-5 and traveling northwards along County Road 99W. The PG&E pipeline route crosses the rail at 602300m E / 4288896m N (UTMs NAD 83 Zone 10).

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

The recorded segment is actively in use. This segment parallels Interstate 5, and is oriented in a northwest-southeast direction. The tracks sit on a raised bed of ballast made of sub-angular basalt rocks, approximately 2.5 feet high. The raised bed extends 9 feet on either side of the tracks. The railway tracks are separated by 62 inches. The rail ties are made of wood.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

- **a. Top Width** _____ 62 inches
- **b. Bottom Width** _____ 23 feet
- **c. Height or Depth** _____ 2.5 feet
- **d. Length of Segment** _____ 1320 feet

L4e. Sketch of Cross-Section (include scale) Facing:

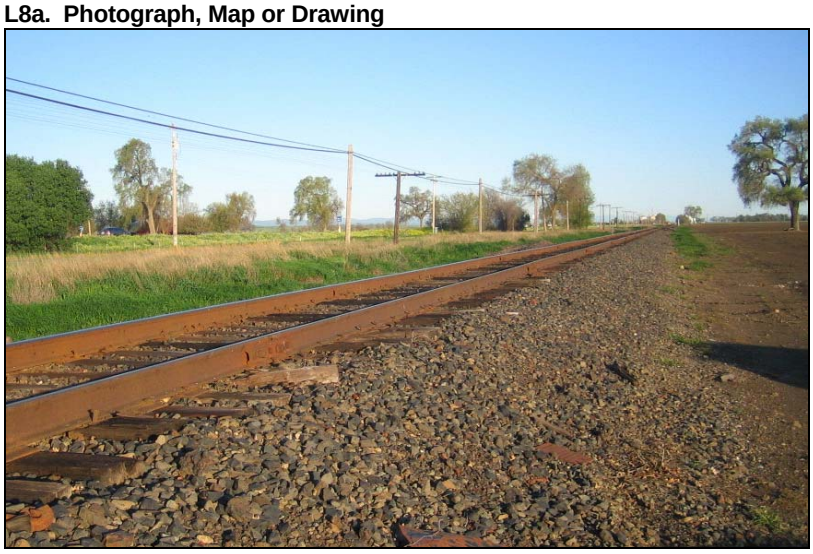
L5. Associated Resources: None.

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.):

This segment of the tracks is on level ground. Agricultural lands are situated to the east; Interstate 5 is situated to the west. Sections of grasslands are between the interstate and the tracks.

L7. Integrity Considerations: The original Northern Railway Company railroad grade has been replaced on the same alignment by modern tracks. The railroad is presently used by Southern Pacific and actively maintained.

L8a. Photograph, Map or Drawing



L8b. Description of Photo, Map, or Drawing (View, scale, etc.)

Overview of the Southern Pacific Railroad tracks, facing northwest; 03/21/2007; Camera Pictures 002.

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)

C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

L11. Date: 03/21/2007

References Cited:

Larkey, Joann L. and Shipley Walters
1987 *Yolo County: land of changing patterns: an illustrated history*. Northridge, Calif., Windsor Publications.

Yolo County
1879 *The illustrated atlas and history of Yolo County, Cal., containing a history of California from 1513 to 1850, a history of Yolo County from 1825 to 1880, with statistics: portraits of well-known citizens, and the official county map*. San Francisco, De Pue & Co.

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # YOL-HRI-4/106 Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** John Ritchie House

P1. Other Identifier:
***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County** Yolo **and**
***b. USGS 7.5' Quad** Woodland, Calif. **Date** 1981 **T** 10N; **R** 1E; NW ¼ **of** NW ¼ **of Sec** 10; Mt. Diablo **B.M.**
c. Address 35265 County Road 17. **City** Woodland **Zip** 95695
d. UTM: Zone 10; *NAD 83:* 599632 mE/ 4288013 mN
e. Other Locational Data: Parcel number 25-260-02.

***P3a. Description:** This historic site was previously recorded and is listed in the Historic Resources Inventory. The property is presently unoccupied, however, is still in use and maintained by Bruce Rodegerdts for agricultural purposes. The property has several buildings of historic age and significance: a vernacular house (Building No. 1), a smoke house (Building No. 2), a barn (Building No. 3), and two bunkhouses (Buildings No. 4 and 5). This historic property is in fair condition. Most of the buildings have received maintenance and renovation. The China Slough located behind the property has evidence of eroding historic trash (e.g., nineteenth century liquor and medicinal bottles). The yard has orange and grapefruit trees. There are also 11 trees along the property lining the southern side of County Road 17.
Building No.1: This building consists of the main residence. It is unoccupied and in fair condition. The house is white with green trimming around the door and windows; it has a tin roof. The covered porch area has a corrugated iron roof. It has an estimated construction date of 1860.

***P3b. Resource Attributes:** AH3. Landscaping/orchard; AH4. Privies/dumps/trash scatters; AH11. Walls/fences; AH15. Standing structures.
***P4. Resources Present:** ☒Building ☒Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: Front western façade of Building No.1; 03/20/2007; IMG_1411.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Hilda Rodegerdts
145 Marshall Ave.
Woodland, CA 95695

***P8. Recorded by:**
C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:**
03/20/2007

***P10. Survey Type:** Intensive
***P11. Report Citation:**

Descantes, Christophe
2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☒Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (list)

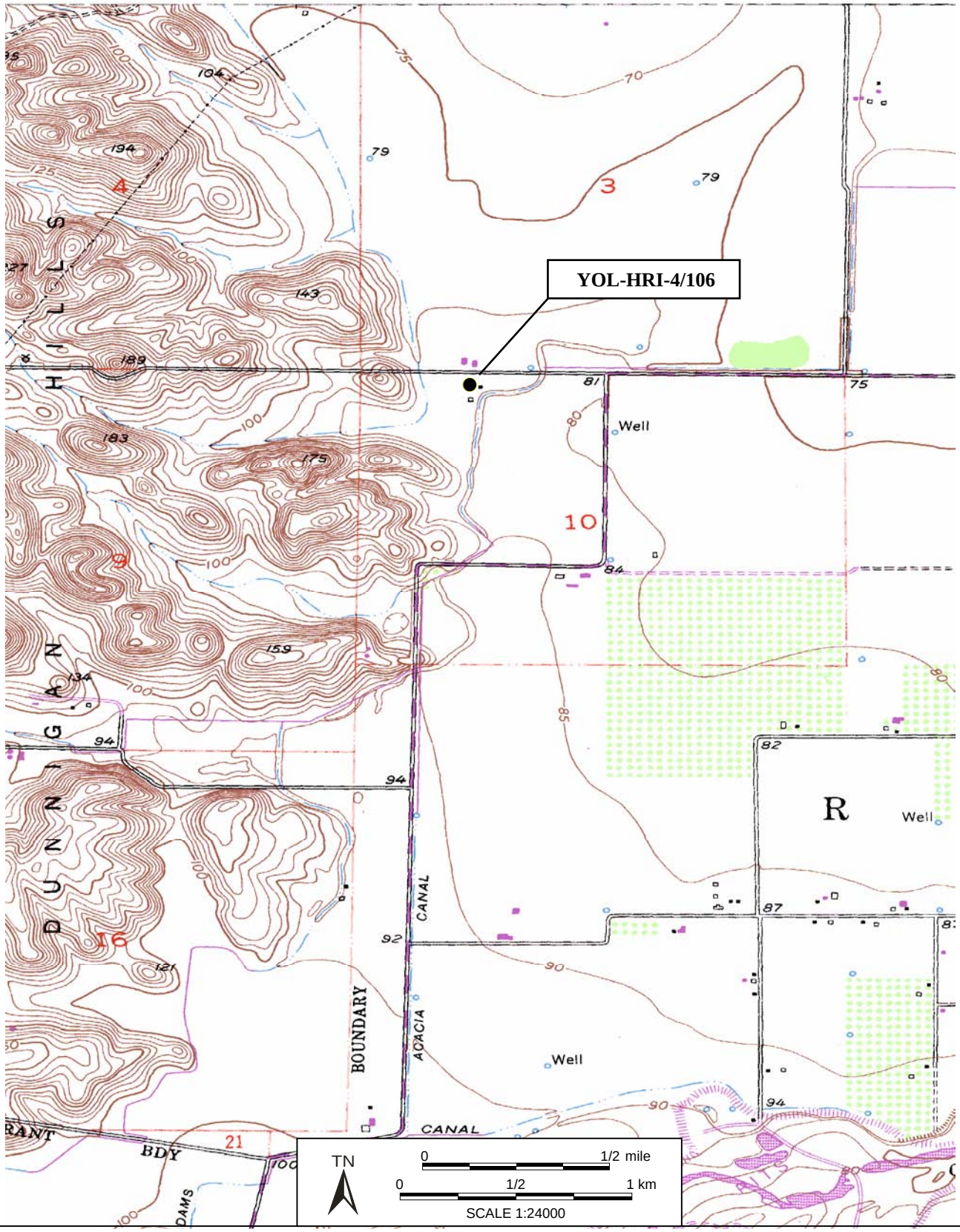
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI# YOL-HRI-4/106
Trinomial

Page 2 **of** 4 ***Resource Name or #** John Ritchie House

***Map Name:** Woodland, Calif. ***Scale:** 1:24000 ***Date of Map:** 1981



Building No. 2: This building consists of a brick smokehouse. It is in fair condition and has a roof made of wood shingles. Concrete was poured over the bricks at the base of the building for reinforcement.
Building No. 3: This building consists of a large historic barn. According to Bruce Rodergerdts, this large barn was recently renovated with metal siding, but still has its original wood frame with square nails and wooden pegs.
Buildings No. 4 and 5: These buildings consist of two historic bunkhouses. They are similar in construction and have red plank siding, a corrugated metal roof, and evidence of square nails.

Northern façade and eastern elevation of Building No.2, the brick smoke house; 03/20/2007; IMG_1422

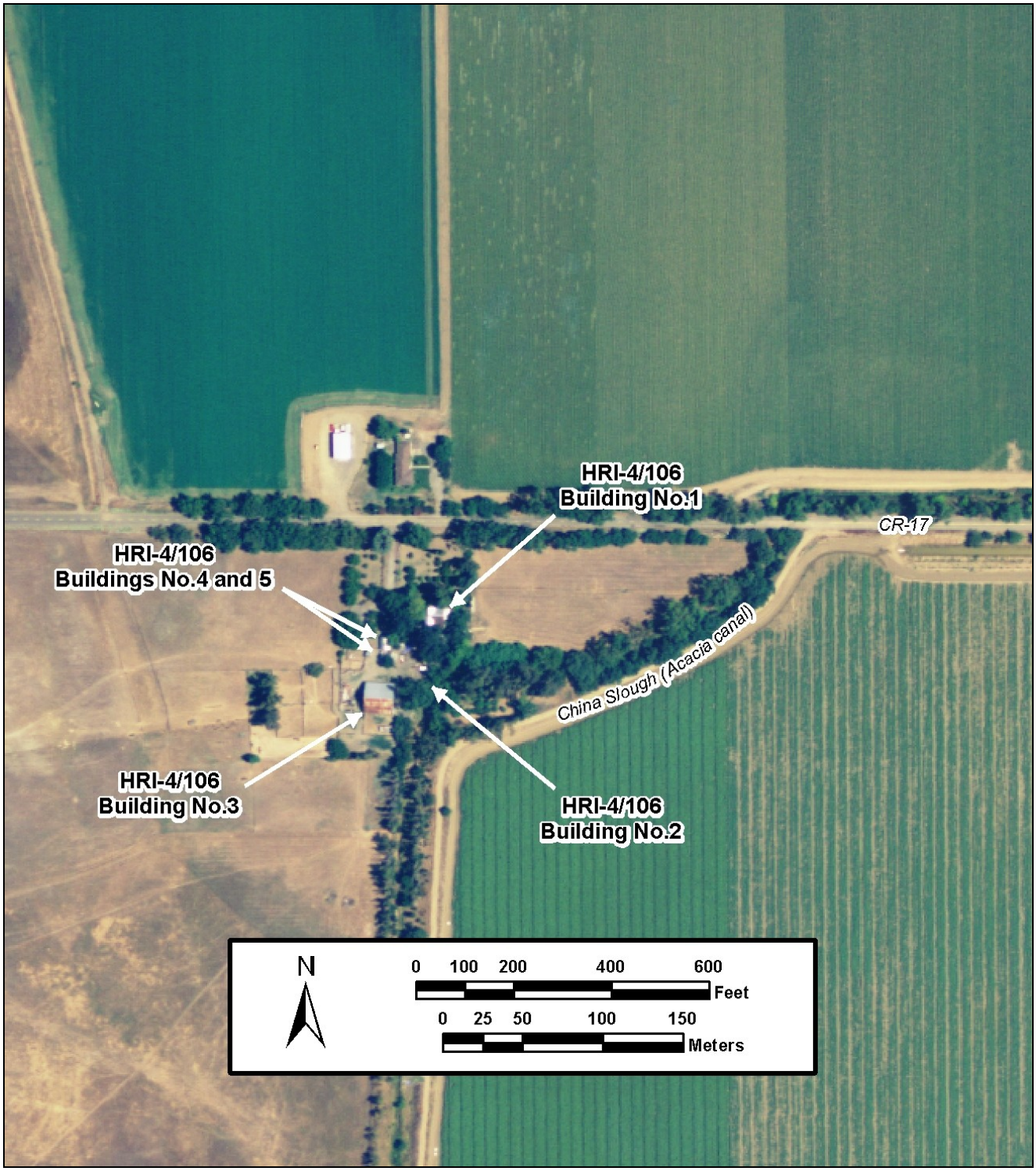
Southwestern overview of the northern and western elevations of the barn (Building No.3); 03/20/2007; IMG_1424

Eastern façade of Building No.4, one of the two bunk houses that has square nails; 03/20/2007; IMG_1426

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **SKETCH MAP**	Primary # HRI # YOL-HRI-4/106 Trinomial

 ***Resource Name or #:** John Ritchie House

***Drawn by** B.Texier ***Date** 03/20/2007



State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # YOL-HRI-4/114 Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Herman Richter House

P1. Other Identifier:

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County** Yolo **and**

***b. USGS 7.5' Quad** Woodland, Calif. **Date** 1981 **T** 10N **; R 1E ;** SW **¼ of** NE **¼ of Sec** 2**;** Mt. Diablo **B.M.**

c. Address 13464 County Road 97F **City** Woodland **Zip** 95695

d. UTM: Zone 10; *NAD 83:* 602052 mE/ 4288920 mN *(SW corner of brick house)*

e. Other Locational Data: Parcel number 25-240-28.

***P3a. Description:** This historic site was previously recorded and is listed in the Historic Resources Inventory. This record is an update. All of the buildings are in excellent condition. Both residences on the property are occupied. The property has several (n=7) buildings of historic age and significance: two residences, a barn, a granary, a bird house, a smokehouse, and a garage – which are all very well maintained and show evidence of renovation with modern materials.

Building No. 1: Built in 1927, this residence is constructed of brick, and measures approximately 43 feet by 42 feet. The Mediterranean Revival-style house appears to have two floors and a basement. It has a ceramic tile roof and a brick foundation. The house also has two chimneys. The garden is well groomed and consists of a lawn with a bird bath, trimmed hedges and a grape vine fence, fruit trees, and a cork oak tree *(see Continuation Sheet, page 2).*

***P3b. Resource Attributes:** AH3. Landscaping/orchard; AH4. Privies/dumps/trash scatters; AH11. Walls/fences; AH15. Standing structures.

***P4. Resources Present:** ☒Building ☒Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo:
Northern overview of the southern façade of residence (Building No.1); 03/21/2007; CP003.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Twyla and Robert Thompson
13464 County Road 97F Woodland, CA 95695

***P8. Recorded by:**
C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:**
03/21/2007

***P10. Survey Type:** Intensive

***P11. Report Citation:**
Descantes, Christophe
2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (list)

Building No. 2: This other older single-storied residence was, according to the owner, built between 1865 and 1875. The house still has its original foundations. The home was remodeled in 1949 and was originally two stories; it measures approximately 50 feet by 28 feet. The house has asbestos siding, one chimney, and a modern tar shingle roof. The house is surrounded by trees with a garden constructed of brick that has star-, clover -, circle- and square-shaped designs made of upside down beige stoneware bottles (circa. 1870).

Building No. 3: This resource is a garage built in the early 1900s. It has red painted wood siding, a sheet metal roof, track doors, and a cement foundation. The garage measures approximately 32 feet by 18.5 feet.

Building No. 4: This resource is a smoke house built in the l880s. It is approximately 15 feet high with red painted vertical side boards and a roof consisting of tar paper shingles, and measures approximately 10 feet 8 inches by 6.5 feet. It also has a 1 foot high concrete slab foundation on top of an older brick footing. The floor is poured concrete. There is evidence of square nails on the building.

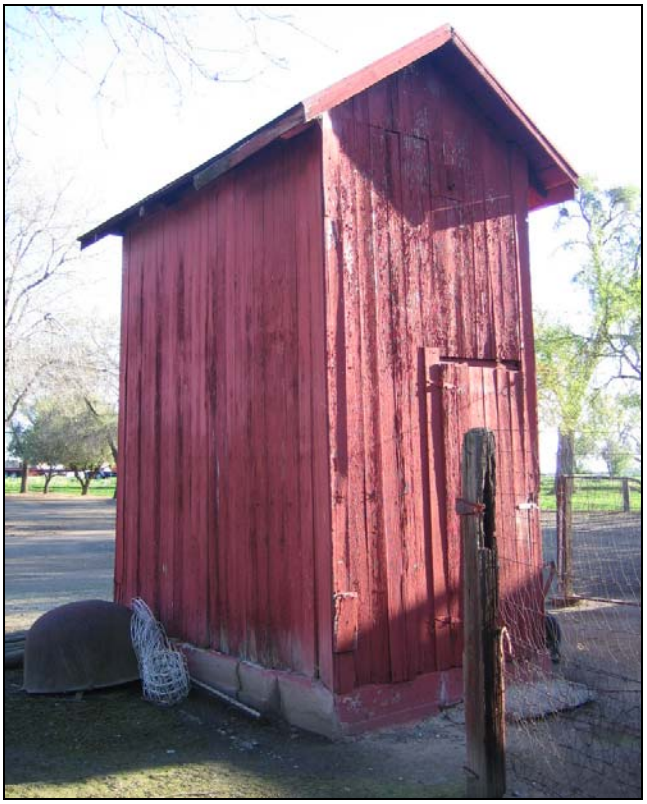
Building No. 5: This resource is a bird house with a red painted wood siding and a corrugated iron roof. It has no visible foundation, but does have square nails; it measures approximately 15 feet by 10 feet 8 inches.

Building No. 6: This resource is a large barn built in the early 1900s. It is approximately 25 feet high has red painted wood board siding and an unpainted corrugated roof. The barn measures 68.5 feet by 50 feet. It also has six track doors (three on the south facade and three on the north facade) and a cement footing edge around the entire barn. The second story of the barn has wooden window openings. The barn also has square and modern nails.

Building No. 7: This resource is a large wooden granary. It is sided with red painted wooden planking and appears to be approximately 25 feet high, and measures approximately 59 feet by 41 feet. The roof is relatively new and consists of unpainted corrugated metal. The foundation is made of brick and is four bricks high. The wooden siding of the granary has evidence of square and modern nails. This building also has four large doors.

Eastern façade of Building No.2, the older residence at HRI-4/114; 03/21/2007; CP018.

Southerly overview, from east to west, of three red historic buildings: the garage, the smoke house, and the bird house of HRI-4/114; 03/21/2007; CP032.



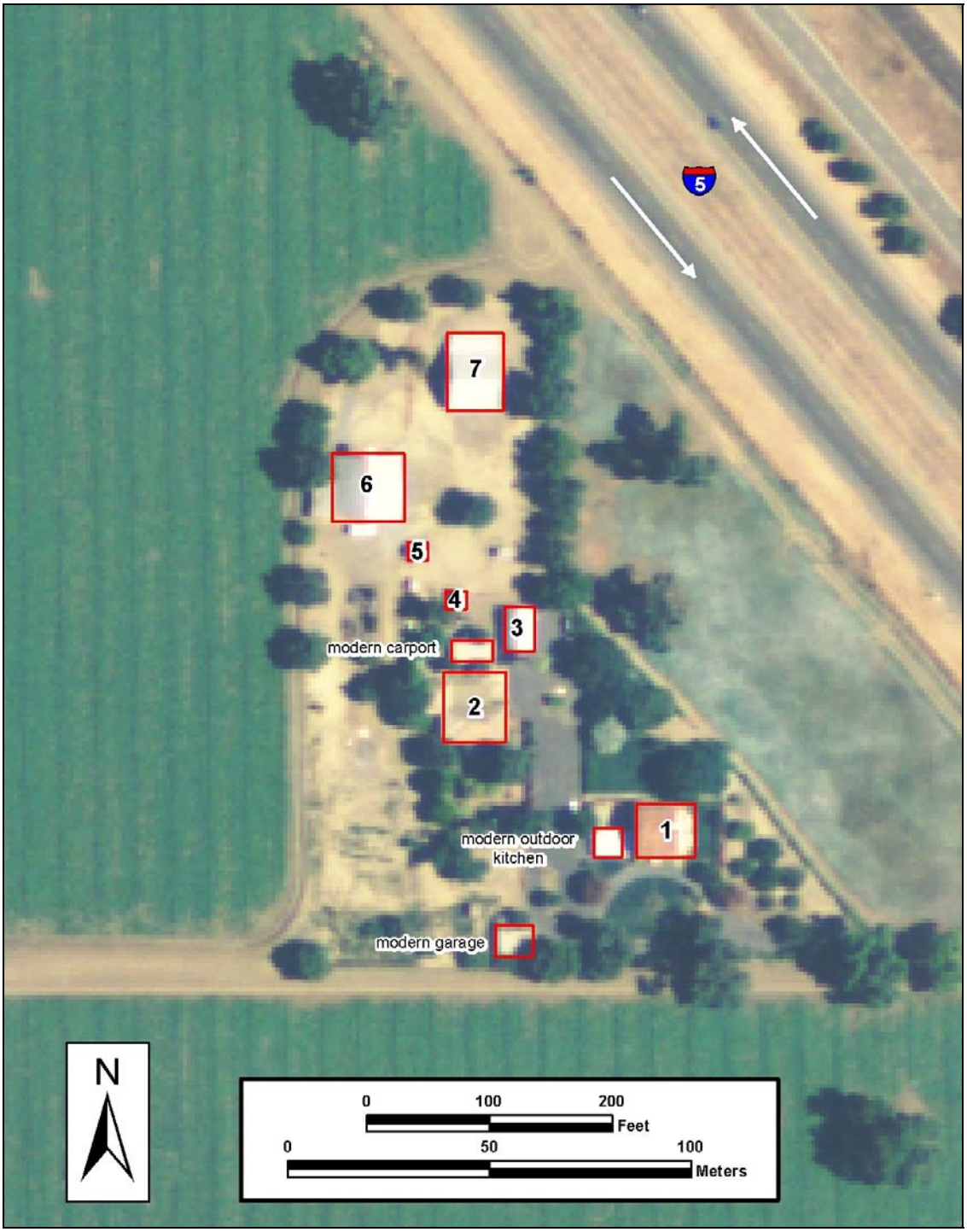
Northeasterly overview of the western elevation and southern façade of the smoke house (Building No. 4) at HRI-4/114; 03/21/2007; CP024.

Southwesterly overview of the eastern façade and northern elevation of the bird house (Building No. 4) at HRI-4/114; 03/21/2007; CP026.

Northwestern overview of the southern façade and eastern elevation of the barn (Building No. 6) at HRI4/114; 03/21/2007; CP028.

Southwesterly overview of eastern façade and northern elevation of the granary (Building No. 7) at HRI-4/114; 03/21/2007; CP030.

*Drawn by B.Texier *Date 03/21/2007



Legend:
1. Brick house; 2. Wood house; 3. Garage; 4. Smoke house; 5. Bird house; 6. Barn; 7. Granary

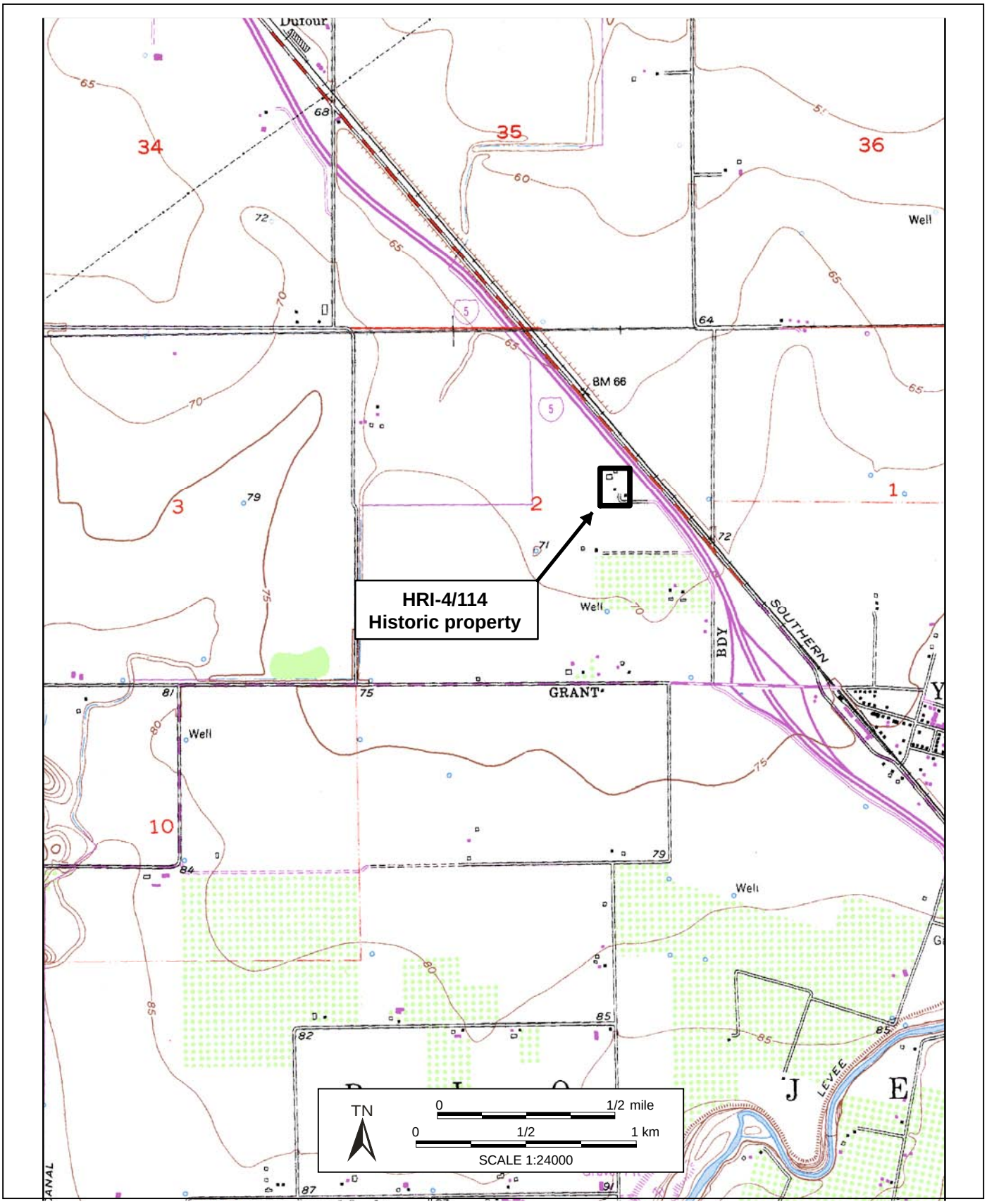
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI# YOL-HRI-4/114
Trinomial

 *Resource Name or # Herman Richter House

*Map Name: Woodland, Calif. *Scale: 1:24000 *Date of Map: 1981



F-2: Line 407 Cultural Resources Survey

Volume I: Report

Cultural Resources Survey for the PG&E Line 407 Project, Placer, Sacramento, Sutter, and Yolo Counties, California

By:
Eric Wohlgemuth

July 2008

Submitted to:
Benjamin Hart
TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Prepared for:
Pacific Gas and Electric Company
2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833

FAR WESTERN ANTHROPOLOGICAL RESEARCH GROUP, INC.
2727 Del Rio Place, Suite A, Davis, California, 95618
http://www.farwestern.com 530-756-3941

Volume I: Report

Cultural Resources Survey for the PG&E Line 407 Project, Placer, Sacramento, Sutter, and Yolo Counties, California

By:
Eric Wohlgemuth

Contributions by:
Laura Leach-Palm, *Far Western*
Sharon A. Waechter, *Far Western*
Mary L. Maniery *PAR Environmental Services, Inc.*
Cindy Baker, *PAR Environmental Services, Inc.*
Stephen Wee, *JRP Historical Consulting*

July 2008

Submitted to:
Benjamin Hart
TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Prepared for:
Pacific Gas and Electric Company
2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833

MANAGEMENT SUMMARY

This report presents the findings of a cultural resources study of an approximately 25.5-mile-long gas distribution pipeline that Pacific Gas and Electric Company (PG&E) plans to construct to connect existing lines near the town of Yolo and Fiddyment Road at the western edge of the city of Roseville. The proposed pipeline would pass through portions of Yolo, Sacramento, Sutter, and Placer counties. The project is subject to provisions of the California Environmental Quality Act (CEQA; Public Resources Code, Section 21000 et seq., revised 2005). The line would cross a number of watercourses and may require a Section 404 permit, qualifying it as a federal undertaking. If so, it would also be subject to the provisions of Section 106 of the National Historic Preservation Act (36 CFR 800), which requires that proponents of federal undertakings address potential effects to historic properties.

To meet the requirements of both CEQA and Section 106, TRC contracted with Far Western Anthropological Research Group, Inc. Our study included an archival records search, field inventory, site recordation, Native American consultation, and assessment of the potential for buried archaeological deposits. The methods and results of the study are documented in this report and summarized here for management purposes.

The records searches and field surveys identified 74 cultural resources within the project Area of Potential Effects (APE). Many others were noted on old General Land Office (GLO) plats, historic maps, and other documents but were not found in the field; we presume that these have been destroyed or do not, in fact, lie within the study corridor. The 74 resources of concern include a prehistoric archaeological site north of the town of Yolo, one isolated prehistoric obsidian biface, and 72 sites or features dating to the historic period. The prehistoric archaeological site has not been evaluated for its eligibility to either the National Register of Historic Places or the California Register of Historical Resources, but the isolated biface is categorically exempt and requires no further management or consideration. Historic-period sites and features include one bridge formally determined not eligible to the National Register (Caltrans 2006); 13 resources that are recommended not eligible to the National Register or California Register, and so require no further consideration (if Section 106 applies to the project, this is pending concurrence by the State Office of Historic Preservation); one historic-period house (P-57-000405, the Cramer House) that has been recommended eligible to the National Register; and one National Register Rural Historic Landscape (Reclamation District 1000) with 24 features that overlap the project APE. All RD 1000 features are contributors or potential contributors to the district's National Register eligibility and thus require additional consideration. In addition, there are 33 historic-period resources which have not been evaluated for their National or California Register eligibility.

With the exception of the isolated biface and the ineligible or recommended-ineligible historic-period resources, impacts to these cultural resources should be avoided wherever possible. Where avoidance of unevaluated resources is not feasible, these resources will need to be evaluated. Where features of the National Register Rural Historic Landscape cannot be avoided, it may be necessary to complete Findings of Effects and, where appropriate, to develop measures to mitigate those effects. Similarly, if P-57-000405 (the Cramer House) cannot be avoided, it may be necessary to complete a Finding of Effects, and/or to implement mitigation measures to reduce or eliminate the effects.

Although only one Native American site was found during the survey, it is possible that others lie buried beneath recent alluvial sediments. The most sensitive locations are on levee ridges by the Sacramento River and Cache Creek Slough. Other sensitive areas include APE crossings of Curry Creek and its tributaries, near the east end of the project. These areas, identified in more detail in the Summary and Recommendations section of the report, may also require subsurface backhoe testing by a geoarchaeologist, or monitoring by a qualified archaeologist during construction. It should be noted, however, that backhoe testing before construction begins could avoid costly project delays caused by late discoveries during monitoring. Additional survey may be required if the project plans change to include areas not already inventoried.

In addition to the more general recommendations above, specific recommendations for evaluation strategies for particular archaeological sites, and backhoe trenching for investigating the presence/absence of buried archaeological sites in highly sensitive areas, can be found in the cover letter accompanying this document.

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INTRODUCTION

Pacific Gas and Electric Company (PG&E) is planning to construct the Line 406 and Line 407 Pipeline Project in California's Central Valley in Yolo, Sutter, Sacramento, and Placer counties (Figure 1). This document describes the methods and results of a cultural resources inventory for the Line 407 portion of the project, which extends from existing Line 172A near the town of Yolo in Yolo County, east to existing PG&E Line 123 at Fiddyment Road, near the city of Roseville in Placer County. Also included is a new Distribution Feeder Main that extends from Line 407 south, paralleling Powerline Road to the Sacramento Metro Air Park development in Sacramento County. This new pipeline is necessary to meet the demand for additional natural gas supply to serve on-going residential and commercial load growth in the greater Sacramento Valley. The project includes approximately 25.5 miles (41 kilometers) of 30-inch-diameter transmission pipeline, approximately 2.5 miles (four kilometers) of 10-inch-diameter distribution pipeline, and a number of pressure limiting and regulation stations. Service is required between 2010 and 2012, with construction beginning possibly in early 2009.

The project is subject to provisions of the California Environmental Quality Act (CEQA; Public Resources code, Section 21000 et seq., revised 2005), which requires the project proponents to consider potential effects to significant cultural resources from installation of the natural gas pipeline. Significant cultural resources under CEQA are those eligible or potentially eligible to the California Register of Historical Resources, as outlined in Section 5024.1 of the California Public Resources Code.

The line would cross the Sacramento River and a matrix of streams, canals, and irrigation ditches, and the project may need an Army Corps of Engineers (Corps) Nationwide Permit to comply with Section 404 of the Clean Water Act. The possible need for a federal permit may bring the proposed project under the purview of the National Environmental Protection Act (NEPA) and the National Historic Preservation Act (NHPA). Section 106 of the NHPA has similar requirements to CEQA, with significant cultural resources defined as those eligible or potentially eligible to the National Register of Historic Places. This document has been prepared to meet both CEQA and Section 106 standards.

To meet these requirements, TRC contracted with Far Western Anthropological Research Group, Inc., for a cultural resources study, which has included a records search, field inventory, site recordation, Native American consultation, and assessment of the potential for buried archaeological deposits. The methods and results of the study are documented in this report.

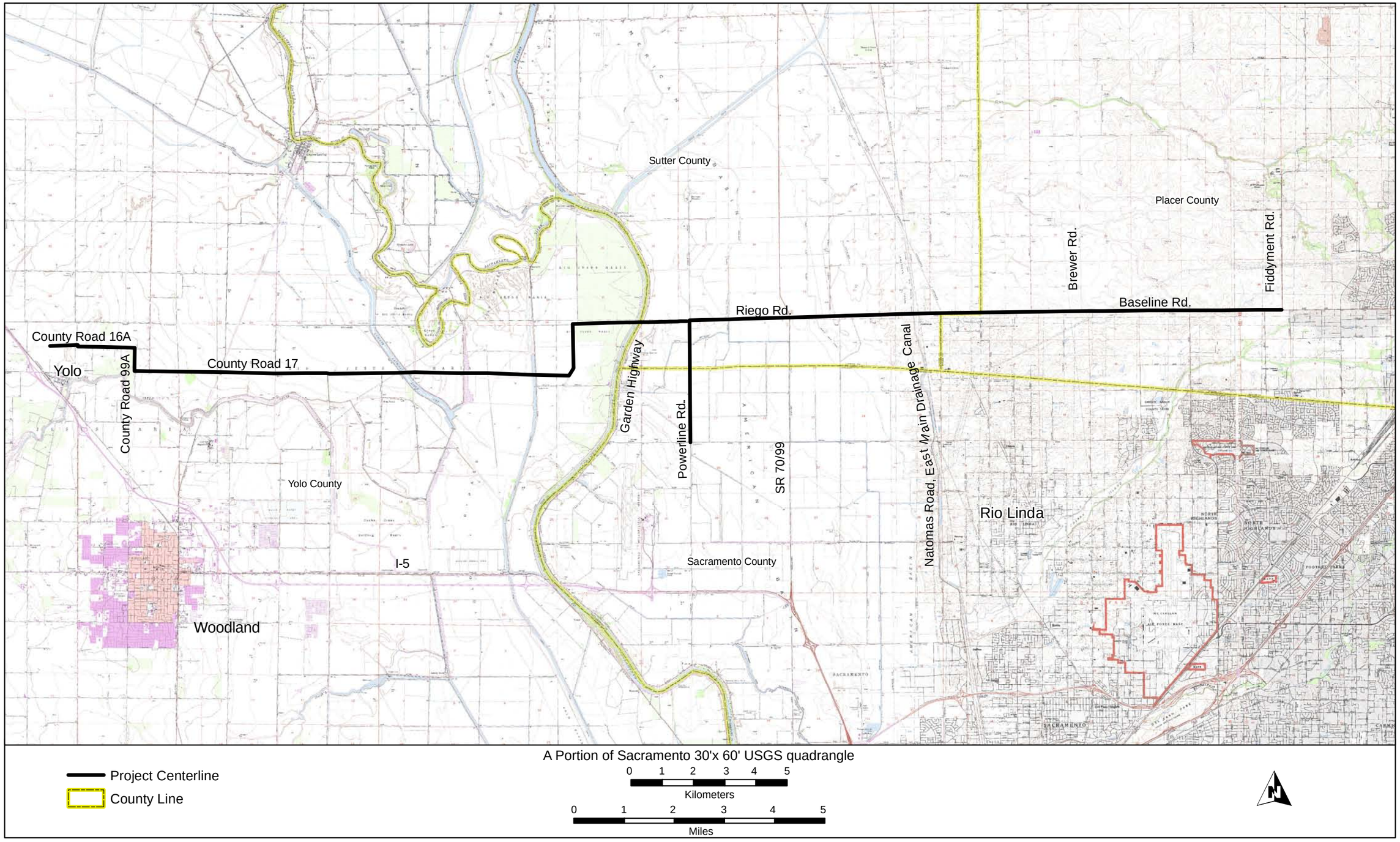


Figure 1. Project Vicinity.

PROJECT DESCRIPTION

PIPELINE SEGMENTS AND REGULATOR STATIONS

The new gas transmission pipeline will consist of three segments:

1. Line 407 East (30-inch pipe) will extend west from existing Line 123 on the northwest corner of the intersection of Fiddyment and Baseline roads in Placer County to the intersection of Riego Road and Powerline Road in Sutter County;
2. Line 407 West (30-inch pipe) will extend west from Line 407 East across the Sacramento River to connect with Line 406 north of the town of Yolo in Yolo County; and
3. The 10-inch Powerline Road Distribution Feeder Main will extend south from the western terminus of Line 407 East to the intersection of Powerline Road and West Elverta Road in northern Sacramento County.

The extent of vertical impact will generally be to a depth of eight feet (2.4 meters), but may range up to 11 feet (3.4 meters) in a trench four feet (1.2 meters) wide. Thus the project's vertical Area of Potential Effects (APE) is 11 feet below surface.

PG&E will also construct a number of small pressure-regulation stations in fenced, above-ground yards. These will be located within the 600-foot-wide survey corridor (see below).

CONSTRUCTION AND RIGHT-OF-WAY

Construction of the 30-inch pipeline segments will generally require a 100-foot- (30.5-meter-) wide construction right-of-way. The construction right-of-way may be narrowed in places to avoid environmental impacts; however, additional workspace may be needed at selected locations for stream crossings, road crossings, and in other areas where special construction methods are required. A 50-foot (15.2-meter) permanent easement is required for operation and maintenance of the pipeline. Construction of the 10-inch Distribution Feeder Main along Powerline Road requires a 60-foot- (18.3-meter-) wide right-of-way and a 35-foot- (10.7-meter-) wide permanent easement. In order to encompass all potential right-of-way adjustments and extra work spaces, a survey corridor of 600 feet (180 meters) for cultural resources was established, with 300 feet (90 meters) on either side of centerline along the project alignment.

NATURAL CONTEXT

This section provides a brief description of the natural environment of the project vicinity, followed by overviews of the historic, ethnographic, and prehistoric periods in this area of the lower Sacramento Valley. Rather than repeating broad summaries that have been written countless times in other places, and which are so general as to be of little real research value, we emphasize those aspects of the physical and cultural environments that are most relevant to a study of the cultural resources within the project corridor. For each background topic, we make a primary division within the project area at the Sacramento River, with separate discussions for the areas east and west of the river.

STUDY AREA ENVIRONMENT

The project constitutes an east-west transect through most of the width of the lower Sacramento Valley. East of the river, there is a narrow, half-mile-wide (800 meters) corridor of higher ground along the natural levees bordering the river. This levee ridge formerly supported a riparian strip and grassland community dominated by valley oak (*Quercus lobata*), and the well-drained soils today are farmed for row crops and orchards. East of the levee ridge is the American Basin, now predominately in irrigated rice fields, but formerly a seasonal marshland that flooded during the winter and desiccated in the dry season. The only places suitable for permanent human occupation within the flood basin were a few high spots scattered among the marshes. East of the flood basin, marked by the Southern Pacific Railroad line, are inhospitable dry, rolling grasslands, with trees limited to cottonwood (*Populus fremontii*) and willow (*Salix* sp.) lining the few small ephemeral drainages, notably (in the APE) Curry Creek.

The project area west of the Sacramento River has some parallels to the portion to the east. The higher ground along the levee ridge bordering the river mirrors that east of the river, with the well-drained soils currently farmed in row crops and orchards. The seasonally flooded Yolo Basin west of the natural levees is similar to the American Basin, formerly supporting seasonal and perennial wetlands, but the clay-rich basin soils west of the river are farmed for row crops rather than the ubiquitous rice paddies of the latter.

West of the Yolo Basin, the project corridor runs through deep alluvial sediments deposited by Cache Creek, which runs west-to-east one-quarter to three-quarters of a mile (400 to 1200 meters) south of the project corridor (see Figure 1). Cache Creek, a perennial stream that currently empties into the Yolo Basin, formerly had an alternate channel that flowed north from the town of Yolo. This channel, known as Cache Creek Slough, formed a low, 10-15-foot- (3-4.5-meter-) high ridge (hereafter Yolo Ridge), which extended several miles to the slough's mouth at Knights Landing. The project corridor crosses the levee ridge of Cache Creek Slough and runs along a similar ridge paralleling the current channel of Cache Creek. The project area west of the Yolo Basin was formerly an open valley oak savanna, and currently is in row crops and orchards. The deeper soils west of the Yolo Basin once supported a much more productive habitat than was found on the east side of the Sacramento River.

GEOLOGY, SOILS, AND THE POTENTIAL FOR BURIED SITES

A review of the Geologic Map of the Sacramento Quadrangle (Clark 1979) shows that the proposed pipeline crosses through five different geological formations. The corridor east of the Sacramento River to Curry Creek is made up of Holocene-age alluvial deposits (including levee, channel, and basin alluvium) and the older Riverbank Formation of the middle Pleistocene. The areas of younger alluvial deposit, lain down over the last 10,000 years, have the greatest potential for buried archaeological remains. Where it is exposed at the surface, the Riverbank Formation is very unlikely to contain such remains, because of its age; however, there is the potential for small, localized depositional contexts on the Riverbank Formation where younger sediments may have covered older archaeological deposits.

Exposed at the east end of the project corridor, in the vicinity of Fiddyment Road, is the partially consolidated sand, silt, and gravel of the early Pleistocene-age Turlock Lake Formation. These materials derived mainly from Sierran metamorphic and granitic rocks. As with the Riverbank Formation, these landforms

generally are much too old to contain buried cultural sites; however, there could be small areas, especially along drainages, with younger deposits.

West of the Sacramento River, virtually the entire corridor is Holocene-age alluvial deposits, again including levee, channel, and basin alluvium. The only exception is at the western terminus, where the corridor crosses a strip of late Pleistocene Modesto Formation alluvium following the course of Cache Creek Slough. The Modesto alluvium is clearly buried at considerable depth, as Late Holocene Yolo silt loams, which have documented Holocene buried soils, are mapped as the surface soil units in this area.

Table 1 lists those areas of the project corridor most likely to contain buried soils (which may include buried archaeological deposits); these also are shown on Figure 2. Table 2 lists water crossings and stream terraces where more recent alluvial deposition may have occurred. The most sensitive areas for finding buried archaeological sites are in soil series with documented buried soils in locations adjacent to perennial streams, notably the Sacramento River (Nueva loams on the east bank), and Cache Creek and Cache Creek Slough (Yolo silt loams). Similarly but to a much lesser extent, the historical to modern xerofluvents soils along seasonal Curry Creek are also sensitive for buried archaeological sites.

Table 1. Soil Types in the Survey Corridor.

SOIL SERIES		DESCRIPTION	POTENTIAL FOR BURIED SURFACES
YOLO COUNTY			
Ya,Yb	*Yolo silt loam, Yolo silty clay loam*	*Holocene alluvium with buried soils*	*High*
Ra	Reiff fine sandy loam	Very young soil – no B horizon	Medium
Sp,Sr,Su,Sv,Sw	*Sycamore complex*	*Holocene alluvium with buried soils*	*High*
Tb,Tc,Te	Tyndall fine sandy loam	Old soil – well developed B horizon	Low
Lg	Laugenour very fine sandy loam	Old soil – well developed B horizon	Low
Mb	Maria silt loam	Old soil – well developed B horizon	Low
Sa,Sc, Sg	*Sacramento series*	*Holocene alluvium with buried soils*	*High*
La, Lb	Lang sandy loam	Old soil – well developed B horizon	Low
SACRAMENTO COUNTY			
POWERLINE ROAD FROM ELVERTA ROAD NORTH TO SACRAMENTO/SUTTER COUNTY LINE			
221	San Joaquin-Xerarents Complex (leveled)	Xerarents = very young altered soils developed on fill	Very Low
217	San Joaquin-Galt	Old soil/deep clays; 0-1% slopes	Very Low
115	Clear Lake Clay	Holocene, often with hardpan substratum	Medium
213	San Joaquin Silt Loam	Old soil – well developed B horizon; on low terraces	Very Low
SUTTER COUNTY			
POWERLINE ROAD FROM SACRAMENTO/SUTTER COUNTY LINE NORTH TO RIEGO ROAD			
109	Capay clay	Holocene, often with hardpan substratum	Medium
158	San Joaquin Sandy Loam	Old soil – well developed B horizon; on low terraces	Low
RIEGO ROAD BETWEEN GARDEN HIGHWAY AND LOCUST ROADS			
144, 146	*Nueva loam*	*Holocene alluvium with buried soils*	*High*
141	Marcum clay loam	Deep clays in basins	Low
158	San Joaquin Sandy Loam	Old soil – well developed B horizon; on low terraces	Very Low
112	Clear Lake clay	Holocene, often with hardpan substratum	Medium
114	Clear Lake clay	Holocene, often with hardpan substratum	Medium
137	Jacktone Clay	Deep clays in basins, artificially drained	Low
129	Galt clay	Deep clays in basins	Low
160	San Joaquin-Arents-Durochrepts	Old soil (SJ) interfingered with poorly defined Entisols and Inceptisols (potentially young soils)	Medium
123	Cometa Loam	Old soil, well developed B horizon; on low terraces	Very Low
PLACER COUNTY			
BASELINE ROAD BETWEEN LOCUST AND FIDDYMENT ROADS			
182	San Joaquin-Cometa Sandy Loam	Old soil, well developed B horizon; on low terraces	Very Low
141	Cometa-Fiddyment	Old soil, well developed B horizon; on low terraces	Very Low
142	Cometa-Ramona sandy loam	Old soil, well developed B horizon; on low terraces	Very Low
104	Alamo-Fiddyment	Basin clays and well developed loams on low terraces	Very Low
195	*Xerofluvents*	*Historical to modern alluvium on hardpan substratum; on stream terraces*	*High*
146	Fiddyment Loam	Old soil – well developed B horizon w/ shallow duripan underlain by paralithic contact	Very Low
147	Fiddyment-Kaseberg	Shallow soils, B horizon on indurated sandstone	Low

Table 2. Water Crossings.

Drainage	Location: Township, Range	Section	1/4 of 1/4	Soil #	Soil Name	Conditions
Cache Creek Slough	T10N, R1E	1	-	n/a	Yolo Silt Loam	Agricultural fields. Sensitive for buried soils and Native American habitation sites.
Sacramento River	T10N, R3E	1	-	144, 146	Nueva Loam	Agricultural fields. Sensitive for buried soils on east bank, and Native American habitation sites on east and west banks.
Old drainage area	T10N, R4E	17	SW of SW	221	San Joaquin Xerarents	Agricultural fields.
	-	18	SE of SE	-	-	-
Unnamed seasonal drainage	T11N, R5E	32	SW & SE of SE	104	Alamo-Fiddyment;	Entrenched drainage, channelized mostly north of road, somewhat south of road. Alluvial soils could exist adjacent to original drainage. Slightly elevated topography on either side. (Area C on Figure 4)
	-	-	-	142	Cometa-Ramona	
	T10N, R5E	4	SW & SE of NE	104	Alamo-Fiddyment	
Unnamed seasonal drainage/channel	T11N, R5E	33	SW & SE of SW	104	Alamo-Fiddyment	1908 Pleasant Grove quadrangle shows a seasonal drainage that stays north of Riego Road. (The 1953 Pleasant Grove quadrangle has no indication of a natural drainage in this location.)
Unnamed seasonal drainage	T11N, R5E	33	SE of SE	104	Alamo-Fiddyment	Alluvial soils could exist adjacent to original drainage. Slightly elevated topography on either side.
	-	34	SW of SW	182	San Joaquin Cometa	-
	T10N,R5E	3	NW of NE	104	Alamo-Fiddyment	Alluvial soils could exist adjacent to original drainage. Slightly elevated topography on either side.
	-	2	NW of NW	-	-	-
Curry Creek	T11N, R5E	35	SW of SW	195	Xerofluvents	Relatively undisturbed creek bed. (Area E on Figure 4)
	-	36	SW of SW	182	San Joaquin Cometa	-
	-	-	-	146	Fiddyment Loam	-
	T10N,R5E	1	North edge	195	Xerofluvents	Relatively undisturbed creek bed. (Area F on Figure 4)

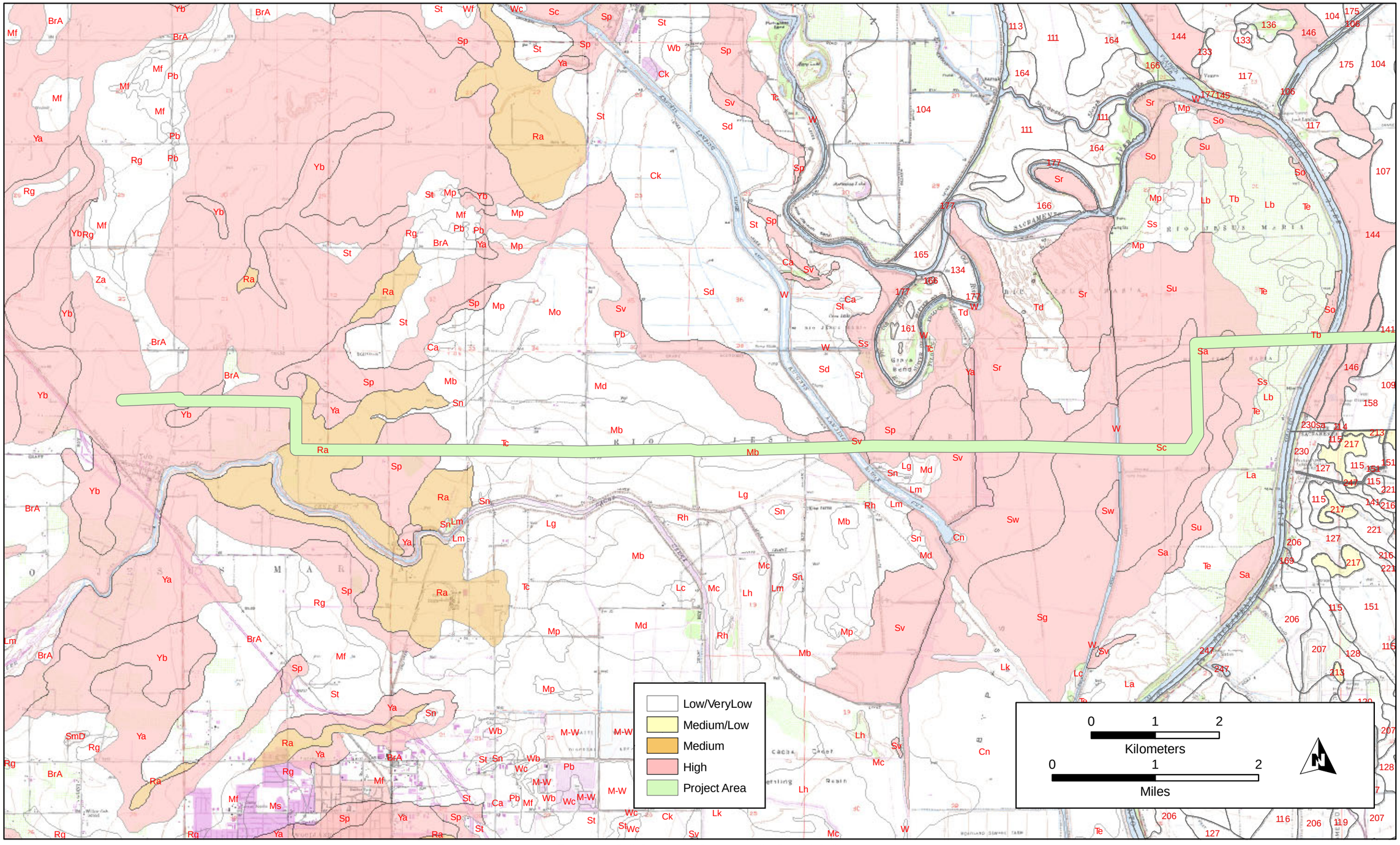


Figure 2a. Soil Series and Sensitivity for Buried Soils.

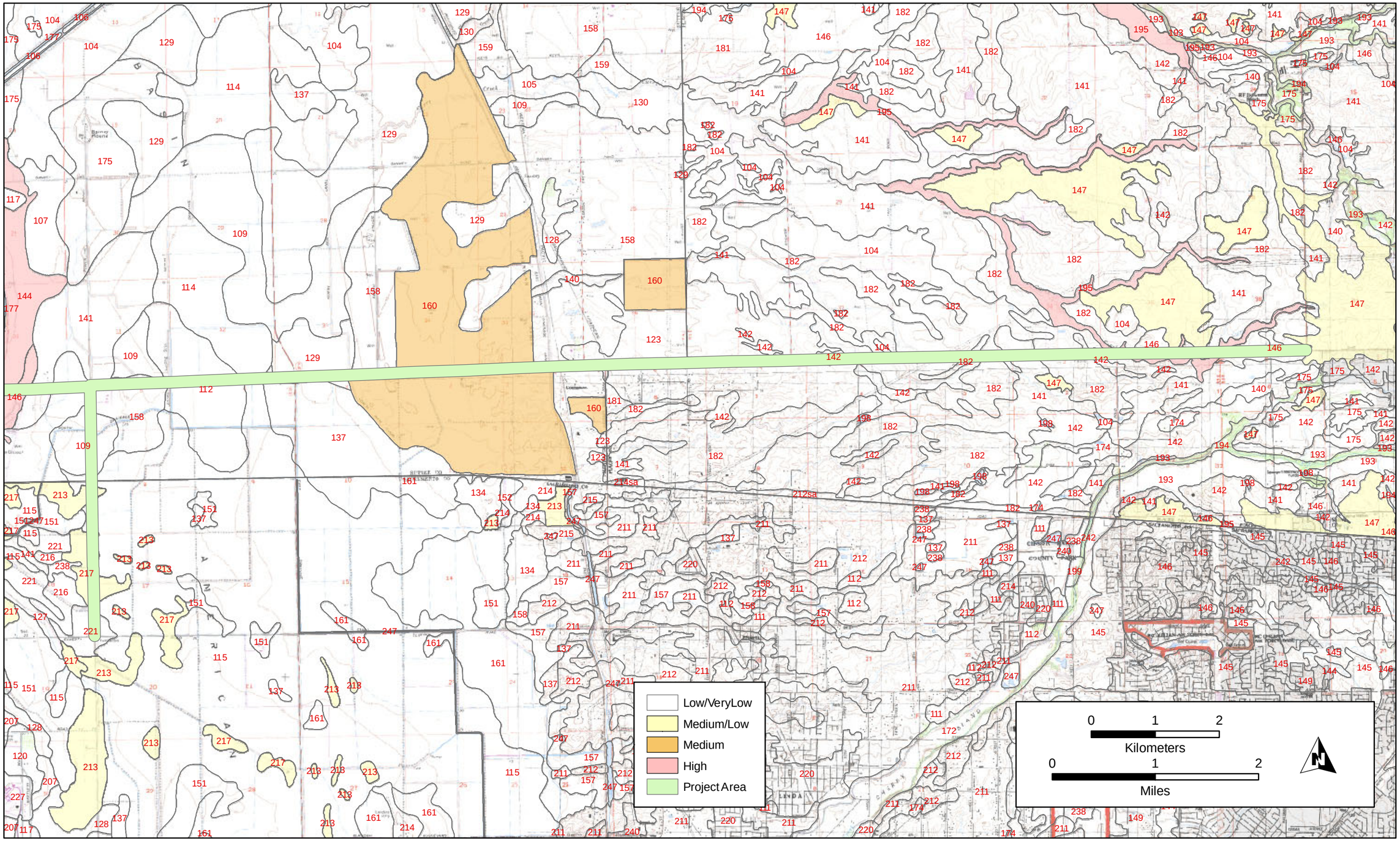


Figure 2b. Soil Series and Sensitivity for Buried Soils.

CULTURAL CONTEXT

In this section we provide overviews of the history, ethnography, and prehistory of this portion of the lower Sacramento Valley, as contexts within which to assess the significance of the cultural resources in the project corridor.

HISTORICAL CONTEXT (By Cindy Baker, PAR Environmental Services)

East of the Sacramento River

This part of the project area falls at the juncture of Sutter, Sacramento, and Placer counties. In Sacramento County, it lies within the historic-period American Township, created by the Court of Sessions in 1851 when it was partitioned from the Sacramento Township (Thompson and West 1880:210). Historic land use in the project area has been characterized by agriculture and transportation. Marginal soil conditions, swampy overflow lands on the west, and limited water on the east have inhibited population growth. Due to poor conditions for both homes and farms, the area was largely undeveloped in the nineteenth century. The western portion was swamp and overflow land used for, at best, minor hops-growing operations, while the eastern area was marginally used for grain (wheat and barley) and hay cultivation (Boyd 1903).

The earliest Euro-American use of the general project vicinity was probably in the late 1840s when the Sacramento Valley swarmed with men searching surface placer deposits for gold. By 1851, the region was sparsely settled and mining was in full swing along many streams crossing the lower foothills to the east (Gudde 1969:99). Miners traveling through the area between Marysville and Sacramento developed a trail that crossed the project area, although no signs of it remain today (General Land Office [GLO] 1855; Lardner and Brock 1924:16).

Agriculture

By 1854 the eastern portion of the project area was sparsely settled, mining was already playing out, and limited homesteading and small-scale ranching had begun. Marginal soil conditions led to farmers experimenting with a variety of operations. Only the most tenacious remained in the area, and many had to rely on large land holdings to support their moderate returns. As a result there are fewer homesteads in the area than can be found in areas with better soils (Maniery and Baker 1995:15; Warner 1913).

The Fiddyment family were the most prominent ranchers in the region. Their ranch was northeast of the eastern terminus of the project corridor and is still depicted today on county maps. Their ranching history is typical of agricultural operations in the project area. Their land holdings at one time were the largest in the area. The Fiddyments moved to the Pleasant Grove District just north of Roseville in 1856 to live and work on their family farming operation (Maniery and Baker 1995:16; Uren 1887). When the soil and natural irrigation proved too poor for farming, they began raising horses and mules, then cattle and sheep. During the 1880s, the Fiddyments continued to expand their ranch, and by the early twentieth century, the land north of Pleasant Grove Creek was used for rangeland (Mr. David Fiddyment, personal communication 2001).

To the south, in northern Sacramento County, David Strauch established an 1,100-acre dairy operation near the present-day community of Elverta. The Strauchs remained on the land until the early twentieth century (Thompson and West 1880:246).

The area west of the Sacramento Northern Railroad was formerly swampy overflow land and remained undeveloped until the early twentieth century. After a destructive flood in 1907, the State Legislature began to establish flood control for the area with levees along the Sacramento River, creating Reclamation District (RD) 1000 in 1911 (Bradley and Corbett 1996:7). RD 1000 was the first and largest of these reclamation districts and the most visible, given its proximity to the state capitol; a more detailed history is provided later in the report.

Transportation

Riego Road was constructed as part of the Natomas Company's original network of roads for the RD 1000 area, along with numerous subdivisions of land that were sold to potential farmers. At that time, smaller

parcels of five to 20 acres were carved out of much larger land holdings. The Sacramento Northern Railroad also took advantage of the newly protected area and constructed an important transportation link between Sacramento and towns to the north, including Marysville and Woodland. This alignment was constructed around 1913 and actually became the eastern boundary of RD 1000 (Bradley and Corbett 1996:68; Marvin and Kaptain 2005).

The Sacramento Northern Railroad was an inter-urban electric railroad that carried both passengers and freight until it was gradually replaced by cars and trucks after World War II. The railroad also played a role in increasing the population centers along their route; those closest to the project area included Rio Linda and Elverta. These small communities were able to grow slightly as the rails connected them to Sacramento. Nonetheless, the project area remained rural (Butler 1924). Today the segment of the railroad within the project area remains abandoned (Baker 1997:5; Marvin and Kaptain 2005).

Post-World War II Development

While the eastern project area remained largely agricultural well into the twentieth century, population growth throughout the state after World War II began to bring changes (Butler 1924; Metsker Map Company 1939). New development began to grow along transportation corridors, including Interstate 80. Increased population and improved transportation created a small housing boom in western Placer County, which has led to increased development of infrastructure, including water and power lines (Metsker Map Company 1939; United States Geological Survey [USGS] 1953, 1967). Beginning in the 1980s, south Placer County began to experience increased development expanding north from Sacramento. In recent years, residential and commercial developers have purchased large portions of the once sparsely populated area and converted it to subdivisions and industrial complexes.

During the 1980s, road widening on State Route 99 resulted in substantial changes to the East Drainage Canal and Riego Road itself (both features of RD 1000). The canal was reconstructed with concrete water diversion structures and a 300-foot- (91.5-meter-) long culvert box under the highway, and Riego Road was also widened at its intersection (Marvin and Kaptain 2005).

By the 1980s, the expansion of both commercial and residential development became rampant throughout the central Sacramento Valley. Today, the area's agricultural past is gradually becoming threatened. With suburban sprawl throughout the region, the farmlands that once characterized the area are quickly disappearing.

West of the Sacramento River

Land use of the project area in rural Yolo County west of the Sacramento River has been characterized by agricultural development, transportation, and land reclamation. The first non-native explorers in the area included Spanish missionaries, American trapper Jedediah Smith, and Hudson Bay Company trappers from Fort Vancouver, the latter of whom named "Cache Creek" (Hoover et al. 1990:533). The Mexican land grants in Yolo County included *Rancho Rio Jesus Maria*, 26,637 acres granted by the Mexican government in 1842 to Thomas Hardy, a Canadian. His land along Cache Creek stretched east to the Sacramento River. After Hardy drowned in 1849, his land was sold by a public administrator in smaller portions, breaking up the original land grant (Hoover et al. 1990:534).

Yolo County was established in 1850. An 1857 General Land Office (GLO) map of the area showed very little development other than the "St. Louis House" and "Greenwood's." While there is no historical record for these houses, they were likely small refreshment stations for travelers on the road from Woodland (GLO 1857a, 1857b). The St. Louis House appears to be related to Charles and Frederick St. Louis, two brothers from Canada who emigrated to California and settled in Yolo County in the early 1850s. Charles died at the age of 104 in 1893, leaving his ranch to his wife Helene. The St. Louis family owned land in the project area as late as 1926 (Gilbert 1879:104).

Agriculture and Settlement

Because of frequent flooding from Cache Creek and the Sacramento River, most historic-period communities in Yolo County were situated on high ground. For instance, the original county seat in Washington

(now West Sacramento) was moved to the fledgling community of Woodland in 1862 after a major flood. The little town of Yolo started as a waystop known as Cockran's Crossing built in 1849 by Thomas Cochran. James Hutton built another hotel there a few years later, and the site became known as Hutton's Ranch or Travelers' Home, and later Cacheville. An 1891 history of Yolo County states, "the county seat was removed to Cacheville [in 1857], which had formerly been called Hutton's Ranch, the post-office being called Yolo" (Gudde 1969:370; Lewis Publication Company 1891; Yolo County 2007).

Cacheville's development was outpaced by nearby Yolo City, as railroad development favored a depot in that town. In 1862 Yolo City became Woodland and was made the county seat. Historic maps from the 1879 DePue history of Yolo County clearly indicate that Cacheville is the present-day town of Yolo, and was likely the early county seat and post office before flooding and the railroad led to Woodland becoming the prominent center (Gilbert 1879; Perazzo 2006). The buildings still standing along the small commercial area in present-day Yolo are clear evidence that it was settled during the nineteenth century.

Ranches began to appear around Yolo during the 1850s, largely devoted to wheat farming. The area looked much as it does today: agricultural fields with isolated farm houses. Two homes in the project vicinity date to this period: the Lewis Cramer house (P-57-000405; in the project APE) and the John Laugenour house (outside the APE). Another house, belonging to Joseph Cooper, was constructed in 1904. George Eustis and later his son James also lived in the area. James built a house just east of Cramer's place during the late 1880s or early 1890s.

Lewis Cramer had emigrated from Kentucky to Yolo County in 1853. He immediately began ranching and had constructed his home on a 100-acre parcel near Cacheville (present-day Yolo) around 1870. By 1879, he owned 3,000 acres used for grazing sheep, hogs, and cattle. By 1891 he had added another 8,000 acres, much of it planted to grain. After heavy losses, he sold off the sheep operation and, by 1906, concentrated on his 140 acres of fruit orchards. The family remains in the same house today (Les 1986:105).

John Laugenour built his home on State Route 113 around the same time, the early 1870s. Laugenour had emigrated from Indiana to Yolo County by 1852 and established his ranch. While he initially ran livestock and raised grain, by the late 1870s he also had dropped the animal husbandry operations and concentrated on grain production. John and his wife, Emma, were notable figures in the area. After major flooding in the project area in 1878, Laugenour bought out many of the neighboring properties. By 1879, they were among the most important landowners in the county and owned much of the project area. Emma, who continued to run the operation as a widow, became active in local community activities; participating in the construction of Mary's Chapel in 1900 and working with Mary's Cemetery Association (Les 1986:95; Walters 1997).

Joseph Cooper bought his property in the project area in 1884 and established a farm and vineyard there. He had migrated from Missouri to California in 1871, leaving a general merchandise store in Yountville before purchasing his farm land in Yolo County. He and his wife raised a family there, all of whom became active in local farming and the community as well (Les 1986:104).

While many of these long-time farmers or their heirs retained ownership as late as 1915, by 1926 the Eustis family had divided and sold much of the land in the project, retaining their homes and some acreage.

Farming has continued to the present with a slow but steady build-up of residential structures largely associated with agricultural production. These consist primarily of additional home sites for growing families and ranch hands, as well as some parcel subdivisions for houses independent of actual growing operations. Historic-period maps indicate these homes have been constructed throughout the remainder of the nineteenth century and throughout the twentieth. The project area has escaped the post-World War II subdivision development phase that occurred elsewhere throughout California, remaining largely in rural agricultural use (GLO 1857b; USGS 1915, 1941).

Transportation

Transportation developments, primarily the railroads, contributed much to the established settlements in the area. In 1869 the California Central Railroad Company constructed rail from Davisville (now Davis) to Woodland and from there to Marysville (Marysville Branch Line) via Knights Landing. Portions of this line were

reconstructed after flooding in 1871 and in 1890. The line was later subsumed by the Southern Pacific Railroad and Union Pacific Railroad companies (Hoover et al. 1990:537-538; Les 1986:23-24).

Reclamation

In its natural state, the Sacramento Valley was flooded annually by the Sacramento River. Natural levees five to 20 feet high and one to ten miles wide developed along its banks, providing some protection to early farming. However, hydraulic mining sediments washed down from the Sierra foothills caused the riverbed to rise, which resulted in increased flooding. Farmers began building levees to protect their crops. In 1855, the Reclamation District Act allowed an individual to buy up to 320 acres of swamp and overflow lands at $1 per acre with payments over five years, effectively transferring control of reclaimed lands from the State and the counties to the landowners (Dudek and Associates 2005).

By 1891, swamp and overflow land reclamation was underway, leading to the establishment of farms and orchards, especially around the population centers at Woodland, Knight's Landing, Winters, and especially the Capay Valley. The Colusa Drainage Canal is a 10-mile-long project started in 1903 and completed in 1911. The canal is an open drainage that uses a system of concrete flood gates to control releases to the Yolo Bypass. The Colusa Drainage Canal was incorporated into Reclamation District (RD) #2047 (north of the project area) in 1919.

Throughout the project area, property owners sank private wells for their water needs and also built private canals as necessary to bring water they purchased and pumped out of the main canals to their farms. Management of the various reclamation districts that evolved is complicated and divided between private and government regulatory authorities (Dudek and Associates 2005; personal communication with Montag, US Army Corps of Engineers 2007).

The eastern third of the Yolo County part of the project area lies within private reclamation districts. RD 1600 is the largest of these, established in 1913 by local farmers who pooled their tax assessments to create their own drainage system. It is bounded by the Sacramento River on the north and east, the Tule Canal on the west, and another private reclamation district on the south. Other districts include the Sacramento San Joaquin Drainage District, with RD 819 adjacent to the west and RD 820 on the south (Lang, personal communication with Cindy Baker, PAR, 2007; Proctor 1915).

Knights Landing Ridge Cut was added to the reclamation efforts in 1915 as part of the Yolo Bypass flood control project. The cut takes drainage water entering the Colusa Basin to the west through Knights Landing Ridge to the bypass, one of two main bypass systems in the Sacramento Valley that take excess floodwaters from the Sacramento River to relieve strain on its levees (Les 1986:24-25).

Today the western project area remains largely rural, less affected by the population growth throughout California following World War II that was concentrated in towns and small cities. Growth in the project area was limited to single-family homes spread out in clusters along major roads. More recent population growth of Valley communities in the 1980s to present, however, has begun to change the community density and will likely continue to do so in the future (Les 1986:25).

The American River Basin, the Natomas Company, and Reclamation District 1000 (By JRP Historical Consulting)

The American River Basin, the low-lying basin formed between the Sacramento and American rivers, was subject to frequent flooding from these two major rivers and from smaller streams that flowed westerly and spread waters into the lowest parts of the basin. Floodwater filling the basin would often take months to dry up through seepage or runoff, rendering the land useless for either agriculture or grazing, and impacting travel to and from the foothill mining districts (Bradley and Corbett 1996; Hyatt 1931).

Much of the fertile American River Basin land lying immediately adjacent to the rivers passed into private ownership in the 1850s; however, most of the interior basin swampland was sold in the period from 1868 to 1871 in 640-acre or larger parcels. Successful reclamation of these basin lands, however, did not come until the early decades of the twentieth century. Reclamation efforts in the American River Basin increased in the early

1900s, due in part to the attentions of several large landowners in the American River Basin interested in improving the value and productivity of their land.

Landowners in the American River Basin organized and petitioned Sacramento County to establish a local reclamation district, known as the American Reclamation District, in 1906. The engineering and cost studies of the district proposed a single district of 50,000 acres with levees entirely encircling the property, an interior drainage canal, a pumping plant, a network of roads, and a system of irrigation with canals and pumps. To finance this major undertaking, the promoters approached the Natoma Development Company, a subsidiary company to the Natomas Company that had originally formed in 1851 in Sacramento County to supply water for placer mining and irrigation. Over the years, the company developed numerous subsidiaries, branched into a number of businesses including granite quarrying, land development in Folsom and eastern Sacramento County, agricultural production, gold mining, and hydro-electric power, and underwent numerous name changes (Bradley and Corbett 1996).

In 1907, multiple factors indicated that a reclamation district in the American River Basin would meet with success. Sacramento was experiencing a population and economic boom aided in part by Southern Pacific Railroad's expansion of their railroad shops on land bordering the American River. The Northern Electric Railway already ran along the eastern border of the district, and the Western Pacific Railroad was planning to extend its line northerly through the Sacramento Valley in the same vicinity. In addition to these rail outlets, during this time three commercial steamship lines operated on the Sacramento River. The Natoma Development Company saw the prospect of substantial profits in developing the American River Basin land and purchased options to buy 60,000 acres of swamp and overflow land in Sacramento and Sutter counties. The Natoma Development Company merged with Natomas Consolidated of California in 1908. The new company supported the landowners' petition to re-establish a reclamation district under the Green Act of 1868, establishing RD 791 in 1909. The large area was eventually divided into a two reclamation districts separated by a canal. When the legislature established the State Reclamation Board in 1911, the Board recognized and established the two districts: northern district RD 1001, and southern district RD 1000. Reclamation District 1000 was one of the first districts created during this period. RD 1000 and its contributing elements are listed as an historic district on the National Register and are considered a significant rural landscape in the context of Sacramento Valley's early twentieth-century agricultural heritage (Bradley and Corbett 1996).

The Natomas Company was the principal builder of the overall reclamation district infrastructure systems for drainage, roads, land subdivision and sales, and irrigation. These independent systems were linked in concept to the reclamation plan, but were designed and built separately. The RD 1000 Rural Historic Landscape is defined in the documentation for the district as being bounded on the north by the Cross Canal Levee; on the east by the Cross Canal north of Sankey Road and the East Levee south of Sankey Road; on the south by East Levee; and on the west by the Sacramento River Levee. The exterior drainage canals in RD 1000 were built to intercept flood waters and discharge them into the Sacramento River; the interior drainage canals were designed to drain the interior land and carry water southward to pumping plants, which then discharge waters into the Sacramento River. The East Levee was constructed to protect the district on the east and south from the American River and its tributaries; the River Levee was built to protect the district from the Sacramento River. Other features in the vicinity include the exterior East Main Drainage Canal, the interior East Drainage Canal, and Pumping Plant No. 2, which was constructed in 1916 and served both the drainage and irrigation systems. These components are listed as contributing elements of the historic district. The East Levee, East Main Drainage Canal, and the interior East Drainage Canal are all within the current project area.

The irrigation system built by Natomas Company within RD 1000 beginning in the 1920s consisted of five pumps that diverted water from the Sacramento River and Cross Canal, and approximately 150 miles of irrigation canals and feeder ditches that conveyed water to the irrigated fields and small drainage ditches to remove excess water from the fields. Canals and ditches were primarily earthen lined, with only a few miles of main canals and flumes lined with concrete.

The number of reclamation districts developing during the same time period in the surrounding area influenced development of agriculture and land use within RD 1000. After drainage, the land was surveyed and subdivided. To promote RD 1000 by demonstrating land productivity, Natomas Consolidated leased large

acreage blocks for wheat and grain crop production, thus establishing a pattern of large acreage/single crop land use that remains today. Rice is the predominant crop planted within the study area running through RD 1000 bordering Powerline and portions of Riego Road.

ETHNOGRAPHIC CONTEXT

The native Sacramento Valley featured dense populations of complex hunting and gathering peoples. The project area east of the Sacramento River was in the traditional territory of the Nisenan, which extended from the South Fork of the Feather River south to the Middle Fork of the Cosumnes River, and from the Sacramento River east to the Sierran crest (Beals 1933:338-339; Kroeber 1925:391-392; Merriam and Talbot 1974:16-17). The corridor west of the river runs through the former range of the Patwin, who controlled the lowland valleys from Colusa south and west to Vacaville and Napa (Kroeber 1932). While they were different peoples, the Nisenan and Patwin shared many cultural characteristics.

In the rich environment of the Sacramento Valley, both the Nisenan and Patwin lived in more or less permanent villages concentrated along the major rivers and larger creeks. Villages consisted of a cluster of semi-subterranean houses occupied by one or more families, and ranged in size from small hamlets of 25-30 residents to large towns up to 500 or 1,000 persons (Cook 1976:9; Kroeber 1925:831; Wilson and Towne 1978:389). Nisenan villages known from the project vicinity include the communities of *Leuchi* and *Wishuna* east of the river, and *Nawe* west of the river south of Verona, while historical Patwin villages include *Yo'doi* at Knights Landing, and *Churup* at Yolo (Johnson 1978:350; Wilson and Towne 1978:388). The basic unit of political organization is thought to have been the tribelet, a territory-holding group of one or more associated villages and smaller temporary encampments.

Befitting their role as the primary food staple, gathering, processing, and maintaining large stores of acorns was the most intensive subsistence activity. While the local valley oak acorns were abundant, black oak (*Quercus kelloggii*) acorns were preferred, and valley dwellers traded with relatives in the foothills to obtain them (Beals 1933:351). In addition to acorns, other nuts, roots, berries, seeds, and greens were collected. Deer was the primary game resource, but antelope, elk, rabbits, squirrels, ducks, geese, and other birds were also taken, particularly in the marshes and wetlands of the flood basins. Fish, particularly salmon and lamprey eels, were essential protein sources. Salmon were taken by the valley people by the use of communally built weirs that spanned the rivers. The rivers also yielded numerous other fish, as well as freshwater clams and mussels (Wilson and Towne 1978:389). Bones from a variety of fish, birds, and mammals, and a wide variety of well-preserved charred plant remains, have been recovered from archaeological sites in the lower Sacramento Valley.

For the current project study, Patwin settlement patterns are relevant. Kroeber's map of principal villages in the Grimes area illustrates that while the population density of this area was high, people were not concentrated in a single large community, but dispersed in several smaller, probably kin-based villages along 1.5 miles of the Sacramento River (1932:260). Information from both lower Putah and Cache creeks show this pattern was not restricted to the Sacramento River. Abundant *Saxidomus* clamshell bead-making debris, a marker of very recent prehistoric and/or historic periods, has been found at three small village middens within a half-mile stretch of Putah Creek in Davis (Milliken and Shapiro 2006; Shapiro and Tremaine 1999), and at three comparable sites along a similar length of Cache Creek in Yolo (Wohlgemuth 1998). Rather than forming large and organized towns, people lived in dispersed, often-nearby communities, probably kin-based, that formed small and discrete archaeological sites.

Trade and Ceremony

Formal trade was practiced between the valley and foothill peoples. Acorns, salt, and beads comprised the major trade items (Beals 1933:365; Kroeber 1932). Valley Nisenan received from foothill groups black oak acorns; sugar pine nuts; manzanita berries; yew wood for bows; yellowhammer and red-headed woodpecker scalps and feathers; dried deer and bear meat; wild cat, mountain lion, and bear hides; rabbit-skin blankets; redbud for baskets; milkweed for fiber; and salt (Beals 1933:365). In return valley Nisenan supplied foothill groups with basket roots, salmon, antelope meat, and valuable shell beads, the latter obtained from the coast through active

trade networks (Beals 1933:365). Clamshell disk beads were equivalent to money, as they had a standard value and acted as currency for most other resources and goods.

The ceremonial system of the native Sacramento Valley was a complex welter of sacred and profane performances known as the Kuksu cult (Loeb 1933). The Kuksu involved spirit impersonations performed in a large, communal structure known as a dance house or round house, and often were sponsored by a secret society. Complex ritual costume concealed the identity of the impersonators. The principal component of the ritual dress and regalia was usually feathers of large or brightly colored birds. Costume and performances were owned privately by individuals who organized and supervised the proceedings. The Kuksu system was most complex and developed in the Sacramento Valley, and has been described as the "high-water mark" of native central California (Loeb 1933).

Ethnohistory

The indigenous patterns of Nisenan and Patwin society were irrevocably changed with the arrival of Euro-Americans in California. Spanish expeditions in 1808 and 1821 were the first incursions into the Sacramento Valley, and each briefly passed through the project area. Patwin from the Winters area were first baptized at Franciscan missions in the Bay Area between 1825 and 1829, and again between 1830 and 1832 (Milliken et al. 2005). The first Patwin from lower Cache Creek were baptized at Mission Sonoma in 1834. As early as the late 1820s, and in numbers by the 1830s, Euro-American trappers operated throughout the Central Valley. They brought many diseases, and in 1833 the Indian population was decimated by a pandemic thought to have been malaria (Cook 1955). This had a devastating effect on Sacramento Valley Indians. Also by this time, Mexico had won its independence from Spain and was instituting new administrative policies in Alta California. Many new land grants were given to private citizens for enormous ranchos and, like the missionaries, the ranchers sought their labor supply in the native villages (Milliken et al. 2005).

The Mexican government also allowed a small number of other nationals to settle, apply for Mexican citizenship, and so become eligible to receive land grants. The earliest land grant in the Sacramento Valley was given to the Swiss immigrant John Sutter, who in 1840 established a fort, which he named New Helvetia, on the south bank of the American River in Nisenan territory. Sutter engaged in cattle ranching, fur trapping, wheat farming and other agricultural pursuits, and also developed a grist mill, sawmill (in the foothills at Coloma), and tannery. Much of his labor was supplied by local Indians, whom he locked in the fort at night so as to have them on the job in the morning (Lienhard 1961:68). The nearest land grant to the Patwin of the project area was made in 1843 to William Gordon, who settled along lower Cache Creek west of Woodland (Thomas Hardy's 1842 grant was farther up Cache Creek). Nisenan and Patwin from the project area were significantly affected by both Sutter's and Gordon's activities.

PREHISTORIC CONTEXT

The archaeological sequence of the lower Sacramento Valley begins at about 5,000 years ago with the Early Period. More ancient peoples surely used the rich resources of the region and established at least temporary camps, but much of the archaeological record of their settlements is buried under several meters of recent Holocene alluvium (e.g., Clark 1979).

The Early Period (5000-2500 BP)

The Early Period (ca. 5000-2500 BP), represented in the Sacramento Valley by the Windmiller Pattern, has been identified but only scantily documented in the immediate project vicinity. Early Period artifacts were recovered from very limited excavations at SAC-422, six miles south of the project corridor, where perforated charmstones were found with possible human remains (Shapiro and Maniery 1992). Windmiller burials and artifacts are also reported from SAC-164 just north of Sacramento (Simons and Tremaine 2001). The only documented Early Period site excavated recently is COL-247 north of Colusa. This site contained artifacts very similar to Windmiller Pattern sites studied in the lower Mokelumne and Cosumnes drainages, such as *Olivella* thick rectangle beads and stemmed dart points. But it is most notable for a well-developed baked clay industry that included small vessels, and impressions of acorns and human fingerprints (White 2003). COL-247 included

a wide range of faunal remains, including a variety of fish, as well as a robust assemblage of charred plant remains with abundant acorn and other nutshell, many small seeds, and a relatively high frequency of root crops (Wohlgemuth 2004).

The Middle Period (2500-1000 BP)

The archaeological record of the Middle Period (ca. 2500-1000 BP) or Berkeley Pattern in the project vicinity is more visible and hence better understood. Middle Period populations were apparently large , judging by large settlements along the river in Sacramento, exemplified by Bouey's (1995) analysis of materials from SAC-43, and Milliken et al.'s (1995) excavations at SAC-42. The study by Bouey and other contributors was the first ever done on a lower-Sacramento Valley mound site using modern analytical techniques (radiocarbon dating, obsidian-hydration dating, stable-isotope analysis, faunal analysis, and examination of plant macrofossils). The researchers determined that SAC-43 had been a year-round, residential base occupied from about 2400 to 600 BP, with an artifact assemblage that included many projectile points, modified-bone and antler tools, and shell beads and ornaments. Various excavations had been done at the site, beginning in the 1930s and continuing into the 1980s; consequently, the provenience control left much to be desired, and Bouey and his colleagues were not able to segregate the remains into discrete temporal components. Even so, they were able to conclude that the data from SAC-43 called into question "the extant cultural-historical system, as well as…essentially all chronological data associated with the central California record" (1995:344).

Milliken et al. (1995) reported on excavations on the periphery of SAC-42, also on the lower Sacramento River and only a few miles from SAC-43. Other archaeologists had worked on the mound itself a decade earlier (Peak and Associates 1984), but Milliken was the first to produce a careful, detailed analysis of the site sediments and artifacts, as well as extended discussions of faunal and charred plant remains. He concluded that "SAC-42 was intensively used as a residential and cemetery site during the last three phases of the Middle Period of the Late Holocene (100 AD-700 AD), and as a camp or satellite habitation site during the Late Period of the Late Holocene (900 AD-1500 AD)" (1995:14.7). The floral and faunal remains indicated that people had lived at the site "at all times of the year except the fall," and certain faunal species suggested "some change in the Delta environment over the past 2,300 years" (1995:14.7).

The Middle Period, however, is poorly documented along lower Cache and Putah Creeks west of the Sacramento River. The only excavated site of this age is SOL-363, a settlement on a levee ridge of an old channel of lower Putah Creek in Dixon (Rosenthal and White 1994). The site is a single-component deposit dating to 1600-1400 BP, based on findings of *Olivella* saddle beads and lanceolate obsidian dart points. But the site is small and produced relatively few artifacts, clearly reflecting a small group of people that contrasts with the larger groups known at Middle Period sites along the Sacramento River. Given such limited sampling of Middle Period sites in this area, it is not certain whether the western tributaries were occupied by large groups, or constituted a more marginal, less densely population zone during this period.

The Middle/Late Transition (1000-800 BP)

The Middle/Late Transition (ca. 1000-800 BP) is known from an important but undocumented excavation just north of the project area, near the confluence of the Sacramento and Feather rivers at site YOL-13, the Mustang Site. YOL-13 is known predominately for findings of numerous human burials, many with abundant funerary artifacts, including a miniature atlatl that was probably a toy. Little is known about subsistence data or residues of everyday life, as a midden deposit was not associated with the human remains. Unfortunately, excavation findings have never been published, and as a result we know substantially less about this key transitional period in the Sacramento Valley (Moratto 1984).

The Late Period (800-150 BP)

Archaeology of the Late Period (ca. 800-150 BP), or Augustine Pattern, is well-documented along both the Sacramento River and lower Cache and Putah creeks. Late Period components have been described from SAC-29 and SAC-164 in Sacramento, where large groups are reflected in abundant human remains, artifacts, and ecofacts (Olsen 1963; Simons and Tremaine 2001). But the most thoroughly excavated and analyzed collection is

from YOL-69 along Cache Creek near Madison (Wiberg 2005), with similar findings made at two contemporaneous sites along Putah Creek (Shapiro and Tremaine 1999; Milliken and Shapiro 2006) and at YOL-187 along Cache Creek in Yolo (Wohlgemuth 1998). YOL-69 contains abundant *Saxidomus* clam disk beads and small corner-notched obsidian Rattlesnake Series arrow points typical of the terminal prehistoric period, and includes historic-period wire-drilled *Olivella* and glass beads as well. More than 100 human burials were excavated, and a wide range of domestic features also documented. The robust faunal assemblage produced abundant fish as well as artiodactyl bone. Charred acorn nutshell and small seeds were very abundant as well, and Eurasian filaree seeds and wheat grain were identified in several contexts. Perhaps the most intriguing component of the YOL-69 assemblage is on-site manufacturing of obsidian artifacts and clam beads from imported raw materials; caches of unmodified Napa obsidian cobbles and whole marine *Saxidomus* clam shells were found, as well as ample initial reduction and manufacturing debris of obsidian and shell beads. The contrast between Late Period movement of raw obsidian and marine shell and earlier movement of these materials as finished artifacts suggests a fundamental socio-economic reorganization between the Middle and Late periods.

Summary

Since the 1930s, when archaeologists from Sacramento Junior College (now Sacramento City College) first investigated the many prehistoric mound sites along the Sacramento River and its major tributaries, it has been clear that this region has a long and rich history of human occupation. These sites contain a wealth of archaeological materials, and commonly human remains as well. Because of the rapid pace of development over the last 75 years, however, these sites are disappearing at an alarming rate, and with them any hope of truly understanding this prehistory. This means that any intact prehistoric deposits within the project corridor could be quite significant.

METHODS AND RESULTS

The cultural resources study entailed archival research to determine whether any portion of the proposed project corridor had already been surveyed for cultural resources, and whether any such resources had been recorded. It also included consultation with the Native American Heritage Commission and the local Native American community, plus field survey, re-visits to known resources, site recordation, and the preparation of this report.

RECORDS SEARCH METHODS AND RESULTS

For the pipeline corridor east of the Sacramento River, Far Western conducted a records search at the North Central Information Center, California State University, Sacramento, on June 29, 2006, for those portions of the project within Sacramento or Placer County. The Northeast Information Center, California State University, Chico, provided in-house records searches on July 18, 2006, and January 18, 2007, for Sutter County. For the corridor reach in Yolo County west of the river, Far Western conducted a records search at the Northwest Information Center, Sonoma State University, on January 22, 2007, and followed up with an additional records search at the same facility on April 23, 2007. Each records search addressed an area within one-quarter mile of each side of the project centerline within their respective counties. Appendix A contains a list of maps and sources consulted for the records search.

For the project areas east of the Sacramento River, the records searches showed 14 surveys within the boundaries of the study area (Appendix A: Figure A1 and Table A1) that covered approximately 55% of the project corridor. Considerably less research has been conducted west of the river, with only five surveys that encompass less than 10% of the study area. In all, approximately 30% of the study area has been previously surveyed. A review of these previous surveys, however, indicated that several of them cannot be considered adequate, for one (or more) of the following reasons:

- The survey methods do not meet the Secretary of the Interior's Standards and Guidelines for intensive cultural resources inventory.
- The survey reports do not provide clear, unambiguous information on survey methods and coverage, and so cannot be assessed.
- The surveys are more than 20 years old.

Where previous inventories could not be considered adequate, those areas were re-surveyed for the current study.

The records searches also identified 126 known or possible cultural resources within the records search buffer, all but two of which were identified as historic-period sites and features. Two are listed simply as oak stands. A complete list of resources is presented in Appendix Table A1; for the remainder of this section, we focus on the 106 resources which reportedly fall within or immediately adjacent to the 600-foot- (180-meter-) wide APE (Table 3). The vast majority of these resources (n=63) are unrecorded potential sites, plotted on nineteenth-century General Land Office plats and historical USGS topographic quadrangles from 1905 to 1953. These may or may not actually fall within the corridor, depending on how well they have survived modern development.

In all, 24 resources mapped in the APE are associated with RD 1000. As noted above, RD 1000 is a rural historic landscape that is listed on the National Register, and is significant at the state level for the period of 1911 to 1939, as one of the earliest major reclamation districts in Sacramento Valley. It extends from the Sacramento River on the west to the East Main Drainage Canal on the east. The contributing features to the district include levees, canals, and roads which intersect the APE, plus the large-scale land patterns that result from intersection of those features. Named contributing resources to RD 1000 that lie within the project area include, from west to east, the Garden Highway, the Sacramento River Levee, Riego Road, Powerline Road, North Drainage Canal, East Drainage Canal (a portion of Riego Road and of the East Drainage Canal have been given their own primary number [P-51-000115]), North Main Canal, East Levee (CA-SUT-85H), Natomas Road (which is situated on top of the East Levee), and Natomas East Main Drainage Canal. Additionally, 14 unnamed feeder canals of RD 1000 are within the APE. These also are considered potentially contributing resources, specifically as drainage ditches within the areas of contributing land scale land use patterns (Bradley and Corbett 1996:44). All 24

features associated with RD 1000 cross the APE for the current project. The results of the archival records search show that features of RD 1000 are common in the American Basin portion of the project area.

The APE also includes 19 previously recorded historic-period resources consisting of various structures, foundations, trash scatters, and railroad features. Of these, one (the Cramer House, P-57-000405) has been recommended eligible but not formally nominated to the National Register; two have been found not eligible; two railroad grades were found not eligible to the National Register in adjacent counties but have not been evaluated in Sutter County where they cross the APE; and the remaining 14 have not been evaluated for National or California register status. Some of these sites, (particularly residences) have potential for buried features such as privies and wells.

The lack of documented prehistoric resources may be partly due to the fact that prior to modern flood-control measures, much of project corridor was in flood basins and water-poor treeless plains, each poorly suited to occupation. Any prehistoric, and most pre-1930s historic-period, cultural resources probably will be found on high ground like levee ridges, knolls, or terraces; others could be buried under more-recent alluvial deposits.

Table 3. Records Search Resources within APE.

TYPE	COUNT
Roads	36
Structures	26
Canals/ditches/levee	8
Railroads	3
Wells	2
Oak groves	2
Power line	1
Bridge	1
Radio facility	1
Trash scatter	1
Historic-period hotel site	1
RD 1000 Features	24
TOTAL	106

NATIVE AMERICAN CONSULTATION

In July 2006, Far Western contacted the Native American Heritage Commission to request a check of their sacred lands files for any resources within the project area east of the Sacramento River, and a list of individuals with ties to the project area (Appendix C). A response was received from the Heritage Commission October 11, 2006, stating that no sacred lands were located within this area, and providing a list of individuals to contact. Project descriptions and maps, and letters eliciting concerns and issues with the project, were mailed to the suggested contacts in November. When the project became active again in early May 2007, follow-up emails and phone calls were made to these individuals.

For the project area west of the river, Far Western contacted the Heritage Commission in January 2007, requesting similar assistance and information. A response dated January 22, 2007 from the Commission noted no sacred lands in this area, and provided an additional contact list. When the pipeline route was modified, Far Western again contacted the Commission in April 2007. A response received from the Commission May 3, 2007 again noted no sacred lands, and provided an updated contact list. As with the area east of the river, project descriptions and maps, and a request for input regarding the project, were mailed to the suggested contacts in early May.

Far Western made follow-up phone calls after fieldwork was completed in May and June. A summary of consultation history and responses can be found in Appendix C.

SURVEY METHODS

Fieldwork was carried out in 2006 and 2007. On July 25-27 and September 8, 2006, Far Western field director Laura Leach-Palm, M.A, directed survey of a portion of the corridor east of the Sacramento River. She was assisted by crew members William Leyva, B.A., Jeanie Moore, B.A., and (from PAR Environmental Services) Monica Nolte, B.A. On May 7-14, 2007, Far Western field director Eric Wohlgemuth, Ph.D., directed survey of the corridor west of the Sacramento River, assisted by Kristen Revell, B.A., Ashley Lohsey, B.A., Jamie Dotey, B.A., and Monica Nolte. On June 18-21, 2007, Wohlgemuth completed the inventory of previously unsurveyed portions of the corridor east of the river, assisted by Isaac Vega, B.A. The survey corridor was 300 feet (90 meters) on each side of centerline.

Far Western conducted intensive pedestrian survey in areas that had not already been surveyed to current standards. The crew carried small-scale aerial photographs annotated with the survey corridor, and had available records and maps of all previously recorded resources, plus all necessary recording equipment. The crew walked transects 20 meters (66 feet) apart. In areas with poor visibility surveyors made spot-checks approximately every 25 meters (82 feet), by clearing vegetation in a small area to expose soil, and by carefully inspecting rodent back dirt. The survey crew kept notes of survey conditions and resources encountered.

At least 48 hours prior to fieldwork, TRC contacted landowners to confirm permission to enter and to notify them when the survey crew planned to work. We did not survey private property where access was declined; nor did we walk flooded rice fields or areas of very low archaeological sensitivity, such as those flooded prior to reclamation, low-lying and away from water, or highly disturbed.

Locations of previously recorded or potential resources within the survey corridor were re-visited to determine whether cultural remains were still present. In many cases, it was discovered that the resources did not occur within the project APE, or that they had apparently been either misplotted or destroyed. This was most often the case with resources noted on old General Land Office plats, whose scale and lack of detail make features very difficult to identify and re-locate. Where cultural resources were found, they were recorded on California Department of Parks and Recreation form DPR 523 (1998), following *Instructions for Recording Historical Resources* (Office of Historic Preservation 1995). If existing documentation was adequate, or if the resources had been previously evaluated, the resource record was not updated. Historic linear features were recorded only if they possessed integrity; such features lacking integrity (such as modern roads overlain on historic-period roads, or upgraded power lines and railroad grades) or destroyed altogether were not recorded.

For the study area east of the Sacramento River, the American Basin portion was seasonal wetland before 1916, and is now given over predominately to rice farming. Most of the APE in this area was flooded at the time of the survey and so could not be walked; however, the area is considered to be of very low sensitivity for surface and buried cultural resources, and substantial portions have been previously and adequately surveyed. One area east of the Sacramento River could not be surveyed, as landowners denied access to a 200-meter-long area south of Riego Road between the Natomas East Main Canal and the Western Pacific Railroad grade. West of the Sacramento River, and east of the river to Powerline Road, survey was done when most fields were clear of vegetation or in crop seedlings, and the ground surface visibility was excellent.

SURVEY FINDINGS

In this survey Far Western found a total of 76 cultural resources, of which 43 had been previously documented (Table 4, Table 5, and Figure 3). Site record updates were filed for 13 of the previously recorded resources (Appendix C); those not updated include the 24 contributing or potentially contributing features of the RD 1000 Rural Historic Landscape District, as well as segments of the Western Pacific and Sacramento Northern railroads, a canal, a levee, a bridge, and a radio facility. For these resources, the existing site records adequately describe their current conditions. Sixty-three of the resources plotted on historical maps were not relocated during the field inventory.

Table 4. Cultural Resources Documented within the APE.

Resource Type	Newly Recorded	Previously Recorded	Total
Single-family homes	9	8	17
Canals, wells, culverts, and levee	9	4	13
Roads	11	-	11
Railroad grades	-	2	2
Radio facility	-	1	1
Refuse scatter	-	1	1
Bridge	-	1	1
Labor camp	1	-	1
Eagle Hotel	1	-	1
Prehistoric occupation site	1	-	1
Prehistoric isolate	1	-	1
Two native oak stands	-	2	2
Subtotal	33	19	50
RD 1000 features	-	24	24
Total	33	43	76

Table 5. Survey Findings.

Primary Number	Trinomial or Other Designation	Site Description	National Register Status	Site Record
West of the Sacramento River (west to east)				
P-57-000566	EW-1/H	Prehistoric site with historic well	Unevaluated	New Record
P-57-000567	Site 33	Single family home	Appears not eligible	New Record
P-57-000568	Site 32	Single family home	Appears not eligible	New Record
P-57-000569	Site 31	Single family home	Appears not eligible	New Record
P-57-000570	County Road 98A	Rural road	Unevaluated	New Record
P-57-000571	Road 16A Well	Well	Unevaluated	New Record
P-57-000405	Cramer House	Single family home	Eligible (Les 1986)	Update & Previous
P-57-000406	-	Single family home	Unevaluated	Update & Previous
P-57-000572	County Road 98E	Rural road	Unevaluated	New Record
P-57-000407	-	Single family home	Appears not eligible	Update & Previous
P-57-000408	-	Single family home	Appears not eligible	Update & Previous
P-57-000573	County Road 99A	Rural road	Unevaluated	New Record
P-57-000574	Site 26	Single family home	Appears not eligible	New Record
P-57-000575	County Road 17 west of State Highway 113	Rural road	Unevaluated	New Record
P-57-000132	Valley Oak Grove #12	Native valley oak stand	Unevaluated	Update & Previous
P-57-000576	Road 17 Culvert 2	Culvert	Unevaluated	New Record
P-57-000412	-	Single family home	Appears not eligible	Update & Previous
P-57-000577	Road 17 Well	Well	Appears not eligible	New Record
P-57-000578	Road 17 Culvert 1	Culvert	Unevaluated	New Record
P-57-000579	Ditch 1	Canal	Unevaluated	New Record
P-57-000580	Ditch 2	Canal	Unevaluated	New Record
P-57-000413	-	Single family home	Appears not eligible	Update
P-57-000584	Well 15	Well	Unevaluated	New Record
P-57-000582	Site 14	Agricultural Labor Camp	Appears not eligible	New Record
P-57-000583	Well 13	Well	Unevaluated	New Record
P-57-000140	CA-YOL-183H	Pump (P12) associated with Knights Landing Ridge Cut	Unevaluated	Update & Previous
P-57-000581	Ditch 3	Canal	Unevaluated	New Record
P-57-000519	CA-YOL-212H	Levee	Unevaluated	Previous Only
P-57-000414	Tule Canal	Canal and levee	Unevaluated	Previous Only
P-57-000521	-	Canal system	Unevaluated	Update & Previous
P-57-000565	Site 4	Single family home at "Greenwoods" on 1857 GLO	Unevaluated	New Record
P-57-000132	Mixed Stand #12	Native valley oak stand	Unevaluated	Update & Previous

Table 5. Survey Findings *continued*.

Primary Number	Trinomial or Other Designation	Site Description	National Register Status	Site Record
East of the Sacramento River (west to east)				
-	RD 1000	Rural Historic Landscape District (Garden Highway; Sacramento River Levee; Powerline, Riego and Natomas roads; North Drainage Canal; East Drainage Canal; North Main Canal; East Levee; Natomas East Main Drainage Canal); Segments of Riego Road and the East Drainage Canal (P-51-000115); and East Levee/Natomas East Main Drainage Canal Levee (CA-SUT-85H)	Determined eligible with OHP concurrence (2D2)	Previous Only
-	24C0439	1980 Bridge	Determined ineligible (Caltrans 2006)	Previous Only (missing)
P-51-000096	-	1917 farmstead at 9311 Powerline Road	Unevaluated	Update & Previous
-	CA-SAC-464H	Segment of Western Pacific Railroad	Recommended ineligible in Placer and Sacramento Counties (Waechter et al. 2007)	Previous Only
P-51-000087; P-31-001136	CA-SUT-87H; CA-PLA-946H	Remains of Sacramento Northern Railroad	Recommended ineligible in Placer and Sacramento Counties (Waechter et al. 2007)	Previous Only
P-31-003301	Site 2	Single family home	Appears not eligible	New Record
P-31-003300	Site 1	Single family home	Appears not eligible	New Record
P-31-003303	Elder Road	Rural road	Unevaluated	New Record
P-31-003304	Locust Road	Rural road	Unevaluated	New Record
P-31-003305	Site 34	Single family home	Appears not eligible	New Record
P-31-003302	Site 3	Single family home	Appears not eligible	New Record
P-31-003306	Brewer Road	Rural road	Unevaluated	New Record
P-31-002684	-	Single family home at 9110 Baseline Road	Appears not eligible	Update & Previous
P-31-003307	Palladay Road	Rural road	Unevaluated	New Record
P-31-003308	Country Acres Road	Rural road	Unevaluated	New Record
P-31-003309	-	Eagle Hotel	Unevaluated	New Record
P-31-003310	Isolate 1	Obsidian biface	Ineligible (categorically exempt)	New Record
P-31-001137	-	Small two-room radio facility surrounded by barbed wire security fence	Ineligible (Napoli 2000)	Previous Only
P-31-001135	CA-PLA-945H	Historic trash scatter	Unevaluated	Update & Previous
P-31-003311	Watt/Center Joint Road	Rural road	Unevaluated	New Record
P-31-003312	Walerga Road	Rural road	Unevaluated	New Record

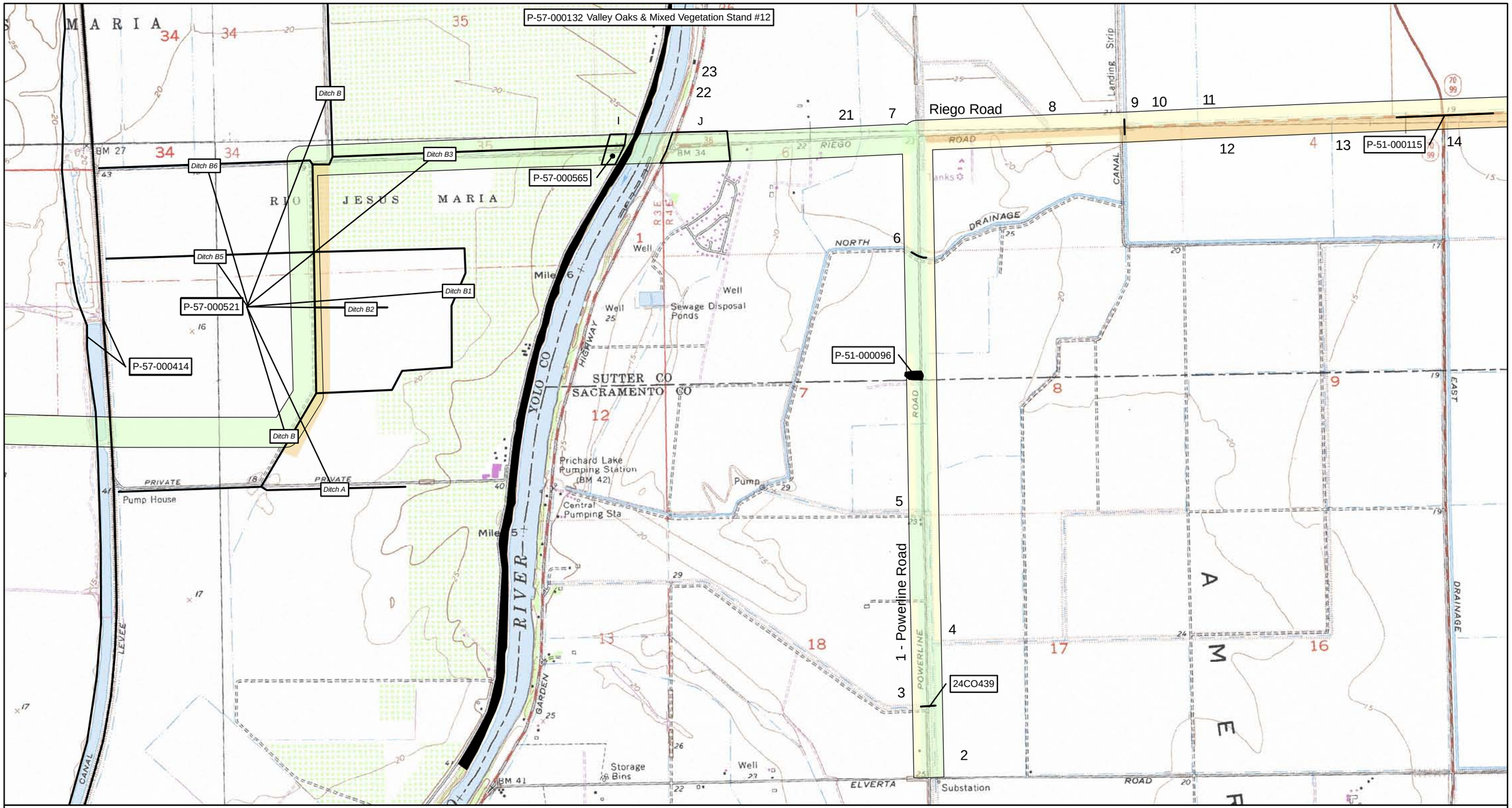
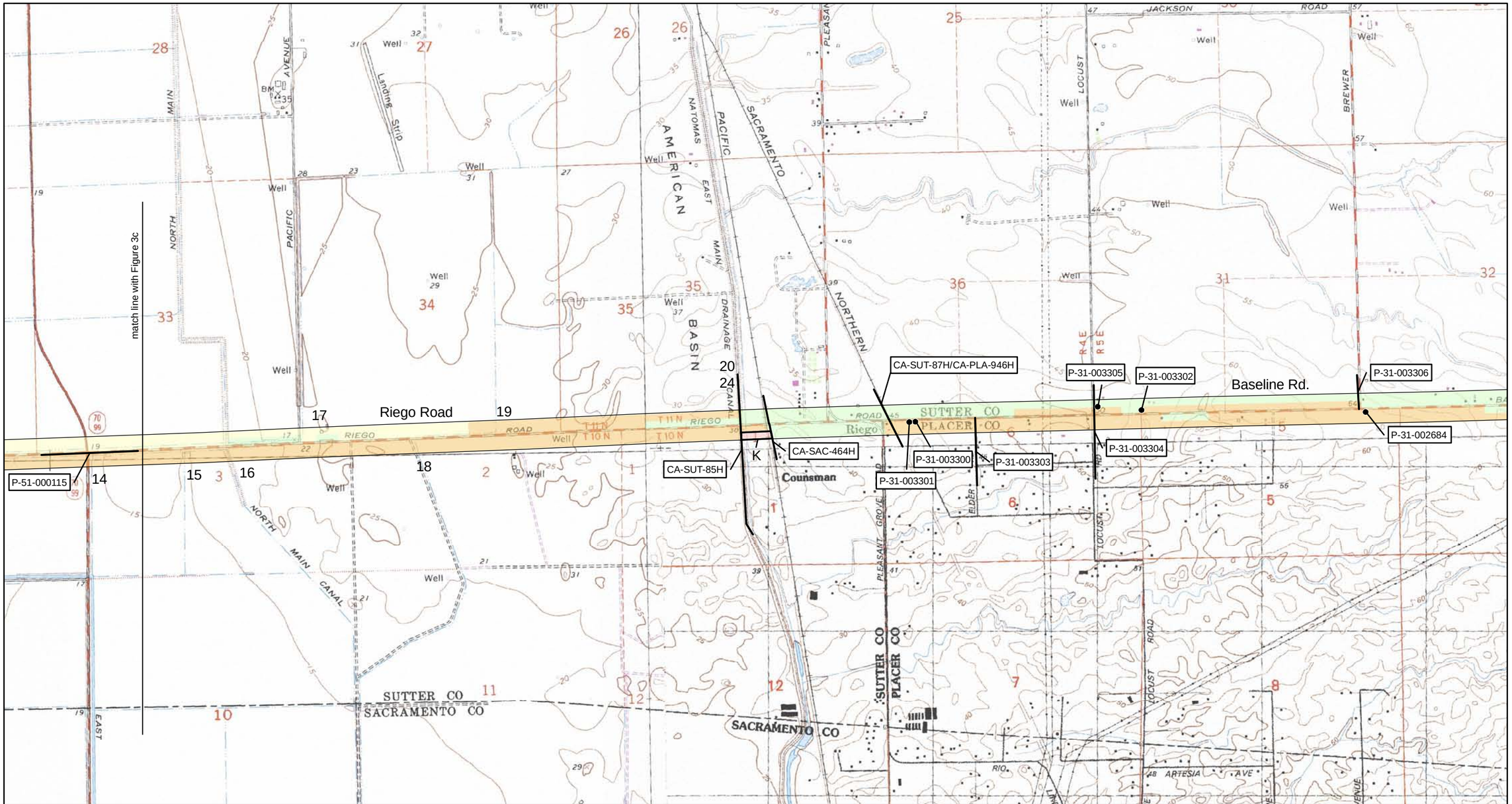


Figure 3c. Surveyed Areas, Resources Encountered, Areas Needing Survey or Monitoring.

CONFIDENTIAL



Survey Corridor
Cultural Resource
A Area needing survey or monitoring
Surveyed
Previously surveyed; not walked
No permission to access
Flooded rice field/dense vegetation/low archaeological sensitivity; not walked
1, 2, ... 23 RD 1000 Features (see Table 6)

Portions of Verona, Taylor Monument, Pleasant Grove, and Rio Linda 7.5' USGS quadrangles

0 0.6 1.2 Kilometers
0 0.6 1.2 Miles
1:24,000

Figure 3d. Surveyed Areas, Resources Encountered, Areas Needing Survey or Monitoring.

CONFIDENTIAL

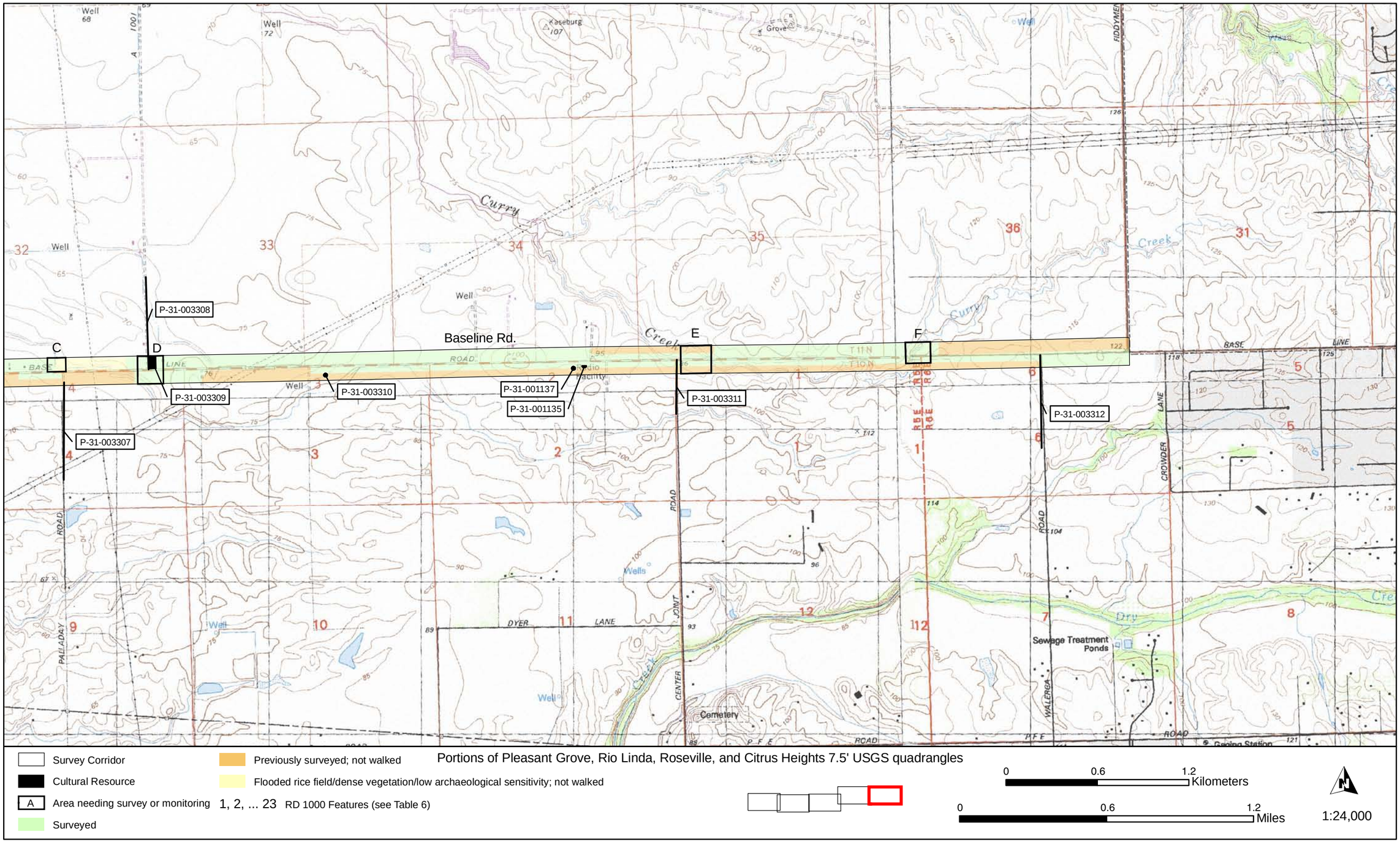


Figure 3e. Surveyed Areas, Resources Encountered, Areas Needing Survey or Monitoring.

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RESOURCE DESCRIPTIONS AND NATIONAL/CALIFORNIA REGISTER RECOMMENDATIONS (BY MARY MANIERY)

In all, 74 cultural resources were noted within the APE of the current project. Twenty-four of these pertain to RD 1000. As discussed previously, this large Historic Landscape is considered eligible to the National Register. All records on this district and its relevant features are adequate, and it is not discussed further in this section. Of the remaining 50 cultural resources noted within the project corridor, 20 are east of the Sacramento River (not including the 24 features of RD 1000, which have been described above in the Records Search Methods and Results). The remaining 30 resources are west of the river in Yolo County. Some resources are described separately, from west to east; others are grouped together under a particular theme and described as a whole.

RESOURCES WEST OF THE SACRAMENTO RIVER

P-57-000566 (By Eric Wohlgemuth)

Site P-57-000566 is an extensive prehistoric archaeological site with a small historic-period component. It is located on Yolo Ridge along the channel of Cache Creek Slough, one half-mile north of the town of Yolo (see Figure 3a). Prehistoric artifacts were found in farm fields on both sides of County Road 98 and north of County Road 16A. As presently recorded, the site spans about 1,200 meters east-west, and extends an unknown distance north and south of the surveyed 180-meter-wide corridor. The historic-period component is just west of County Road 98 and immediately north of a cluster of buildings along County Road 16A.

The prehistoric site component is a dispersed scatter of fire-altered rock, flaked stone debris, and flaked and ground stone artifacts. The artifact scatter is contiguous over about 42 acres on several adjacent fields of varying elevations, but no artifacts were found in four to six acres of residential property in the center of the site. This suggests that much of the deposit may be buried, as does finding abundant fire-altered rock and some flaked stone in small runoff channels created by irrigation spills between adjacent fields of different elevation east of County Road 98. The dispersed scatter probably represents a blend of multiple archaeological sites located on Yolo Ridge, but there may be intact areas below the plow zone.

It is possible that this site was recorded as YOL-35 by D. Gallup, apparently in the 1930s or 1940s. Gallup reported two sites but only one location, which is east of County Road 98 and about 300 meters north of the site limits that could be defined within the project corridor. As surface artifacts extend north of the project corridor in this area, P-57-000566 could extend as far as the recorded YOL-35 location. Unfortunately, Gallup's site record has virtually no information about what was found at YOL-35, only that each site had been leveled, and that collectors had dug for artifacts there. At this point, there is no way to know if YOL-35 connects with the current site without inventorying the intervening 300 meters.

The historic-period component is an old agricultural well and two concrete drains. The drains are board-formed concrete with medium-sized, mixed-gravel-aggregate concrete. The western drain had a large concrete apron, which has been broken off and moved to the east of the drain.

Neither the prehistoric nor the historic-period component of the site has been evaluated for the National or California Register.

P-57-000567

This property serves as the focal point of a large farming operation. There are two houses, two garages, a carport, a privy, seven sheds, two corrals, a windmill, three wells, a greenhouse, and a chicken coop on the 10-acre parcel. The main house appears to have been built around 1900, likely for James Scarlett, a local farmer. It is at the east end of the property and is a massive Prairie-style two-story square structure with many modifications and additions. The other house is at the far west end of the parcel and is a single-story, rectangular, wood-frame building constructed around the 1930s in a Minimal Traditional style. Other structures more than 50 years of age

include the windmill and wells, the barn and one corral, the privy, the garages, and five of the sheds. The other features are modern additions to the property.

This farmstead appears to have been expanded through the years, including in the 1930s. The main residential structures—the two houses—have been significantly altered. Although the Prairie-style house retains its mass, the window and door fabric and placement, exterior fabric, and addition of a one-story garage/office have significantly altered the original architectural detailing and compromised the overall integrity of the structure. The second house has also been altered and does not retain original integrity. As a result of the changes to the original residential structures, this property no longer retains adequate integrity to qualify for inclusion in the National Register or California Register.

P-57-000568

This property is a single-story residence with a ranch-style appearance but may reflect an adaptation of an earlier house. A structure is depicted at this location on a 1941 USGS map, and the core of the house (a simple rectangular gable-roof structure) may date to this early period. The house was modified after 1960 and expanded to its current ranch-style appearance. Changes included a hipped-roof addition nearly the same size as the original structure, aluminum slider windows, a brick skirt, and board siding. As a result of the changes to the house, this property no longer retains adequate integrity to qualify for inclusion in the National Register or the California Register under any criteria.

P-57-000569

This house is rectangular in mass, with a cross-gable roof clad with composition shingles. Siding on the house is aluminum, with simulated horizontal boards and louvers in the gable ends. The house is on a concrete slab foundation and there are exterior brick chimneys on the west central façade and the north façade. Other structures include a modern metal-clad storehouse and two sheds and a garage that are more than 50 years of age. Alterations include aluminum slider windows and sliding glass doors, creation of a bay window, the addition of an exterior chimney and brick skirt, and replacement of the exterior fabric. The barn and sheds are contemporary with the original house (circa 1910s) but are now clad with metal. The warehouse is less than 20 years old.

While the property is associated with local farming, key elements, such as the house, have been heavily modified and no longer resemble the 1910s farmstead design. The original appearance of the house in particular has been altered by additions, window replacements, and exterior fabric modifications and does not retain original integrity. As a result, this property no longer retains adequate integrity to qualify for inclusion in the National Register or the California Register under any criteria.

P-57-000405 (Cramer House)

This two-story Victorian Italianate house was built around 1870 by Lewis Cramer. It has an irregular plan atop a brick foundation. Exterior walls are wood-lapped siding. Windows are historic-period hooded one-over-one double-hung sash, and there is a two-story bay window on the front side. Three outbuildings also appear to be from the historic period and contemporary to the house.

Development of this portion of Yolo County began in the 1850s with scattered farmsteads associated with wheat and grain farming. According to Les (1986): "Cramer was one of the early pioneers whose diligence resulted in a prosperous farming operation despite the hardships of frontier life." The house now sits on 28 acres and remains in the Cramer family.

The official 1986 Yolo County survey noted that this house is among the most ornate of the remaining Italianate homes and is one of several that remain from the original pioneers that settled the area following the Gold Rush (Les 1986). Despite a few changes, it retains a sense of time and place and is very distinctive on the rural landscape. It has a high level of integrity of location, setting, design, workmanship, feeling, and association and meets Criterion C of the National Register. It may qualify under criteria A or B as well, given its association the Cramer family for more than 100 years and their role in the development of Yolo County's farming community. This house is included in local registers and is a landmark in the county. Therefore, this property,

including the house, associated outbuildings, and mature vegetation and landscaping, is recommended as eligible for inclusion in the National Register and/or the California Register. The period of significance extends from ca. 1870, when the house was built, to circa 1925, when Lewis Cramer's son, Charles, took over the property. Significance is at a local level.

P-57-000406

This is a substantial two-story house dating to the early 1900s. The house sits on a stone foundation, and is rectangular in plan with symmetrical massing. There are two historic-period additions, one each on the east and west sides of the house. Several modern barns and a garage have been built east of the house.

Settlement and farming in this area of Yolo County began by 1850s, focusing on animal husbandry and grain production. Following a major flood in 1878 many farmers left the region. This property, part of a 413-acre parcel, was acquired by George B. Eustis and William V. Jubb soon after the flood, likely on speculation. James Eustis was the sole owner of this parcel until at least 1930 and may have been the original owner of the house (Gilbert 1879; Proctor 1915, 1926).

The house, while modified, retains a high level of integrity and is one of the few late nineteenth/early twentieth-century farm houses left in the area. Research to establish comparable properties and determine the uniqueness of this property in the county has not been completed, and the site remains unevaluated.

P-57-000407

This house is a one-story cottage with a modern detached garage and barn. The house sits on a brick foundation with an irregular plan. Windows are historic-period one-over-one double-hung wood sash, in pairs and singles. There is an exterior brick chimney. On the south side is a modern one-story detached garage.

Blosser and Walters (2002a) note that this house was built in the 1910s. It retains little appearance of this early construction date. A massive addition, connecting deck, and some replacement windows, all added since 2002, have overwhelmed the original structure. The barn, however, does reflect an early 1910s construction date, although it has been covered with metal sheeting.

This property, part of a 413-acre parcel, was acquired by George B. Eustis and William V. Jubb soon after the 1878 flood, likely on speculation. Eustis was the sole owner by 1915. He subdivided the large parcel into eight lots by 1926 and two of those were then subdivided into eight additional lots (Gilbert 1879; Proctor 1915, 1926). After the parcel was subdivided this lot was owned by Thornton M. Craig, a local merchant. It is probable that the house was built for Craig between 1915 and 1925.

While the property is associated with local farming, key elements, such as the house, have been heavily modified. The original appearance of the house in particular has been altered by additions and window replacements and does not retain original integrity. As a result of the loss on integrity, this property no longer retains adequate integrity to qualify for inclusion in the National Register or the California Register under any criteria.

P-57-000408

This is a single-family residence and shed. The house is rectangular in plan on a concrete foundation, with wood-shingled exterior walls and many Craftsman elements. Windows are historic-period one-over-one or two-over-one double-hung windows. A recent rectangular corrugated metal shed is located southeast of the house.

This property is on one of the Eustis' subdivided parcels and was bought between 1915 and 1926. It is likely that the house was built during this period. Craftsman cottages were very popular in the 1910s and 1920s and often could be purchased from catalogue or pattern books and then built. Yolo County and the Sacramento Valley have many examples of Craftsman farm houses, and this is not a unique or unusual representation of that style of architecture. While the builder is unknown, this house appears to have been built at a time when large-scale farms were being subdivided and sold as small parcels, a trend common in the region. Therefore, this property is not important to local history or persons and is not an outstanding example of Craftsman architecture. It does not appear to qualify for inclusion in the National Register or the California Register under any criteria.

P-57-000574

This property consists of a house and two barns. The house is surrounded by palms, oaks, conifers, and other trees, hedges, and lawn. A white picket fence separates the property from the road and fields on the north and east. The property is on the east side of agricultural fields and serves as a ranch/farmstead. The house was built before 1905 in a Folk Victorian style. The original house is two-stories, rectangular, and has a gable roof and a side entry. There are two one-story additions, a cross-gable addition on the north side and a one-story wrap-around shed-roof addition on the north and west sides. Siding throughout the structure is channeled horizontal boards.

The house is depicted on a 1905 map and was likely built by the late 1880s. Since then it has had the two single-story additions, and some original window openings have been boarded over. New aluminum sliders are present as well. These alterations have changed the overall appearance and integrity of the house. The outbuildings, while contemporary with the house, have also had alterations, changes in exterior fabric, removal of windows, and other modifications. While the original core of the house is discernable, the additions and window replacements have altered its Folk Victorian character and compromised its overall integrity. As a result, this property no longer retains adequate integrity to qualify for inclusion in the National Register or the California Register under any criteria.

P-57-000412

This property was recorded in 2002 by JRP Historical Consulting. It includes a one-story, single-family Minimal Tradition-style house, a hipped-roof garage, and a shed. The house is rectangular and has board-and-batten siding with a brick skirt, a side gable roof, and aluminum slider windows. This house is depicted on a 1953 USGS quadrangle and, based on architectural style, may have been built as early as the 1930s. A one-room addition is present on the north façade. All windows are replacements, and the front entry has been modified.

This parcel was owned by Laugenour and his descendants (refer to above discussion of agricultural history) from the 1870s to at least 1926 (Ashley 1908; Gilbert 1879; Proctor 1915, 1926). The current house, however, was constructed after the Laugenour family began selling parcels of land in the 1930s and 1940s.

Minimal Traditional-style houses are present throughout the Sacramento Valley and Yolo County and represent a type of "no-frills" style popular during the Depression years. This example has been heavily modified with total window replacements, additions, and fabric modifications. The common style and lack of associated history, combined with compromised integrity, makes this property appear to be ineligible for inclusion in the National Register or the California Register.

P-57-000413

Resource 16 consists of a square, gable-roofed barn. Originally covered with board siding, it is now clad with metal sheets. It retains multi-pane windows and has a newer roll-up metal door on the east gable end. Two trailers are also present on the property.

This parcel appears to have been used for farming or pasturage throughout the first half of the twentieth century and did not contain structures at that time. The current structure is first depicted on a 1953 USGS map; it does not appear on the 1941 map. The 1953 map depicts only the barn, indicating that it likely was used for crop storage instead of a residence or labor camp.

While the property is associated with local farming, the barn represents a post-World War II development. The simplicity of the structure and location at the edge of agricultural fields suggests that it was probably a seasonal facility. There are many similar barns throughout the region, and this example is not unique or outstanding, nor is it an early example of barn architecture. The architecture is simple and unembellished. Therefore, this property does not appear to qualify for inclusion in the National Register or the California Register under any criteria.

P-57-000582

The property at 953580 County Road 17 contains a primary residence, a bunkhouse, trailers, sheds, and shower house and appears to serve as an agriculture labor camp. There are two historic-period structures, the

bunkhouse and the shower house. The bunkhouse is a one-story, rectangular structure with a gable roof covered in sheet metal. Corrugated metal sheets wrap around the base of the building. The siding is board-and-batten. Fenestration is symmetrical and consists of six-pane windows. A small shed-roof addition on the west end appears to be a bathroom. It is clad in corrugated metal sheets. The east end has a centrally placed door and an overhang supported by four posts. The concrete-block shower house is west of the bunkhouse and has a gable roof covered with sheet metal, a door on the north side, exposed rafter tails, and boarded-up louvers in the gable ends.

This parcel appears to have been used for farming or pasturage throughout the first half of the twentieth century and did not contain structures during that period: the current structure is first depicted on a 1953 USGS map; it does not appear on the 1941 map. Based on the use of concrete blocks and the construction style, the bunkhouse and shower house likely were built after World War II but before 1953.

While the property is associated with local farming, the bunk and shower house represent a post-World War II development. The simplicity of the structure and the presence of a communal shower house indicate that the property likely functioned as a labor camp and was probably a seasonal facility similar to its use today. There are many similar camps throughout the region, and this example is not unique or outstanding. The architecture is simple and unembellished, and the bunkhouse has been modified, detracting from its original integrity. Therefore, this property does not appear to qualify for inclusion in the National Register or the California Register under any criteria.

P-57-000565

This property, once called Greenwoods and now Lang Orchard, consists of two single-family homes, a garage, a pole barn, a hay barn, a well, and landscaping. The house at 13018 County Road 117 was built in 1939-1940 by the Langs. It is a one-story brick single-family dwelling with a stepped gable roof clad with composition shingles, and has a brick garage. A second house to the west was built in 2001. Two barns are west of the houses, one a pre-1938 large wood-frame, gable-roof barn now clad with vertical sheets of corrugated metal, the second a gable-roof open-sided structure less than 50 years old. A concrete, board-form well is located south of the brick house.

The 1857 General Land Office plat for this area depicts a house at this location labeled "Greenwoods." No other historical information was found on this house, but the GLO depiction does indicate that the property was developed early. Walters (1997:34) notes that after a major flood in 1878, most farmers in the area left. Three major landowners—Hershey, Wilcoxson, and Laugenour—bought up much of the abandoned land and used it for pasturage. Charles Luce had purchased this parcel from the Laugenours by 1926 and raised chickens. Frank Lang bought the 142-acre chicken ranch in 1938 and planted walnuts.

When the Langs purchased the property in the late 1930s, the barn was the only structure present. They built the house and garage and put in the well in 1939-1940. A second house was added in 2001 to accommodate their growing family. The property serves as the business and residential center for Lang Orchards, a walnut-farming operation. The walnut orchard surrounds the property.

The brick house and garage have not been altered and are good examples of late 1930s Minimal Traditional farmhouse architecture. Research to establish comparable properties and determine the uniqueness of this property in the county has not been completed. If the house and garage are unique in the area, they may meet Criterion C of the National Register and Criterion 3 of the California Register as a representative example of a type of farmhouse architecture not prevalent in the region. Further research is needed to make this evaluation.

Wells

Four wells were recorded within the project corridor. These range from abandoned wells with dilapidated concrete structures (P-57-000584) to intact, working systems with a pump house, vent, and concrete drain (P-57-000583), an original concrete drain with a new pump (P-57-000571), and a metal stand pipe abandoned in favor of a new well (P-57-000577).

When the Colusa Drain project was completed in 1913 (see *Cultural Context* on page 10), many local farmers pooled their tax assessments to create their own drainage and reclamation systems. Throughout the area owners sank private wells for their water needs and built private canals to bring water they purchased and pumped

out of the main canals to their farms. Wells P-57-000583 and -000584 are included in Reclamation District 820, a small district established soon after completion of the Knights Landing Ridge Cut in 1915. Immediately north is RD 730 (Proctor 1926). The well at Structure 4 is part of RD 1600. These districts are privately owned and operated. The wells along County Road 16A (P-57-000571) and County Road 17 (P-57-000577) do not appear to be associated with a formal irrigation district and are privately owned and operated. The Road 17 Well (P-57-000577) is recommended ineligible to the National and California registers due to a lack of integrity, while the Road 16 Well (P-57-000571) remains unevaluated.

For the wells associated with reclamation districts, at this point RD 820 and 1600 have not been evaluated as a whole. If the overall districts are determined eligible, these irrigation features could be considered a contributing element to a larger irrigation feature and may meet National Register and California Register criteria. Presently, wells P-57-000583 and -000584 remain unevaluated.

Culverts

Two culverts on County Road 17 were newly recorded (P-57-000576 and –000578). Both are old board-form concrete structures still functioning as culverts. They have not been evaluated for the National and California registers.

Ditches and Canals

Six ditches and canals were recorded in the APE, all in eastern Yolo County. All are features that still deliver irrigation water to fields. Two of the ditches were newly recorded west of the Colusa Drain on either side of County Road 17 (P-57-000579 and -000580), and a third (P-57-000581) was newly recorded east of the Colusa Drain. The ditch system previously recorded as P-57-000521 was re-visited and the record updated to include additional distribution ditches. None of these features has been evaluated for the National and California registers. The other two ditches/canals include the Tule Canal and the Colusa Drain itself. These site records were adequate and were not updated for this study.

Other Water-Supply Features

The site record for the Knights Landing Ridge Cut (P-57-000140 [YOL-183H]) was updated to include an historic-period pump at the point where the cut meets the eastern end of County Road 17. The site record for an unnamed private levee (YOL-212H) is adequate, and was not updated as part of this project.

Historic-Period Roads

Four historic-period road alignments were recorded west of the river, all near the western terminus of the project north of the town of Yolo. These are all single-lane paved surfaces, and all are patched and maintained for current use. They include county roads 98A (P-57-000570), 98E (P-57-000572), 99A (P-57-000573), and the portion of County Road 17 west of its intersection with State Route 113 (P-57-000575). New site records were completed for all. They remain unevaluated with respect to the National and California registers.

Oak Groves

Site record updates were filed for two historic-period valley oak groves that are components of resource P-57-000132, historic-period oak groves in Yolo County. One is for Oak Grove 12 along County Road 17, which is now apparently reduced in size from when it was recorded in 1986. The other is for Mixed Oak Stand 12 along the levee fronting the western bank of the Sacramento River. This mixed stand appears largely the same as recorded in 1986. Neither has been evaluated for the National or California registers. Because these natural stands of native oaks are not actually cultural resources, we question the need to consider them as such, and recommend that they be dropped from the list of cultural resources on file at the Information Center.

Utility Pole Lines

Utility poles run along parts of County roads 16A and 17. While these routes are shown on early maps, the poles are tall, modern replacements. Only a few shorter poles were noted along County Road 17. The pole line routes were not formally recorded because of their compromised integrity. These resources are not shown on any tables or maps—this is the only place they are discussed.

RESOURCES EAST OF THE SACRAMENTO RIVER

P-31-000096

This property consists of two single-family residences, four sheds or barns, and a trailer. Blosser and Walters (2002b), who did not have access to the property, estimated the age of the structures to be ca. the 1950s. The update to this record corrects the construction date to 1917; Mr. Gerald Minatre, the current landowner, reports that the house was built in 1917 by the Pullman family (personal communication, 2006). His family bought the land in 1955 and around 1970 enclosed the front porch, which originally had white pillars, making it into another room. The three buildings on the south side of the lot are the house, a two-story gambrel barn, and a one-story building in the southwest corner that was once a bunkhouse and has been converted into an apartment for family members. The site has not been evaluated for the National or California registers.

P-31-003300 and P-31-003301

These are two houses built after World War II but before 1953, likely around 1950, during a time of great expansion in Sacramento County following the war. Each is simple in design, with few architectural embellishments. Alterations to Structure 1 include an aluminum portico with a wooden frame over the front entrance and a small addition to the rear, which do not detract from the overall integrity. Alterations to Structure 2 include replacement of all original windows with modern windows, placement of an aluminum portico with wooden frame over the front entrance, and a small addition to the rear. Dates of the alterations are unknown, but the extensive modifications have resulted in a loss of historical integrity. Replacement of original windows and doors, in particular, has altered the sense of time and place significantly. Neither of these houses appears eligible for the National or California registers.

P-31-003305

This property includes a Minimal Tradition-style house, two barns converted into workshops, three sheds, and a modern log house. The current owners have created an irrigation pond and extensive wetlands landscaping around the new house, with willows, pistachios, pecan trees, camphor trees, and ornamental and native plants and shrubs.

The Minimal Tradition house faces Locust Road and is a single-story rectangular structure with a composition clad gable roof. It has a centered exterior brick chimney on the south side, louvers in the gable ends, exposed rafter tails, and modern aluminum siding. Fenestration is symmetrical and consists of new aluminum sliders and a wood and glass door. A small shed-roof addition sits on the east side of the house. A small plywood-covered shed with a wood-shingle gable roof stands behind the house and may have been an outhouse. The outlying barns and sheds have been enlarged, connected, and otherwise modified since 1980 and have compromised integrity.

According to the current land owners, this house and property were part of the Stolenberg farm in the 1950s through the 1970s. The house is depicted on a 1953 USGS map and may date to the late 1930s. It was built during a time of great expansion in Sacramento County following World Wars I and II. It is simple in design, with few architectural embellishments. The Minimal Traditional-style was very popular in the area after 1935, and numerous examples exist in the county. This house is not architecturally exceptional or unique and has compromised integrity due to replacement of windows and an addition. Most of the associated outbuildings have been altered significantly and do not retain their historical integrity. This property does not appear eligible under National Register Criterion C or California Register Criterion 3. It is not associated with an important event or person in Sacramento County and so does not meet criteria A or B (or criteria 1 or 2). As such it does not appear

eligible for inclusion in the National Register and is not considered an historical resource for the purposes of the California Environmental Quality Act.

P-31-003302

The 1911 Arcade USGS quadrangle shows a structure at this location, but based on architectural style and materials, the current structure was built later, perhaps in the 1920s. It is also depicted on the 1953 USGS quadrangle. Alterations include replacement of all original windows with aluminum sliders, placement of an aluminum awning across the front façade, and three wooden frame additions on three sides to enlarge the structure. Dates of the alterations are unknown, but the extensive modifications have resulted in a loss of historical integrity. Replacement of original windows and doors, in particular, has altered the sense of time and place significantly. Structure 3 does not appear to be eligible to the National Register or the California Register.

P-31-002684

This historic-period structure at the northeast corner of Baseline and Brewer roads was recorded but not evaluated in 2002 by JRP Historical Consulting. It is an irregularly shaped Minimal Traditional house with a composition shingle roof, wooden board-and-batten walls with a brick skirt, and an attached garage. It has been recently modified, as evidenced by sliding aluminum windows and aluminum garage doors.

The house was built during a time of great expansion in Sacramento County following World War II. It is simple in design, with few architectural embellishments. The Minimal Traditional style was very popular in the area immediately following World War II, and numerous examples exist in the county. This house is not architecturally exceptional or unique and has compromised integrity due to replacement of windows and a major addition. It does not appear eligible under National Register Criterion C or California Register Criterion 3. It is not associated with an important event or person in Sacramento County and does not meet criteria A or B (or criteria 1 or 2). As such it does not appear eligible for inclusion in the National Register and is not considered an historic resource for the purposes of the California Environmental Quality Act.

P-31-003309 (Eagle Hotel)

General Land Office plats from the 1850s show the Eagle Hotel and an adjacent barn at what is now the northeast corner of Baseline and Country Acres roads. Road houses were common throughout this period. Many, such as this one, disappeared into obscurity after a few years and left no other historical record. There are no references in either Sacramento or Sutter County history to an Eagle Hotel in this area.

No trace of the hotel architecture remains on the surface, nor could we find any artifacts dating to this period. Surface finds include concrete rubble piles, a refuse pile dating to the 1950s-1970s, a concrete slab with a metal pipe, and planted fruit and shade trees. The only surface feature which may be associated with the Eagle Hotel is an eight-foot-wide, one-foot-deep depression, where recent concrete block fragments have been dumped. With the possible exception of the planted trees, all other artifacts and landscape features appear to date to the early to middle twentieth century. The site has not been evaluated for the National or California Register. However, there is the potential for buried features associated with the historic-period hotel (cellar, privy, well, etc.).

P-31-003310 (Isolated Obsidian Biface)

A bifacially flaked obsidian tool (Figure 4) was found in a very shallow and narrow drainage furrow near the base of a moderate southeast-facing slope, approximately 100 meters (328 feet) west of an unnamed drainage. The tool was made from opaque black obsidian and measured 5.4 centimeters long by 2.6 centimeters wide and 0.8 centimeters thick. The surrounding area was carefully examined, and no other archaeological material was found. Isolates are categorically exempt from the National or California registers.

Figure 4. Obsidian Biface Isolate.

P-31-001137

This is a small, unornamented one-story building used to assist instrument landings at McClellan Air Force Base. It was built after 1952 but was abandoned by 1987, when the Air Force sold the property. The structure was recommended as not eligible for the National Register in 2000 (Napoli 2000).

P-31-001135 [CA-PLA-945H]

A small, historic-period refuse scatter was recorded in 1999 in a plowed field within the current project APE. Artifacts noted included dark-brown earthenware, yellow earthenware, and white ironstone ceramics, as well as clear-glass bottle fragments. The only artifacts that were observed in the dense weeds during current project fieldwork were a faceted aqua glass fragment and a fragment of yellow earthenware ceramic. The site has not been evaluated for the National or California registers.

Historic-Period Roads

East of the Sacramento River, seven road alignments that intersect Riego/Baseline Road are plotted on historic-period USGS quadrangles (1953 or earlier): Elder, Locust, Brewer, Palladay, Country Acres, and Watt/Center Joint roads, and a recently abandoned segment of Walerga Road. Excepting Walerga Road, all roads are modern, paved, currently maintained, and in use. None has been evaluated for the National or California registers. Two of these roads appear to be associated with RD 1000.

Historic-Period Railroads

Two railroads, one still in operation, run roughly north-south along the eastern edge of the American Basin. The Western Pacific Railroad is an extant rail line. The abandoned Sacramento Northern Railroad is about 1,000 feet (300 meters) to the east; all of its rails and ties have been removed. The portions of each in Placer and Sacramento Counties have been recommended not eligible to the National or California registers (Waechter et al. 2007), but the segments of each in Sutter County remain unevaluated.

SUMMARY AND RECOMMENDATIONS

As indicated on Figure 3a-e and in Table 6, there are 48 historic-period cultural resources, one prehistoric archaeological site with an historic-period component, and one prehistoric isolate within the 600-foot-wide survey corridor. Additionally, 24 contributing/potentially contributing features of the RD 1000 Rural Historic Landscape District lie within the survey corridor. These features are numbered in Figure 3a-e, and listed in order from west to east in Table 6, along with our recommendations. They include the Garden Highway and the Sacramento River levee beneath it, Powerline Road and the unnamed canals paralleling or crossing it, Riego/Baseline Road and various associated canals, North Drainage Canal, East Drainage Canal, North Main Drainage Canal, East Levee (SUT-85H), Natomas Road (which is situated on top of the East Levee), and Natomas East Main Drainage Canal.

In addition to the RD 1000 features, P-57-000405 (the Cramer House) has been recommended as eligible for inclusion in the National Register. An additional 33 historic-period resources may meet National and/or California Register criteria but were not formally evaluated at this phase of the research. These include six domestic structures or farmsteads, 12 water-conveyance features, 11 roads, two railroad grades, a refuse scatter, and the reported location of the Eagle Hotel (P-31-003309). The remaining 14 architectural or engineering resources have been extensively modified and do not retain integrity, are not within a formal reclamation district, and/or are of a common architectural style in the region and are not the best example of a type. One bridge has been determined not eligible to the National Register, and the 13 other resources appear ineligible for listing in the National or California registers.

One prehistoric site (P-57-000566) was recorded and has not been evaluated for eligibility. A single prehistoric isolate was also found—by definition isolates do not meet the criteria for listing on the National Register.

RECOMMENDATIONS

If adverse effects to any of the 24 contributing elements of RD 1000 are unavoidable, it will be necessary to prepare a Finding of Effects and develop a plan (in consultation with the lead federal agency and the State Office of Historic Preservation) to mitigate these effects. This is true for P-57-000405 (the Cramer House) as well.

All unevaluated historic-period cultural resources should be avoided during all phases of project construction. If avoidance is not feasible at any or all of these resources, they will need to be evaluated for their National or California register eligibility by a qualified historical archaeologist, historian, or architectural historian. It is likely that most of these resources will be determined ineligible.

Prehistoric occupation site P-57-000566, and the historic-period well at the same location, should be avoided during all phases of project construction. If avoidance is not feasible, the site will need to be evaluated for its National or California Register eligibility by a qualified prehistoric archaeologist, and the well by a qualified historical archaeologist.

No further management is recommended for the 14 sites determined or recommended as not eligible to the National Register, or for the isolated biface.

One area remains to be surveyed, as access was denied for a short stretch south of Riego Road between the Natomas East Main Canal and the Western Pacific Railroad grade (see Area K on Figure 3d). Preliminary designs show the course of the pipeline along the north side of Riego/Baseline Road; if this holds, and no project-related ground-disturbing impact will occur in the unsurveyed area south of the road, there is no need to complete the inventory. If, on the other hand, designs change and the project is routed along the south side of Riego/Baseline Road in this area, this parcel must be surveyed prior to project construction.

Finally, there is potential in eight areas for buried resources not visible from the surface; these areas are noted in Figure 3a-e, and are also listed on Table 7. We recommend the mapped location of P-31-003309 (Eagle Hotel, Area D) be tested by an historical archaeologist for the presence of buried historic-period features; alternatively, project excavation should be monitored by an historical archaeologist. For the other locations, we recommend they be backhoe-tested by a geoarchaeologist, or that a qualified archaeologist or geoarchaeologist be present to monitor all

Table 6. Resources and Recommendations.

Primary Number	Trinomial or Other Designation	Resource Description	Map Key	National Register Status	Recommendation
West of the Sacramento River (west to east)					
P-57-000566	EW-1/H	Prehistoric occupation site with historic well	-	Unevaluated	Avoid or evaluate
P-57-000567	Site 33	Single family home	-	Appears not eligible	No further management
P-57-000568	Site 32	Single family home	-	Appears not eligible	No further management
P-57-000569	Site 31	Single family home	-	Appears not eligible	No further management
P-57-000570	County Road 98A	Rural road	-	Unevaluated	Avoid or evaluate
P-57-000571	Road 16A Well	Well	-	Unevaluated	Avoid or evaluate
P-57-000405	HRI/105	"Cramer House"	-	Eligible (Les 1986)	Avoid or prepare Finding of Effect
P-57-000406	-	Single family home	-	Unevaluated	Avoid or evaluate
P-57-000572	County Road 98E	Rural road	-	Unevaluated	Avoid or evaluate
P-57-000407	-	Single family home	-	Appears not eligible	No further management
P-57-000408	-	Single family home	-	Appears not eligible	No further management
P-57-000573	County Road 99A	Rural road	-	Unevaluated	Avoid or evaluate
-	-	Possible buried soils	G	-	Backhoe test or monitor construction
P-57-000574	Site 26	Single family home	-	Appears not eligible	No further management
P-57-000575	County Road 17	Rural road	-	Unevaluated	Avoid or evaluate
P-57-000132	Oak Grove 12	Native valley oak stand	-	Unevaluated	Re-designate; not a cultural resource
-	-	Possible buried soils, unplowed oak grove	H	-	Backhoe test or monitor construction
P-57-000576	Road 17 Culvert 2	Culvert	-	Unevaluated	Avoid or evaluate
P-57-000412	-	Single family home	-	Appears not eligible	No further management
P-57-000577	Road 17 Well	Well	-	Appears not eligible	No further management
P-57-000578	Road 17 Culvert 1	Culvert	-	Unevaluated	Avoid or evaluate
P-57-000579	Ditch 1	Canal	-	Unevaluated	Avoid or evaluate
P-57-000580	Ditch 2	Canal	-	Unevaluated	Avoid or evaluate
P-57-000413	-	Single family home	-	Appears not eligible	No further management
P-57-000584	Well 15	Well	-	Unevaluated	Avoid or evaluate
P-57-000582	Site 14	Agricultural Labor Camp	-	Appears not eligible	No further management
P-57-000583	Well 13	Well associated with RD 820	-	Unevaluated	Avoid or evaluate
P-57-000140	CA-YOL-183H	Colusa Drainage and Knights Landing Ridge Cut; updated to include P12 pump	-	Unevaluated	Avoid or evaluate
P-57-000581	Ditch 3	Canal	-	Unevaluated	Avoid or evaluate
P-57-000519	CA-YOL-212H	Levee	-	Unevaluated	Avoid or evaluate
P-57-000414	-	Tule Canal and levee	-	Unevaluated	Avoid or evaluate

Table 6. Resources and Recommendations *continued*.

Primary Number	Trinomial or Other Designation	Resource Description	Map Key	National Register Status	Recommendation
West of the Sacramento River (west to east) cont					
P-57-000521	-	Canal system	-	Unevaluated	Avoid or evaluate
P-57-000565	Site 4	Single family home	-	Unevaluated	Avoid or evaluate
-	-	Possible buried soils	I	-	Backhoe test or monitor construction
P-57-000132	Mixed Oak Stand 12	Native valley oak stand	-	Unevaluated	Re-designate; not a cultural resource
East of the Sacramento River (west to east)					
-	RD 1000 HAER CA-187	Rural Historic Landscape District (Garden Highway; Sacramento River Levee; Powerline, Riego and Natomas roads; North Drainage Canal; East Drainage Canal; North Main Canal; East Levee; Natomas East Main Drainage Canal)	-	All Contributing RD 1000 Features: Determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
	RD 1000	Garden Highway and Sacramento River Levee	22, 23[a]	Contributing Element determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	-	Possible buried soils	J	-	Backhoe test or monitor construction
-	RD 1000	North/south feeder canal crossing Riego Road	21	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	RD 1000	Powerline Road	1	Contributing Element determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	RD 1000	Unnamed north/south canal on east side of Powerline	2	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	24C0439	1980 Bridge; East Canal Tributary 2	-	Determined ineligible (Caltrans 2006)	No further management
-	RD 1000	East/west feeder canal on west side of Powerline	3	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	RD 1000	East/west feeder canal on east side of Powerline	4	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	RD 1000	Feeder canal on west side of Powerline	5	Potentially Contributing Element	Avoid or prepare Finding of Effect
P-51-000096	-	1917 farmstead at 9311 Powerline Road	-	Unevaluated	Avoid or evaluate
-	RD 1000	North Drainage Canal crossing on Powerline Road	6	Contributing Element determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	RD 1000	Riego Road	7	Contributing Element determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	RD 1000	Unnamed canal on north side of Riego Road	8	Potentially Contributing Element)	Avoid or prepare Finding of Effect
-	RD 1000	North Drainage Canal crossing on Riego Road	9	Contributing Element determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	RD 1000	East/west canal paralleling Riego Road on the north, between Point 9 and Pacific Avenue	10	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	RD 1000	Unnamed north/south canal extending north from Riego Road	11	Potentially Contributing Element	Avoid or prepare Finding of Effect

Table 6. Resources and Recommendations *continued*.

Primary Number	Trinomial or Other Designation	Resource Description	Map Key	National Register Status	Recommendation
East of the Sacramento River (west to east) cont					
-	RD 1000	East/west canal paralleling Riego Road on the south, between Point 9 and Pacific Avenue	12	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	RD 1000	North/south canal extending south from Riego Road	13	Potentially Contributing Element	Avoid or prepare Finding of Effect
P-51-000115	RD 1000	Segment of Riego Road; Segment of East Drainage Canal	-	Contributing Element determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	RD 1000	East Drainage Canal on east side of SR 70/99	14	Contributing Element determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	RD 1000	North/south canal extending south from Riego Road	15	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	RD 1000	North Main Canal crossing Riego Road	16	Contributing Element determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	RD 1000	North/south canal paralleling the east side of Pacific Avenue	17	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	RD 1000	Unnamed canal on south side of Riego Road	18	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	RD 1000	Unnamed canal extending north from Riego Road	19	Potentially Contributing Element	Avoid or prepare Finding of Effect
-	CA-SUT-85H/ RD 1000	East Levee, Natomas Road, and Natomas East Main Drainage Canal	20,24	Contributing Elements determined eligible with OHP concurrence (2D2)	Avoid or prepare Finding of Effect
-	-	Unsurveyed property; access denied	K	-	Surface survey or avoid impacts south of Riego Road
-	CA-SAC-464H	Segment of Western Pacific Railroad	-	Unevaluated (Recommended not eligible in Placer and Sacramento Counties by Waechter et al 2007)	Avoid or evaluate
P-51-00087; P-31-001136	CA-SUT-87H; CA-PLA-946H	Remains of Sacramento Northern Railroad	-	Unevaluated (Recommended not eligible in Placer and Sacramento Counties by Waechter et al 2007)	Avoid or evaluate
P-31-003301	Site 2	Single family home	-	Unevaluated	Avoid or evaluate
P-31-003300	Site 1	Single family home	-	Unevaluated	Avoid or evaluate
P-31-003303	Elder Road	Rural road	-	Unevaluated	Avoid or evaluate
P-31-003304	Locust Road	Rural road	-	Unevaluated	Avoid or evaluate
P-31-003305	Site 34	Single family home at 7975 Locust Road	-	Appears not eligible	No further management
P-31-003302	Site 3	Single family home	-	Unevaluated	Avoid or evaluate
P-31-003306	Brewer Road	Rural road	-	Unevaluated	Avoid or evaluate
P-31-002684	-	Single family home at 9110 Baseline Road	-	Appears not eligible	No further management
-	-	Possible buried soils	C	-	Backhoe test or monitor construction
P-31-003307	Palladay Road	Rural road	-	Unevaluated	Avoid or evaluate

Table 6. Resources and Recommendations *continued*.

Primary Number	Trinomial or Other Designation	Resource Description	Map Key	National Register Status	Recommendation
East of the Sacramento River (west to east) cont					
P-31-003308	Country Acres Road	Rural road	-	Unevaluated	Avoid or evaluate
P-31-003309	-	Eagle Hotel	-	Unevaluated	Avoid or evaluate
-	-	Eagle Hotel vicinity	D	-	Backhoe test or historical archaeologist monitor construction
P-31-003310	Isolate 1	Obsidian biface	-	Ineligible (categorically exempt)	No further management
P-31-001137	-	Radio facility	-	Ineligible (Napoli 2000)	No further management
P-31-001135	CA-PLA-945H	Historic trash scatter	-	Unevaluated	Avoid or evaluate
P-31-003311	Watt/Center Joint Road	Rural road	-	Unevaluated	Avoid or evaluate
-	-	Possible buried soils along Curry Creek	E	-	Backhoe test or monitor construction
-	-	Possible buried soils along Curry Creek	F	-	Backhoe test or monitor construction
P-31-003312	Walerga Road	Rural road	-	Unevaluated	Avoid or evaluate

Notes: [a] RD 1000 features are numbered on this table and on Figure 4; areas needing further work are designated with a letter on this table and Figure 4.

ground-disturbing activities (trenching, grading, blading, drilling, boring, etc.) within the designated areas. Finally, areas in the vicinity of historic residences are sensitive for buried historic-period features if the pipeline is routed around the back of the houses where privies and other features would have been located. In the project APE, subsurface features are likely to occur at the following residences built prior to the advent of indoor plumbing: P-31-003300, -003302, P-57-000405, -000406, -000407, -000408, -000567, -000574, and P-51-000096, as well as the location of the former Eagle Hotel (P-31-003309, Area D). If this occurs, then we recommend project excavation in the rear of these residences be monitored by an historical archaeologist.

While construction monitoring is a valid option in these areas, it should be pointed out that the late discovery of buried resources will most likely result in costly project delays. We therefore recommend backhoe testing, to be done far enough in advance of project construction that any late discoveries can be evaluated without halting construction work.

If buried resources are encountered, work should halt in the immediate vicinity while a qualified archaeologist examines the find. In the unlikely event that human remains are uncovered, the archaeologist and/or construction foreman must contact the County Coroner immediately, in accordance with the State Health and Safety Code (Section 7050.5). The Coroner may determine that the remains are archaeological, in which case the Native American Heritage Commission should also be informed.

If project plans change to include unsurveyed areas, additional inventory may be necessary.

Table 7. Areas with Potential for Buried Soils and Cultural Resources.

Drainage	Soil Name	Map Key	Recommendation
Cache Creek	Yolo Silt Loam	G	Backhoe test or monitor construction
Cache Creek	Yolo Silt Loam	H	Backhoe test or monitor construction
Sacramento River	San Joaquin Loam	I	Backhoe test or monitor construction
Sacramento River	Nueva Loam	J	Backhoe test or monitor construction
Unnamed	Possible buried soils	C	Backhoe test or monitor construction
Eagle Hotel vicinity	n/a	D	Backhoe test or historical archaeologist monitor construction
Curry Creek	Possible buried soils	E	Backhoe test or monitor construction
Curry Creek	Possible buried soils	F	Backhoe test or monitor construction
Unsurveyed property	n/a	K	To be surveyed if impact occurs south of Riego Road

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1941 Woodland, CA 7.5-minute Topographic Quadrangle Map. On file, Government Publications, California State Library, Sacramento, CA.

1953 Pleasant Grove 7.5' Topographic Quadrangle Map. On file, Government Publications Section, California State Library, Sacramento.

1967 Pleasant Grove 7.5' Topographic Quadrangle Map. On file, Government Publications Section, California State Library, Sacramento.

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Walters, Shipley

1997 *Elkhorn: Island in an Inland Sea, A History of the Elkhorn District of Yolo County*. Elkhorn History Project, West Sacramento, California. On file, Sacramento Room, Sacramento Public Library.

Warner, C. F.

1913 *Official Map of Placer County, California.* On file, California History Room, California State Library, Sacramento.

White, Gregory G.

2003 Population Ecology of the Colusa Reach of the Sacramento River. Ph.D. dissertation, Department of Anthropology, University of California, Davis.

Wiberg, Randy S.

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Wilson, Norman L., and Arlean H Towne

1978 Nisenan. In *California*, edited by Robert F. Heizer, pp. 387-397. Handbook of North American Indians 8, William C. Sturtevant. Smithsonian Institution, Washington, DC.

Wohlgemuth, Eric

1998 Preliminary Report of Excavations at YOL-187, Yolo, Yolo County. Paper presented at the Society for California Archaeology Northern Data Sharing Meeting, Sacramento.

2004 The Course of Plant Resource Intensification in Native Central California. University of California, Davis. Ph.D. dissertation.

Yolo, County of

2007 *About Yolo County.* Yolo County Homepage. http://www.yolocounty.org/history.htm Last updated March 2007. Accessed August 2007.

APPENDIX B

NATIVE AMERICAN CONSULTATION

All correspondence is organized chronologically beginning with the most recent items.

1. summary table
2. correspondence with the Native American Heritage Commission
3. sample letters of introduction to Native American individuals listed by the Heritage Commission
4. written responses from Native American individuals or representatives of groups
5. notes from a 7/31/2007 field review of the project area east of the Sacramento River with Mr. Randy Yonemura

Appendix B: Native American Consultation History

Affiliation	Name	Date	Contact	Response	Date	Contact	Response	Date	Contact	Response	Date	Contact	Response
Native American Heritage Commission	Karen Fowler	7/6/2006	Letter	10/12/2006 - The record search found no cultural resources in the immediate project area; provided a list of people who might have knowledge of the area (see below).									
Native American Heritage Commission	Debbie Pilas-Treadway	1/18/2007	Letter	1/22/2007 - The record search found no cultural resources in the immediate project area; provided a list of people who might have knowledge of the area (see below).									
Native American Heritage Commission	Debbie Pilas-Treadway	4/18/2007	Letter	5/12/2007 - The record search found no cultural resources in the immediate project area; provided a list of people who might have knowledge of the area (see below).									
Miwok	Leland Daniels	11/30/2006	Letter of introduction					7/6/2007	phone call	knows of no sites and has no concerns			
Ione Band of Miwok Indians, Cultural Committee Chair	Billie Blue Elliston	11/30/2006	Letter of introduction		5/4/2007	follow up email	could not open project map attachment	7/6/2007	phone call	arranged for field visit; conducted field review 7-9-07; requested Native American monitoring of areas sensitive for buried soils, and funding for such monitoring			
Maidu; Washoe	Rose Enos	11/30/2006	Letter of introduction					7/12/2007	phone call	concerned mainly with human remains; satisfied with survey results and plans for backhoe testing in sensitive areas			
El Dorado Miwok Tribe	Ernest Faircloth, Cultural Preservation	11/30/2006	Letter of introduction					7/6/2007, 7/12/07	phone call	not at phone number provided by NAHC			
Shingle Springs Band of Miwok Indians	Nicholas Fonseca, Chairperson	11/30/2006	Letter of introduction		5/4/2007	follow up email	none	7/6/2007	phone call	left message with Jeff Murray			
Ione Band of Miwok Indians	Matthew Franklin, Chairperson	11/30/2006	Letter of introduction		5/4/2007	follow up email	referred to Cultural Committee						
Strawberry Valley Rancheria, Maidu, Miwok	Robert Kerfoot	11/30/2006	Letter of introduction		5/4/2007	follow up email	none	7/6/2007	phone call	phone not working			
Shingle Springs Band of Miwok Indians	Jeff Murray, Cultural Resources Manager	11/30/2006	Letter of introduction		5/4/2007	follow up email	none	7/12/2007	phone call	knows of no sites and has no concerns; would like to be notified if we do backhoe testing of areas sensitive for buried soils			
Enterprise Rancheria of Maidu Indians	Glenda Nelson, Chairperson	11/30/2006	Letter of introduction	rec'd letter from Ren Reynolds, who did not know of sites in area but is concerned if sites are found in construction	5/4/2007	follow up email	received email regarding general concerns but not specific to project	7/6/2007	phone call	out of office; left message with Ren Reynolds per receptionist;	7/9/2007	phone call, Ren Reynolds	wants monitors at sensitive spots
Strawberry Valley Rancheria, Maidu, Miwok	Calvine Rose, Chairperson	11/30/2006	Letter of introduction		5/4/2007	follow up email	message returned undelivered	7/6/2007	phone call	phone not working			
El Dorado Miwok Tribe	Jeri Scambler, Chairperson	11/30/2006	Letter of introduction		5/4/2007	follow up email		7/6/2007, 7/12/2007	phone calls	left messages			
Todd Valley Miwok-Maidu Cultural Foundation	Christopher Suehead, Cultural Representative	11/30/2006	Letter of introduction		5/4/2007	follow up email	message returned undelivered	7/6/2007	phone call	phone not working			
United Auburn Indian Community of the Auburn, Maidu and Miwok	Jessica Tavares, Chairperson	11/30/2006	Letter of introduction	rec'd letter from Greg Baker, requesting copies of project archaeological and environmental documents				7/6/2007, 7/12/2007	phone calls	left messages with Greg Baker per receptionist			
Ione Band of Miwok Indians	Glen Villa, Jr., Cultural Committee Chairperson	11/30/2006	Letter of introduction					7/6/2007	phone call	no longer on Cultural Committee, not called			
Enterprise Rancheria of Maidu Indians	Frank Watson, Vice Chairperson	11/30/2006	Letter of introduction	see Glenda Nelson above	5/4/2007	follow up email	received letter and email regarding general concerns but not specific to project	7/6/2007	phone call	out of office; left message with EPA representative per receptionist;			
Miwok	Randy Yonemura	11/30/2006	Letter of introduction	12/14/2006 he asked me to call 12/15; I was sick; I returned the call 12/20, 12/21 left messages.				7/3/2007	phone call	talked with Laura, he's very busy but knows he needs to get in touch with us	7/31/2007	field review east of river	see separate page
				3/6/2007 Randy called. We arranged to talk on 3/12 about getting together to talk about Line 407 East				7/10,7/11,7/12	phone calls	left messages	9/30/2007	field review west bank of river	Has concerns for high ground on both sides of the river, especially for old location of Greenwood's on the west side of the river, or any old ferries. Will leave issues in the Yolo area to people like Michelle La Pena and Kesner Flores.
				3/12 - 13 - 14 - hard to contact Randy.									
Cortina Band of Indians	Elaine Patterson, Chairperson				4/30/2007	Letter of Introduction							
Cortina Band of Indians	Bill Combs, Vice Chairperson				4/30/2007	Letter of Introduction		7/6/2007	phone call	referred to Kesner Flores			
Rumsey Indian Rancheria of Wintun	Marshall McKay, Chairperson				4/30/2007	Letter of Introduction		7/6/2007	phone call	referred to Al Valsequillo, who referred in turn to Michelle La Pena	7/11/2007	Called M. La Pena	She identified herself as a temporary spokesperson for the Rumsey group. Rumsey has treatment protocols and preferences. They have preferred monitors in Kesner's group. She asked for a copy of the 4/30/07 Rumsey consultation letter so she can establish a working file. It was emailed to her 7/11. 7/22/07--received communication from Marshall McKay requesting more information as the project progresses.
Rumsey Indian Rancheria of Wintun	Kesner Flores, Cultural Resources Specialist				4/30/2007	Letter of Introduction		7/6/2007	phone call	considers site EW-1 is significant, wants to be consulted about site, wants monitor if site tested			
Wintun Environmental Protection Agency	Karen Flores				4/30/2007	Letter of Introduction		7/6/2007	phone call	referred to Kesner Flores			

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

May 7, 2007

Laura Leach-Palm
Far Western

Sent by Fax: 530-756-0811
Number of Pages: 3

RE: Proposed PG&E Line 407 West, Sutter County

Dear Ms. Leach-Palm:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Yolo County
May 3, 2007

Cortina Band of Indians
Elaine Patterson, Chairperson
PO Box 1630 Wintun / Patwin
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax

Cortina Band of Indians
Bill Combs, Vice Chairperson
PO Box 1630 Wintun / Patwin
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax

Rumsey Indian Rancheria of Wintun
Marshall McKay, Chairperson
P.O. Box 18 Wintun (Patwin)
Brooks , CA 95606
mmckay@rumseywintu-nsn.
(530) 796-3400
(530) 796-2143 Fax

Rumsey Indian Rancheria of Wintun
Kesner Flores, Cultural Resources Specialist
PO Box 1047 Wintun / Patwin
Wheatland , CA 95692
calnagpra@hotmail.com
925-586-8919

Wintun Environmental Protection Agency
P.O. Box 1839 Wintun (Patwin)
Williams , CA 95987
corwepa@hotmail.com
(530) 473-3318
(530) 473-3319
(530) 473-3320 - Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed PG&E Line 407 West, Yolo County.

Native American Contacts
Sutter County
May 3, 2007

Enterprise Rancheria of Maidu Indians
Frank Watson, Vice Chairperson
1940 Feather River Blvd., Suite B Maidu
Oroville , CA 95965
eranch@cncnet.com
(530) 532-9214
(530) 532-1768 FAX

Enterprise Rancheria of Maidu Indians
Glenda Nelson, Chairperson
1940 Feather River Blvd., Suite B Maidu
Oroville , CA 95965
eranch@cncnet.com
(530) 532-9214
(530) 532-1768 FAX

Strawberry Valley Rancheria
Calvine Rose, Chairperson
PO Box 667 Maidu
Marysville , CA 95901 Miwok

Strawberry Valley Rancheria
Robert Kerfoot
PO Box 667 Maidu
Marysville , CA 95901 Miwok

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STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

April 26, 2007

Laura Leach-Palm
Staff Archaeologist
2727 Del Rio Place, Suite A
Davis, CA 95618

Sent by Fax: 530-756-~~3941~~ 6811

Number of Pages: 3

Re: Proposed PG&ELine 407 West, Sutter County

Dear Ms. Leach-Palm:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

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If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Sutter County
April 24, 2007

Enterprise Rancheria of Maidu Indians
Frank Watson, Vice Chairperson
1940 Feather River Blvd., Suite B Maidu
Oroville , CA 95965
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(530) 532-9214
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530-653-2760

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robert_kerfoot@yahoo.com
530-478-8833
530-653-2760

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This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed PG&E Line 407 West, Sutter County.

Native American Contacts
Yolo County
April 24, 2007

Cortina Band of Indians
Elaine Patterson, Chairperson
PO Box 1630 Wintun / Patwin
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax

Cortina Band of Indians
Bill Combs, Vice Chairperson
PO Box 1630 Wintun / Patwin
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax

Rumsey Indian Rancheria of Wintun
Marshall McKay, Chairperson
P.O. Box 18 Wintun (Patwin)
Brooks , CA 95606
mmckay@rumseywintu-nsn.
(530) 796-3400
(530) 796-2143 Fax

Rumsey Indian Rancheria of Wintun
Kesner Flores, Cultural Resources Specialist
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Wheatland , CA 95692
calnagpra@hotmail.com
925-586-8919

Wintun Environmental Protection Agency
P.O. Box 1839 Wintun (Patwin)
Williams , CA 95987
corwepa@hotmail.com
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This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed PG&E Line 407 West, Yolo County.

FW FAR WESTERN
ANTHROPOLOGICAL RESEARCH GROUP, INC.

April 18, 2007

Ms. Debbie Pilas-Treadway
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Re: PG&E Line 407 West, Sacred Land Inventory search; Native American contact names and addresses

Dear Ms. Pilas-Treadway:

Pacific Gas and Electric (PG&E) is proposing an extension of a natural-gas transmission and distribution pipeline (pipeline 407). Our letter of June 26, 2006 addressed the eastern portion of the project, a 15-mile long pipeline in Sacramento, Sutter, and Placer counties (see the enclosed map). Our January 18, 2007 letter addressed a new portion of the pipeline extending west from the same intersection. (I am enclosing a copy of your response for your reference). Since our January inquiry, the pipeline alignment has changed to that shown on the enclosed copy of a portion of the Sacramento 30 x 60 minute USGS quadrangle. The 7.5 minute USGS quadrangles and the corresponding township, range, and sections are the same as before, and are listed below.

County	Quad	T/R	Sections
Yolo	Woodland	10N 1E	1
Yolo	Woodland	Rio Jesus Maria Land Grant	
Yolo	Grays Bend	Rio Jesus Maria Land Grant	
Yolo	Taylor Monument	Rio Jesus Maria Land Grant	
Sutter	Taylor Monument	10N 3E	1
Sutter	Verona, Taylor Monument	11N 3E	36
Sutter	Verona, Taylor Monument	10N 4E	5, 6
Sutter	Verona	11N 4E	31
Sutter	Taylor Monument	Rio Jesus Maria Land Grant	

As noted previously, a 404 permit will be required from the Army Corps of Engineers for the work, which qualifies the project as a federal undertaking, subject to Section 106 of the National Historic Preservation Act. On behalf of PG&E, Essex Environmental has contracted Far Western Anthropological Research Group, Inc. to conduct consultations with the Native American community, and conduct a records search and pedestrian survey. This letter requests a check of the Sacred Lands file for the project area. We would also appreciate an updated list of the addresses and phone numbers of Native Americans who live in the region.

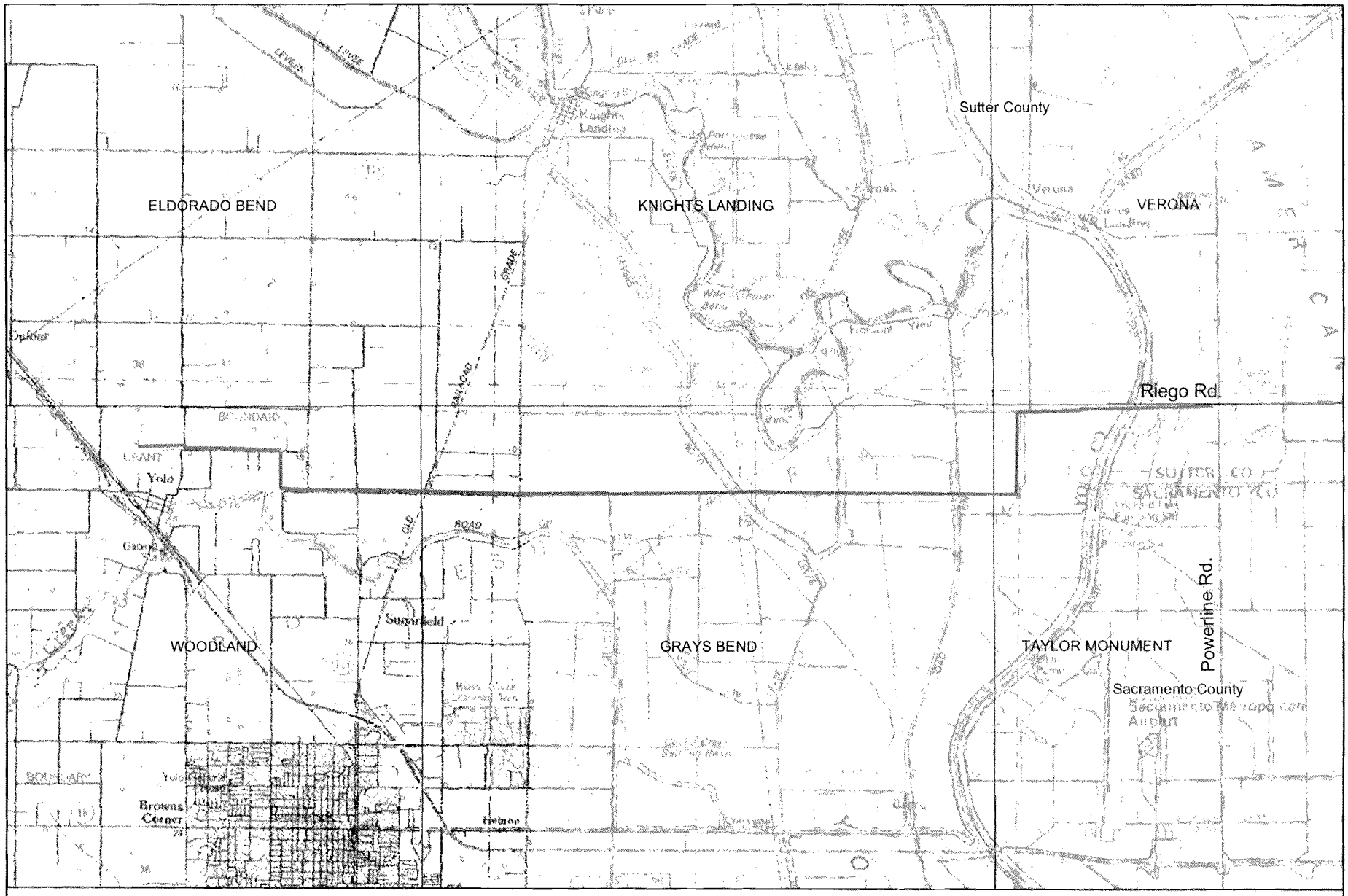
I will FAX this letter and the map, but will also mail hard copy. If you have any questions please do not hesitate to contact me at (530) 756-3941 or laura@farwestern.com. Thank you for your time.

Sincerely,

Laura Leach-Palm
Staff Archaeologist

Encl. 2 maps.

MAIN OFFICE 2727 DEL RIO PLACE, SUITE A, DAVIS, CALIFORNIA 95618 • PHONE: 530-756-3941 • FAX: 530-756-0811
CENTRAL COAST OFFICE 1725 DIABLO DRIVE, SAN LUIS OBISPO, CALIFORNIA 93405 • PHONE: 805-547-0489
GREAT BASIN BRANCH PO BOX 758, VIRGINIA CITY, NEVADA 89440 • PHONE: 775-847-0223 • FAX: 775-847-0224
DESERT BRANCH 2880 E. FLAMINGO ROAD, SUITE G, LAS VEGAS, NEVADA 89121 • PHONE: 702-982-3691 • FAX: 702-982-3693



Line 407 West

A Portion of Sacramento 30'x 60' USGS quadrangle
Township 10N Range 1E, 3E, 4E
and Rio Jesus Maria Landgrant

0 1 2 3 4 5
Kilometers

0 1 2 3 4 5
Miles

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
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(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

January 22, 2007

Laura Leach-Palm
Staff Archaeologist
Far Western Anthropological Research Group, Inc.

Sent by Fax: 530-758-0811
Number of Pages: 3

Re: Proposed Natural-Gas Transmission and Distribution Pipeline- Pipeline 407, Yolo County; Natural-Gas Transmission and Distribution Pipeline- Pipeline 407, Sutter County.

Dear Ms. Leach-Palm:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Yolo County
January 22, 2007

Cortina Band of Indians
Elaine Patterson, Chairperson
PO Box 1630 Wintun / Patwin
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax

Cortina Band of Indians
Bill Combs, Vice Chairperson
PO Box 1630 Wintun / Patwin
Williams , CA 95987
(530) 473-3274 - Voice
(530) 473-3190 - Voice
(530) 473-3301 - Fax

Rumsey Indian Rancheria of Wintun
Marshall McKay, Chairperson
P.O. Box 18 Wintun (Patwin)
Brooks , CA 95606
(530) 796-3400
(530) 796-2143 Fax

Rumsey Indian Rancheria of Wintun
Kesner Flores, Cultural Resources Specialist
PO Box 1047 Wintun / Patwin
Wheatland , CA 95692
calnagpra@hotmail.com
925-586-8919

Wintun Environmental Protection Agency
P.O. Box 1839 Wintun (Patwin)
Williams , CA 95987
corwepa@hotmail.com
(530) 473-3318
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Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed natural-gas transmission and distribution pipeline - Pipeline 407, Yolo County.

Native American Contacts
Sutter County
January 22, 2007

Butte Tribal Council
Ren Reynolds
1693 Mt. Ida Road Maidu
Oroville , CA 95966
(530) 589-1571

Strawberry Valley Rancheria
Calvine Rose, Chairperson
PO Box 667 Maidu
Marysville , CA 95901 Miwok
redfoxcomish@saber.net
530-478-8833
530-653-2760

Enterprise Rancheria of Maidu Indians
Frank Watson, Vice Chairperson
1940 Feather River Blvd., Suite B Maidu
Oroville , CA 95965
eranch@cncnet.com
(530) 532-9214
(530) 532-1768 FAX

Strawberry Valley Rancheria
Robert Kerfoot
PO Box 667 Maidu
Marysville , CA 95901 Miwok
robert_kerfoot@yahoo.com
530-478-8833
530-653-2760

Enterprise Rancheria of Maidu Indians
Glenda Nelson, Chairperson
1940 Feather River Blvd., Suite B Maidu
Oroville , CA 95965
eranch@cncnet.com
(530) 532-9214
(530) 532-1768 FAX

Maidu Nation
Clara LeCompte
P.O Box 204 Maidu
Susanville , CA 96130
(530) 257-9691

This list is current only as of the date of this document.

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This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed natural-gas transmission and distribution pipeline - Pipeline 407, Sutter County.

January 18, 2007

Ms. Debbie Pilas-Treadway
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Re: Sacred Land Inventory Search; Native American contact names and addresses

Dear Ms. Pilas-Treadway:

Pacific Gas and Electric (PG&E) is proposing a second phase of study for a natural-gas transmission and distribution pipeline (pipeline 407). Our letter of June 26, 2006 addressed the first phase of the project, a 15-mile long pipeline in Sacramento, Sutter, and Placer counties, extending from the intersection of Powerline and Riego roads east on Riego/Baseline Road to Fiddyment Road. The current portion of the project, Phase II, addresses the portion of the same pipeline that extends west from the same intersection, approximately 13 miles. A 404 permit will be required from the Army Corps of Engineers, and thus qualifies the project as a federal undertaking, subject to Section 106 of the National Historic Preservation Act.

The Phase II project area is in Yolo and Sutter Counties, and is shown on the enclosed copy of a portion of the Sacramento 30 x 60 minute USGS quadrangle. The 7.5 minute USGS quadrangles and each corresponding township, range, and section is listed below.

County	Quad	T/R	Sections
Yolo	Woodland	10N 1E	1
Yolo	Woodland	Rio Jesus Maria Landgrant	
Yolo	Grays Bend	Rio Jesus Maria Landgrant	
Yolo	Taylor Monument	Rio Jesus Maria Landgrant	
Sutter	Taylor Monument	10N 3E	1
Sutter	Verona, Taylor Monument	11N 3E	36
Sutter	Verona, Taylor Monument	10N 4E	5, 6
Sutter	Verona	11N 4E	31
Sutter	Taylor Monument	Rio Jesus Maria Landgrant	

On behalf of PG&E, Essex Environmental has contracted Far Western Anthropological Research Group, Inc. to conduct consultations with the Native American community, and conduct a records search, and pedestrian survey. This letter requests a check of the Sacred Lands file for the project area. We would also appreciate addresses and phone numbers of Native Americans who live in the region.

I will FAX this letter and the map, but will also mail hard copy. If you have any questions please do not hesitate to contact me at (530) 756-3941 or laura@farwestern.com. Thank you for your time.

Sincerely,

Laura Leach-Palm
Staff Archaeologist

Encl. 1 map.

MIWOK MAIDU United Auburn Indian Community of the Auburn Rancheria

JESSICA TAVARES CHAIRPERSON | JULIE HUFF VICE CHAIR | DAVID KEYSER SECRETARY | DOLLY SUEHEAD TREASURER | GENE WHITEHOUSE COUNCIL MEMBER

December 26, 2006

Far Western Anthropological Research Group, Inc.
Laura Leach-Palm, Staff Archaeologist
2727 Del Rio Place, Suite A
Davis, CA 95616

Subject: Cultural Resources Study for PG&E Pipeline 407

Dear Ms. Leach-Palm:

Thank you for requesting information regarding the proposed PG&E natural gas pipeline project, a portion of which extends into Placer County, California. The United Auburn Indian Community (UAIC) is comprised of Miwok and Maidu people whose traditional homelands include portions of Placer and Nevada counties, as well as some surrounding areas. The Tribe is concerned about development within ancestral territory that has potential to impact sites and landscapes that may be of cultural or religious significance. We appreciate the opportunity to comment on the proposed project.

In order to ascertain whether or not the project could affect cultural resources that may be of importance to the UAIC, we would like to receive copies of any archaeological reports that have been, or will be, completed for the project. We also request copies of environmental documents for the proposed project so that we have an opportunity to comment on potential impacts and proposed mitigation measures related to cultural resources.

We look forward to reviewing results of your investigations. If you have any questions, please contact our environmental consultant, Shelley McGinnis, of Analytical Environmental Services at (916) 447-3479. Thank you.

Sincerely,

Greg Baker
Tribal Administrator

CC: Shelley McGinnis, AES

RECEIVED 1/17/07

Tribal Office • 575 Menlo Drive, Suite 2 • Rocklin, CA 95765 • (916) 663-3720 • FAX (916) 663-3727

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

October 12, 2006

Laura Leach-Palm
Staff Archaeologist

Sent by Fax: 530-756-0811
Number of Pages: 4

Re: Proposed Line 407, Sacramento County.

Dear Ms. Palm:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Sutter County
October 11, 2006

Enterprise Rancheria of Maidu Indians
Frank Watson, Vice Chairperson
1940 Feather River Blvd., Suite B Maidu
Oroville , CA 95965
eranch@cncnet.com
(530) 532-9214
(530) 532-1768 FAX

Enterprise Rancheria of Maidu Indians
Glenda Nelson, Chairperson
1940 Feather River Blvd., Suite B Maidu
Oroville , CA 95965
eranch@cncnet.com
(530) 532-9214
(530) 532-1768 FAX

Strawberry Valley Rancheria
Calvine Rose, Chairperson
PO Box 667 Maidu
Marysville , CA 95901 Miwok
redfoxcomish@saber.net
530-478-8833
530-653-2760

Strawberry Valley Rancheria
Robert Kerfoot
PO Box 667 Maidu
Marysville , CA 95901 Miwok
robert_kerfoot@yahoo.com
530-478-8833
530-653-2760

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Line 407, Sutter County.

Native American Contacts
Sacramento County
October 11, 2006

Rose Enos
15310 Bancroft Road
Auburn , CA 95603
(530) 878-2378
Maidu
Washoe

El Dorado Miwok Tribe
Jeri Scambler, Chairperson
PO Box 1284
El Dorado , CA 95623
miwoktribe@hotmail.com
530-363-3257
Miwok

Billie Blue Elliston
604 Pringle Ave., #42
Galt , CA 95632
billiebob@softcom.net
(209) 745-7112
Miwok

El Dorado Miwok Tribe
Ernest Faircloth, Cultural Preservation
PO Box 258
El Dorado , CA 95623
(530) 626-7572
Miwok

Leland Daniels
7531 Maple Leaf Lane
Sacramento , CA 95828
(916) 689-7330
Miwok

Ione Band of Miwok Indians
Matthew Franklin, Chairperson
PO Box 1190
Ione , CA 95640
matt@ionemiwok.org
(209) 274-6753
(209) 274-6636 Fax
Miwok

Randy Yonemura
4305 - 39th Avenue
Sacramento , CA 95824
(916) 421-1600
Miwok

Ione Band of Miwok Indians
Glen Villa, Jr. Cultural Committee Chairperson
901 Quail Court
Ione , CA 95640
916-322-1617 w
209-274-5535 FAX
Miwok

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Line 407, Sacramento County.

Native American Contacts
Placer County
October 11, 2006

Rose Enos (on pg 1)
15310 Bancroft Road Maidu
Auburn , CA 95603 Washoe
(530) 878-2378

United Auburn Indian Community of the Auburn
Jessica Tavares, Chairperson
575 Menlo Drive, Suite 2 Maidu
Rocklin , CA 95765 Miwok
916 663-3720
916 663-3727 - Fax

Shingle Springs Band of Miwok Indians
Jeff Murray, Cultural Resources Manager
P.O. Box 1340 Miwok
Shingle , CA 95682 Maidu
shingle_springs_rancheria@hotmail.com
(530) 676-8010
(530) 676-8033 Fax

Shingle Springs Band of Miwok Indians
Nicholas Fonseca, Chairperson
P.O. Box 1340 Miwok
Shingle , CA 95682 Maidu
shingle_springs_rancheria@hotmail.com
(530) 676-8010
(530) 676-8033 Fax

Todd Valley Miwok-Maidu Cultural Foundation
Christopher Suehead, Cultural Representative
PO Box 1490 Miwok
Foresthill , CA 95631 Maidu
tvmmcf@foothill.net
(530) 367-3893 - Voice / Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Line 407, Placer County.

July 6, 2006

Ms. Karen Fowler
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Re: request for Sacred Land Inventory Search; Native American contact names and addresses

Dear Ms. Fowler:

Pacific Gas & Electric (PG&E) is proposing a new 15-mile long natural-gas transmission and distribution pipeline (Line 407). A 404 permit will be required from the Army Corps of Engineers, and thus qualifies the project as a federal undertaking, subject to Section 106 of the National Historic Preservation Act. On behalf of PG&E, Essex Environmental contracted with Far Western Anthropological Research Group, Inc. to conduct the cultural resources inventory.

The project area is outlined on the enclosed copy of a portion of the Sacramento 30 minute x 60 minute USGS quadrangle. The table below provides the counties the project is in plus the corresponding 7.5 minute U.S.G. S. quadrangles, townships and ranges, and sections.

County	Quadrangle	Township/Range		Section(s)
Placer	Pleasant Grove	10N	04E	1
		10N	05E	1 - 6
		11N	04E	36
		11N	05E	31 - 36
Placer	Roseville	10N	05E	1
		10N	06E	6
		11N	05E	36
		11N	06E	31
Sacramento	Taylor Monument	10N	04E	7 - 8
		10N	04E	17 - 20
Sutter	Pleasant Grove	10N	04E	1
		11N	04E	35 - 36
Sutter	Taylor Monument	10N	04E	3 - 8
Sutter	Verona	10N	04E	1 - 6
		11N	04E	4 - 5
		11N	04E	7
		11N	04E	31 - 35
Sutter	Verona	10N	04E	1 - 4

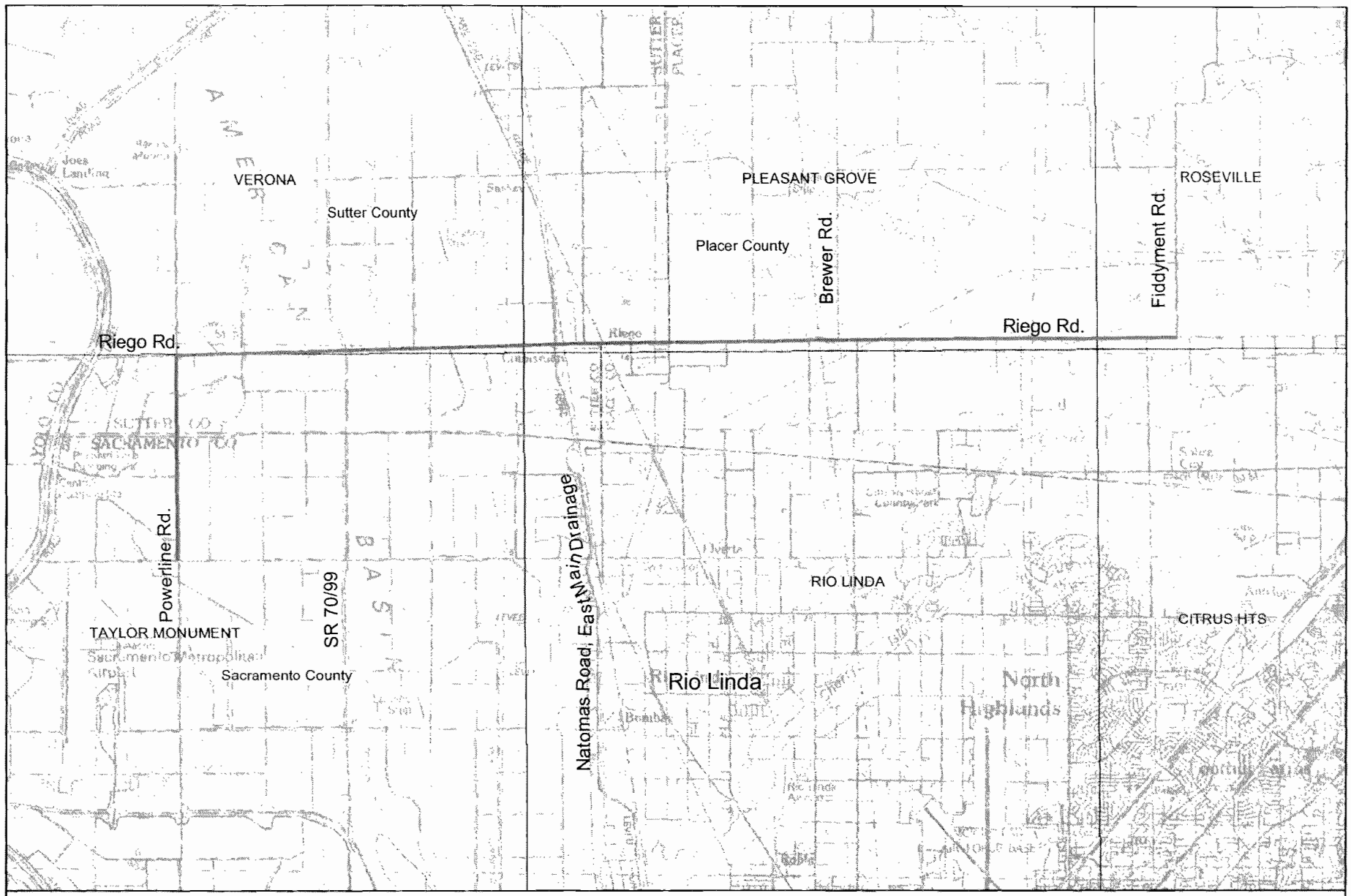
This letter requests a check of the Sacred Lands file for the vicinity of the project area. We would also appreciate addresses and phone numbers of Native Americans who live in the region.

I will FAX this letter and the map in two parts, but will also mail hard copy. If you have any questions please do not hesitate to contact me at (530) 756-3941 or laura@farwestern.com. Thank you for your time.

Sincerely,

Laura Leach-Palm
Staff Archaeologist

Encl. 1 map.



Line 407 East

A Portion of Sacramento 30'x 60' USGS quadrangle
Township 10N Range 4E, Township 11N Range 4,5 and 6E

0 1 2 3 4 5
Kilometers

0 1 2 3 4 5
Miles

April 30, 2007

Mr. Robert Kerfoot
Strawberry Valley Rancheria
P. O. Box 667
Marysville, CA 95901

Re: Cultural Resources Study for proposed pipeline, PG&E Line 407 West

Dear Mr. Kerfoot,

This letter is to let you know that Pacific Gas and Electric (PG&E) is proposing a second phase of study for a natural-gas transmission and distribution pipeline (pipeline 407) in Sutter and Yolo counties. Last November we contacted you about the eastern portion of this pipeline, Line 407 East, which is shown on the enclosed black-and-white map. Pedestrian survey of that area encountered a number of historic-period resources, but one prehistoric artifact only, an isolated flaked-stone tool (an obsidian biface).

Line 407 West, the second phase of work, extends west from the intersection of Powerline and Riego roads in Sacramento County, approximately 13 miles to the vicinity of the town of Yolo (see the enclosed color map). The project uses federal funds and must comply with Section 106 of the National Historic Preservation Act. We are writing to ask you for any information on cultural resources in the study area that you would like us to know about as the project proceeds.

TRC Essex, on behalf of PG&E, has contracted with Far Western Anthropological Research Group, Inc. to conduct the cultural resources study for Line 407 West, including consultations with the Native American community, a records search, assessment of the potential for buried archaeological deposits, and pedestrian survey. The Native American Heritage Commission's sacred lands file does not indicate cultural resources in the immediate project area. A records search at the Northeast Information Center, California State University, Chico, and the Northwest Information Center, Sonoma State University, Rohnert Park, identified about three dozen known or possible historic-period cultural resources within the study area, but no prehistoric resources.

If you have information about the study area I hope that you will call or write to us about it. You can reach me at (530) 756-3941 or by email, eric@farwestern.com. If we do not hear from you within a month (May 30, 2007), we will assume that you have no information or concerns to communicate.

Thank you for your time.

Sincerely,

Eric Wohlgemuth
Staff Archaeologist

Encl. 2 maps
Cc: W. Combs; K. Flores; M. McKay; G. Nelson; E. Patterson; C. Rose; F. Watson

April 30, 2007

Coordinator
Wintun Environmental Protection Agency
P.O. Box 1839
Williams, CA 95987

Re: Cultural Resources Study for proposed pipeline, PG&E Line 407 West

Dear Coordinator,

This letter is to let you know that Pacific Gas and Electric (PG&E) is proposing a study for a natural-gas transmission and distribution pipeline (pipeline 407) in Sutter and Yolo counties. Line 407 West extends west from the intersection of Powerline and Riego roads in Sacramento County, approximately 13 miles to the vicinity of the town of Yolo (please see the enclosed map). The project uses federal funds and must comply with Section 106 of the National Historic Preservation Act. We are writing to ask you for any information on cultural resources in the study area that you would like us to know about as the project proceeds.

TRC Essex, on behalf of PG&E, has contracted with Far Western Anthropological Research Group, Inc. to conduct the cultural resources study for Line 407 West, including consultations with the Native American community, a records search, assessment of the potential for buried archaeological deposits, and pedestrian survey. The Native American Heritage Commission's sacred lands file does not indicate cultural resources in the immediate project area. A records search at the Northeast Information Center, California State University, Chico, and the Northwest Information Center, Sonoma State University, Rohnert Park, identified about three dozen known or possible historic-period cultural resources within the study area, but no prehistoric resources.

If you have information about the study area I hope that you will call or write to us about it. You can reach me at (530) 756-3941 or by email, eric@farwestern.com. If we do not hear from you within a month (May 30, 2007), we will assume that you have no information or concerns to communicate.

Thank you for your time.

Sincerely,

Eric Wohlgemuth
Staff Archaeologist

Encl. 1 map
Cc: W. Combs; K. Flores; R. Kerfoot; M. McKay; G. Nelson; E. Patterson; C. Rose; F. Watson

November 30, 2006

Leland Daniels
7531 Maple Leaf Lane
Sacramento, CA 95828

Re: Cultural Resources Study for proposed pipeline, PG&E Line 407

Dear Mr. Daniels,

This letter is to let you know that the Pacific Gas and Electric Company (PG&E) is planning to construct a 14.5 mile long natural gas pipeline from just east of the Sacramento River to the junction of Fiddyment and Base Line roads near the city of Roseville (please see the enclosed map). Far Western Anthropological Research Group (Far Western) is conducting a cultural resources study for the project, and we are writing to ask if you have any information on cultural resources in the study area that you would like us to know about as the project proceeds. I hope that you will call or write to let us know. If we do not hear from you within a month (January 1, 2007), we will assume that you have no concerns to communicate.

The proposed pipeline would follow Powerline and Reigo/Baseline roads as shown on the enclosed map. The project will require a federal permit from the Army Corps of Engineers and thus qualifies as a federal undertaking, subject to Section 106 of the National Historic Preservation Act. To meet the requirements of Section 106, TRC Essex, on behalf of PG&E, contracted with Far Western to do a cultural resources study including a records search, field inventory, Native American consultation, and assessment of the potential for buried archaeological deposits.

The Native American Heritage Commission's sacred lands file does not indicate cultural resources in the immediate project area. A records search at the North Central Information Center, California State University, Sacramento, identified 51 known or possible historic-period cultural resources within the study area, but no prehistoric resources. A portion of the pedestrian survey has been done and one isolated flaked stone tool (an obsidian biface), and a number of historic-period roads, structures, and agricultural features were found. Additional survey is anticipated in the near future.

If you know of any cultural resources in or adjacent to the project area, or if you have anything that you would like to discuss about the project, you can reach me at (530) 756-3941 or by email, laura@farwestern.com.

Thank you for your time.

Sincerely,

Laura Leach-Palm
Staff Archaeologist

Encl. 1 map.
Cc: B. Elliston; R. Enos; E. Faircloth; N. Fonseca; M. Franklin; R. Kerfoot; J. Murray; G. Nelson; C. Rose; J. Scambler; C. Suehead; J. Tavares; G. Villa, Jr.; F. Watson; R. Yonemura

Rumsey Indian Rancheria

YOCHA-DE-HE

Rumsey Band of Wintun Indians

June 12, 2007

Eric Wohlgemuth
Far Western Anthropological Research Group, Inc.
2727 Del Rio Place, Suite A
Davis, CA 95616

Re: Cultural Resources Study for proposed pipeline, PG&E Line 407 West

Dear Mr. Wohlgemuth:

Thank you for your letter dated, April 30, 2007, seeking information regarding historic/sacred sites in the Sutter and Yolo Counties in vicinity of the 13 mile proposed pipeline, your proposed building site. We appreciate your efforts to contact us, and wish to respond.

At this time Rumsey Indian Rancheria of Wintun needs more information about the project and the building sites in order to make an accurate determination about whether there are any "historic properties" on this site. As the project progresses, when there is new information or there are historic remains are found, we do have a process to protect such important and sacred artifacts.

Upon such a finding, please contact the following individuals:

Mr. Marshall McKay
Chairman, Rumsey Indian Rancheria of Wintun
Office: (530)796-3400
mmckay@rumseywintun-nsn.gov

Mr. Leland Kinter
Office: (530)796-3400
Windug21@hotmail.com

And copy all communications to:

Rumsey Indian Rancheria

YOCHA-DE-HE

Rumsey Band of
Wintun Indians

LaPena Law Corporation
2001 N Street, Suite 100
Sacramento, CA 95814

Thank you again for your commitment to preserving our cultural heritage.

Sincerely,

Marshall McKay

Tribal Chairman

p.o. Box 18 Brooks, California 95606 p: 530.796.3400 f: 530.796.2143 www.rumseyband.com

Enterprise Rancheria

Estom Yumeka Maidu Tribe

1940 Feather River Blvd., Suite B
Oroville, CA. 95965-5723

Ph: (530) 532-9214
Fax: (530) 532-1768
Email: eranch@cncnet.com

May 2, 2007

Eric Wohlgemuth
Staff Archaeologist

RE: Cultural Resources Study for proposed pipeline,PG&E Line 407 West Sutter & Yolo Counties

Enterprise Rancheria

We offer tribal monitors and workers on these projects if needed!
Our protocol is as follows-

If during surveys or ground disturbing activities, any resources are uncovered all work shall cease within the area of the find, pending an examination of the site and materials by a professional Archaeologist and tribal site monitor.

If any remains are uncovered, the Health and Safety Code 7050-55097.9 shall be enforced and strictly adhered to!

The tribes will work with local authorities on the disposition of cultural resources.
We will be working with the tribes in that area on this project.

Thank You Ren Reynolds
Epa Planner
Site Monitor

DESIRABLE KNOWLEDGES AND ABILITIES

- REQUIREMENTS
- EXPERIENCE
- PREFERENCE

When developers and public agencies assess the environmental impact of their projects, they must consider "historical resources" as an aspect of the environment in accordance with California Environmental Quality Act (CEQA) Guidelines section 15064.5. These cultural features can include Native American graves and artifacts; traditional cultural landscapes; natural resources used for food, ceremonies or traditional crafts; and places that have special significance because of the spiritual power associated with them. When projects are proposed in areas where Native American cultural features are likely to be affected, one way to avoid damaging them is to have a Native American monitor/consultant present during ground disturbing work. In sensitive areas, it may also be appropriate to have a monitor/consultant on site during construction work.

A knowledgeable, well-trained Native American monitor/consultant can identify an area that has been used as a village site, gathering area, burial site, etc. and estimate how extensive the site might be. A monitor/consultant can prevent damage to a site by being able to communicate well with others involved in the project, which might involve:

1. Requesting excavation work to stop so that new discoveries can be evaluated;
2. Sharing information so that others will understand the cultural importance of the features involved;
3. Ensuring excavation or disturbance of the site is halted and the appropriate State laws are followed when human remains are discovered;
4. Helping to ensure that Native American human remains and any associated grave items are treated with culturally appropriate dignity, as is intended by State law.

By acting as a liaison between Native Americans, archaeologists, developers, contractors and public agencies, a Native American monitor/consultant can ensure that cultural features are treated appropriately from the Native American point of view. This can help others involved in a project to coordinate mitigation measures. These guidelines are intended to provide prospective monitors/consultants, and people who hire monitors/consultants, with an understanding of the scope and extent of knowledge that should be expected.

Enterprise Rancheria

Estom Yumeka Maidu Tribe

1940 Feather River Blvd., Suite B
Oroville, CA. 95965-5723

Ph: (530) 532-9214
Fax: (530) 532-1768
Email: eranch@cncnet.com

December 6, 2006

Laura Leach-Plam
Staff Archaeologist

RE: Cultural Resources Study for proposed pipeline, (PG&E)
Sacramento , County

Thank you for contacting Butte Tribal Council and Enterprise Rancheria on your project.
At this time we are not aware of any sites in that area.
Although this is a known tribal traveling area and homeland.
We offer Tribal Monitors to assist on these projects if needed.

Our protocol is as follows:

If during ground disturbing activities, any cultural resources are uncovered, all work shall cease within the find pending an examination of the site and materials by a professional archaeologist and tribal monitor.

If any human remains are uncovered, the Health and Safety Code 7050-55-097.9 shall be enforced and strictly adhered to.
The tribes will work with local authorities on the disposition of cultural resources.
We would like to tour the project area if possible!

Thank you Ren Reynolds
EPA Site Monitor
RenR_EPA@enterpriserancheria.org

- DESIRABLE KNOWLEDGES AND ABILITIES
- REQUIREMENTS
- EXPERIENCE
- PREFERENCE

When developers and public agencies assess the environmental impact of their projects, they must consider "historical resources" as an aspect of the environment in accordance with California Environmental Quality Act (CEQA) Guidelines section 15064.5. These cultural features can include Native American graves and artifacts; traditional cultural landscapes; natural resources used for food, ceremonies or traditional crafts; and places that have special significance because of the spiritual power associated with them. When projects are proposed in areas where Native American cultural features are likely to be affected, one way to avoid damaging them is to have a Native American monitor/consultant present during ground disturbing work. In sensitive areas, it may also be appropriate to have a monitor/consultant on site during construction work.

A knowledgeable, well-trained Native American monitor/consultant can identify an area that has been used as a village site, gathering area, burial site, etc. and estimate how extensive the site might be. A monitor/consultant can prevent damage to a site by being able to communicate well with others involved in the project, which might involve:

1. Requesting excavation work to stop so that new discoveries can be evaluated;
2. Sharing information so that others will understand the cultural importance of the features involved;
3. Ensuring excavation or disturbance of the site is halted and the appropriate State laws are followed when human remains are discovered;
4. Helping to ensure that Native American human remains and any associated grave items are treated with culturally appropriate dignity, as is intended by State law.

By acting as a liaison between Native Americans, archaeologists, developers, contractors and public agencies, a Native American monitor/consultant can ensure that cultural features are treated appropriately from the Native American point of view. This can help others involved in a project to coordinate mitigation measures. These guidelines are intended to provide prospective monitors/consultants, and people who hire monitors/consultants, with an understanding of the scope and extent of knowledge that should be expected.

PG&E Line 407 Project
7/31/2007 Field Review east of Sacramento River with Randy Yonemura
Summary of Information and Concerns

Eric Wohlgemuth
Far Western

Met Randy at 10 a.m. by the Sacramento Airport. Drove to intersection of Riego and Powerline roads. Discussed the project, then drove the project APE east of the Sacramento River, then finished with more discussions. Left the project area by 12:30 p.m.

This field review suffices only for his concerns east of the Sacramento River. He wants another field review for the project area west of the river. There are maps which accompany these notes.

General Thoughts and Concerns

Archaeologists need to understand the values of Native Americans in dealing with archaeological sites. Sites that have been severely disturbed and are not valued by archaeologists still have value to Native Americans.

He considers bones of Pleistocene animals, specifically mammoths and mastodons, if scattered rather than in intact skeletons, as the remains of Native American kill sites, even if no artifacts are associated. He would like a paleontologist to consult on the project, particularly for the older sediments east of the American Basin and Pleasant Grove Road.

He has some concerns with isolates. Many reflect people's interaction with grizzly bears. People killed away from home by grizzlies were left there or buried there rather than brought back to the village and buried.

Specific Information and Concerns with the Line 407 Project

His greatest concerns are along the Sacramento River.

He has concerns with the American Basin in general. This was a large seasonal lake system and he is concerned that leveling for rice fields has obscured what were once sensitive high spots within this area. He wants assurance that we have consulted old topographic maps. He has specific concerns with canals in the American Basin area. Many canals were put in following the courses of natural drainages.

He has fewer concerns for the hot dry plains east of the American Basin. He sees this area as used for hunting and gathering rather than village communities where human remains would be found. Unprompted, he expressed his greatest concern in this area as along the seasonal drainages, notably the channel of Curry Creek. He also has concerns with springs in this area. Springs are sacred places.

He does not want trenchers used west of Pleasant Grove Road, including the west side of the Sacramento River west to the project end near Yolo. He wants the pipeline to be excavated only with excavators in this area.

Specific Information about Sites in the Project Vicinity

He described 4 mound sites about ½ to 1 mile north of Riego Road near Powerline Road. These are within about ¼ mile of each other. These are noted on the map.

He described a site west of Powerline Road. It's somewhere between the farmstead recorded as P-51-000096 and the Sacramento River. This area is noted on the map.

Highway 99 was an old Indian trail.

He knows of sites on the east edge of the American Basin. None are within the project APE.

He knows of a site south of the project that was impacted by Metro Air Park.

He knows of many sites east of the APE, east of Fiddyment Road.

Volume II: Site Records

Cultural Resources Survey for the PG&E Line 407 Project, Placer, Sacramento, Sutter, and Yolo Counties, California

By:
Eric Wohlgemuth

July 2008

Submitted to:
Benjamin Hart
TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Prepared for:
Pacific Gas and Electric Company
2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833

FAR WESTERN ANTHROPOLOGICAL RESEARCH GROUP, INC.
2727 Del Rio Place, Suite A, Davis, California, 95618
http://www.farwestern.com 530-756-3941

Volume II: Site Records

Cultural Resources Survey for the PG&E Line 407 Project, Placer, Sacramento, Sutter, and Yolo Counties, California

By:
Eric Wohlgemuth

Contributions by:
Laura Leach-Palm, *Far Western*
Sharon A. Waechter, *Far Western*
Mary L. Maniery *PAR Environmental Services, Inc.*
Cindy Baker, *PAR Environmental Services, Inc.*
Stephen Wee, *JRP Historical Consulting*

July 2008

Submitted to:
Benjamin Hart
TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Prepared for:
Pacific Gas and Electric Company
2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833

APPENDIX C

SITE RECORDS

CONFIDENTIAL

F-3: Realignment Cultural Resources Letter Report

FAR WESTERN
ANTHROPOLOGICAL RESEARCH GROUP, INC.

March 27, 2009

Maggie Trumbly
Cultural Resources Specialist
Environmental Services
Pacific Gas & Electric Company
5555 Florin Perkins, Room 137
Sacramento, Ca 95826

Dear Maggie,

This letter details a brief survey undertaken by Far Western Anthropological Research Group, Inc. on a short realignment segment of PG&E Gas Pipeline 406 west of the town of Yolo, Yolo County, CA. The area immediately east of the survey area was previously surveyed by Garcia and Associates in 2007 (Decantes 2007). Prior to the Garcia and Associates survey, a records search was conducted which included the current survey area. This records search did not reveal any previously recorded sites, nor was there any record of previous surveys in the area. Furthermore, no cultural resources were identified during the Garcia and Associates survey. However, Decantes (2007) notes that several irrigation ditches were encountered but were not recorded since their age was indeterminate and they appeared to still be in use.

The short realignment section (approximately 675 meters) was surveyed March 24th, 2009 in two transects spaced 10 meters apart for a total areal coverage of approximately five acres. Visibility over the southern half of the survey area was limited by new growth of crops (Attachment 1a). The vegetation limited visibility to small open patches and the area between crop rows. In addition, the ground surface that was visible had been heavily disturbed by farming activities. The northern half of the survey area had been recently plowed and therefore visibility was very good.

No prehistoric resources were discovered during survey. An irrigation ditch was recorded, but it is unclear whether this ditch is historic or modern in age (Attachment 1b). The ditch is marked on the enclosed map (Attachment 2). If historical research (which is planned as part of upcoming survey of the PG&E line 406 alternative routes) determines that the irrigation ditch is historic, then a primary record form will be submitted to the Northwest Information Center at Sonoma State University.

Please contact me with any questions at 530-756-3941 or adie@farwestern.com.

Sincerely,

Adrian Whitaker
Project Director

Attachments: photographs of project area and ditch; map of project area

ATTACHMENT 1. PHOTOGRAPHS FROM SURVEY AREA

Photograph 1a: Irrigation ditch (looking east)

Photograph 2a: Survey area north of the irrigation ditch

ATTACHMENT 2. MAP OF THE SURVEY AREA WITH IRRIGATION DITCH MARKED

F-4: Line 406/407 Paleontological Survey

PALEONTOLOGICAL SURVEY AND ANALYSIS FOR THE PACIFIC GAS AND ELECTRIC COMPANY (PG&E) LINE 406 AND 407 EXPANSION PROJECT IN YOLO, SUTTER, SACRAMENTO AND PLACER COUNTIES CALIFORNIA

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April 2007

Summary of Findings

This report presents the findings of paleontological research, analysis and field survey of the PG&E Line 406 and Line 407 Expansion Project (project) in California's Central Valley in Yolo, Sutter, Sacramento, and Placer Counties.

The purposes of this investigation were to identify the potential impacts to paleontological resources in the PG&E Line 406 and Line 407 Expansion areas that run east to west across the northern Central Valley, and to recommend procedures for avoidance or mitigation of adverse effects to potentially significant resources. The scope of work comprised background research and a survey of the project areas. Fieldwork was conducted in April of 2007.

GANDA recommends monitoring of project ground-disturbing activities for the Line 406, Line 407 East, Powerline Road Extension project areas and the portion of the Line 407 West project area west of Yolo, California, to mitigate the potential impact of project activities on paleontologically sensitive geological units and paleontological resources (fossils). GANDA recommends initial ground-disturbance monitoring followed by spot-check monitoring for the portion of Line 407 West project area west of Yolo, California and east of Powerline Road.

Data associated with the proposed project are on file at GANDA's San Anselmo office under Job No. 482-7.

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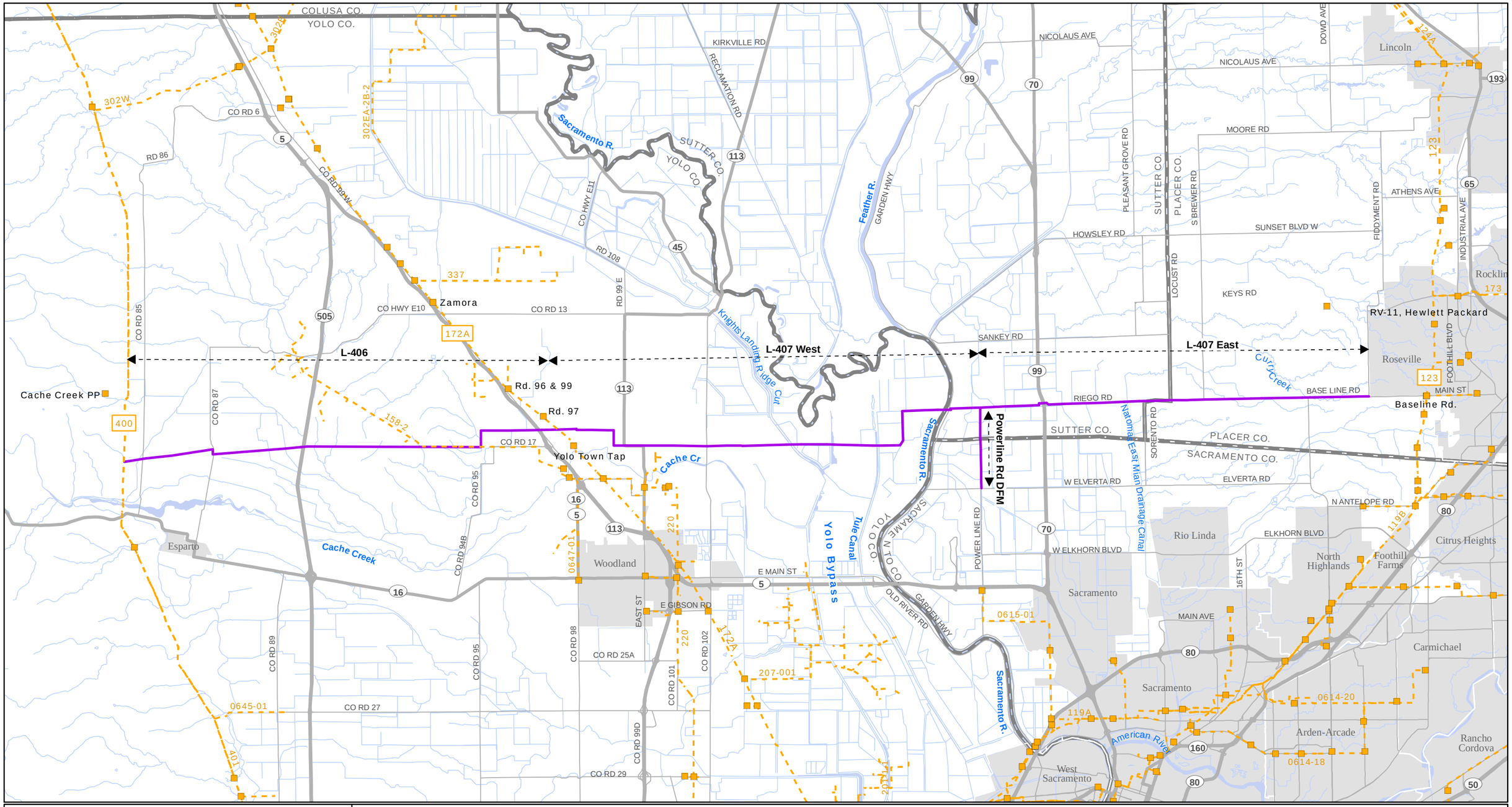
1.0 Introduction

Pacific Gas and Electric Company (PG&E) is planning to construct the Line 406 and Line 407 Expansion Project (project) in California's Central Valley in Yolo, Sutter, Sacramento, and Placer Counties (TRC Essex 2007). These natural gas transmission pipelines are needed to serve ongoing residential and commercial load growth projected in the area and will connect existing Lines 400/401, Line 172A, and Line 123 to provide greater capacity and service reliability to the existing gas transmission and distribution pipeline system (Figure 1).

The project extends east-west over approximately 40 miles and varies in elevation from 15 to 255 feet above sea level. The alluvial deposits that underlie the length of this project site are Holocene / late Pleistocene (100,000 years ago [ka] – recent), earlier Pleistocene (100 ka – 1.8 million years old [ma]), or Pliocene (5.3 – 1.8 ma) in age. These deposits formed as a result from erosion of the Sierra Nevada Range to the east and the Coastal Range to the west, filling the Central Valley with sediment. These alluvial deposits contain paleontological resources (fossils) and are paleontologically sensitive.

GANDA paleontologist Benjamin Matzen, M.A. conducted the background research and field survey for this project. Mr. Matzen has over four years experience conducting paleontological sensitivity assessments under the jurisdiction of CEQA.



Line 406 and Line 407 Pipeline Project
Figure 1
Overview Map

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2.0 Project Description

PG&E has developed an investment plan that includes the construction of several new local gas transmission pipelines for the Sacramento Valley Local Transmission System (System). PG&E's current 10-year investment plan for the System includes a new transmission pipeline that extends from Lines 400/401 to Line 172A (Line 406); a new transmission pipeline that extends from Line 172A in the town of Yolo east to Line 123 in Roseville (Line 407); and a new Distribution Feeder Main (DFM) that extends from Line 407 south to the Sacramento Metropolitan Air Park (Metro Air Park).

Line 406 will be 30 inches in diameter, approximately 14 miles long, and will run between existing Lines 400/401 and existing Line 172A within Yolo County. From Lines 400/401, the pipeline will head east across agricultural fields to County Road (CR) 87, where it will jog south to CR 19. The route will proceed east under CR 87 and across more agricultural fields to Highway (Hwy) 505. After crossing under Hwy 505, the route will align with CR 17. From this point, Line 406 will continue east along CR 17 to a point at the east end of the Dunnigan Hills, where it will jog north for approximately 2,500 feet. At this point, the route will head east along farm roads to, and under, Interstate Hwy 5. On the east side of Interstate Hwy 5, Line 406 will continue east to a tie-in point with Line 172A and Line 407 West.

Line 407 West will be 30 inches in diameter and approximately 13.5 miles long. Beginning at the tie-in point with Lines 406 and 172A, Line 407 West will run east through agricultural fields to CR 98, which it will cross under before heading south to CR 16A. The pipeline will then head east along CR 16A to CR 99B, where it will head south to CR 17. At CR 17, the pipeline will turn east and follow CR 17 to Knights Landing Ridge Cut. The route will cross under this canal in a northwest direction and pass through more agricultural fields paralleling an existing electric transmission utility corridor before reaching the western levee of the Yolo Bypass. Line 407 West will cross east through the Yolo Bypass in a general alignment with CR 16 on the Bypass' east side, and will then continue along CR 16 through Sacramento River Ranch Conservation Bank lands and walnut orchards to the Sacramento River crossing site near the junction of CR 16 and CR 117. From this point, the pipeline will cross under the Sacramento River for approximately 3,000 feet and will then follow Riego Road in Sutter County past the Huffman East, Huffman West, Vestal, and Atkinson Natomas Basin Habitat Conservation tracts to the corner of Powerline and Riego Roads where it will meet the Metro Air Park DFM and Line 407 East.

A 10-inch DFM will be constructed in conjunction with Line 407 East and will run approximately 2.5 miles along Powerline Road in Sacramento County to provide natural gas to the Metro Air Park development and North Natomas.

Line 407 East will extend east from the junction of Line 407 West and the Metro Air Park DFM along Riego/Baseline Road in Sutter and Placer Counties. The route crosses a number of irrigation canals, including the North Drainage Canal and the Natomas East Main Drainage Canal (Steelhead Creek). Line 407 East will parallel the northern border of the Placer Vineyards Specific Plan area before connecting with Line 123 at the intersection of Baseline and Fiddyment Roads.

The project will also include the construction of additional appurtenances necessary for operation of the four line segments. Four fenced, aboveground pressure limiting, pressure regulating, and metering stations will be constructed along Line 406 and Line 407 to ensure that proper pressures are maintained in the transmission system and to reduce the pressure of the gas before delivering it to the distribution pipeline system. Two pressure limiting stations, located at the connection of Lines 400/401 and Line 406, and at the connection of Line 172 and Line 407 West, will cover an area of approximately 100 feet by 100 feet. Two pressure regulating stations, located near the corner of Powerline Road and West Elverta Road along the Metro Air Park DFM, and near the corner of Baseline Road and Watt Avenue along the Line 407 East segment, will be constructed in yards approximately 35 feet by 75 feet. Main line bridle valves and blow-off stacks will be installed within the fenced yards. Other components necessary to the operation of the pipeline include aboveground line-markers and electrolysis test stations

3.0 Legislative Context

Paleontological resources include fossil plants and animals, and evidence of past life such as trace fossils like preserved animal tracks and burrows. Data provided by the stratigraphic location and associated geologic deposits of these resources are also invaluable to the proper interpretation of fossils.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or a unique geological feature (CEQA Appendix G(V)c). If an impact is significant, CEQA requires feasible measures to minimize the impact (CEQA, Section 15126.4).

Public Resources Code § 5097.5

California Public Resources Code § 5097.5 prohibits excavation or removal of any "vertebrate paleontological site, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

Fossil Significance Criteria

The Society of Vertebrate Paleontology (SVP) identifies vertebrate fossils, their taphonomic and associated environmental data, and fossiliferous deposits as significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant (Conformable Impact Mitigation Guidelines Committee 1995). Due to the rarity of fossils and the scientific information they provide, a resource can be considered significant if it meets any one of the following criteria (Scott and Springer 2003).

- The paleontological resource provides data on the evolutionary relationships and developmental trends among organisms, both living and extinct;
- The paleontological resource provides data useful in determining the age(s) of the geologic unit or sedimentary stratum, as well as timing of associated geological events;
- The paleontological resource provides data on a community level;
- The paleontological resource demonstrates unusual or spectacular circumstances in the history of life; and / or
- The paleontological resource is not abundant or found in other geographic locations and may be in danger of being depleted or destroyed by the elements or vandalism.

Significant paleontological resources must be diagnostic, or identifiable, to determine if many of the criterion above are applicable. Proper identification of paleontological resources is often impossible in the field, therefore the recovery, preparation and analysis of paleontological resources is necessary to determine their significance (Scott and Springer 2003). This process must be done by, or under the supervision of, a qualified paleontologist (Conformable Impact Mitigation Guidelines Committee 1995). Microvertebrate fossils are generally not visible to the naked eye in the field and are recovered in the laboratory through processing of bulk samples from paleontologically sensitive geologic units (Conformable Impact Mitigation Guidelines Committee 1995; Scott and Springer 2003).

4.0 Methods

Background Research

Background research conducted for this project consisted of a literature review search and a fossil locality search. This research identified the geologic units, previous paleontological studies, fossil localities (i.e., locations at which paleontological resources have been documented), and types of fossils that may be within or adjacent to the project area. This research is based on the project description provided by TRC Essex (2007). See References Cited section for all literature reviewed.

An online fossil locality search was done on April 10, 2007 using the Berkeley Natural History Museum (BNHM) online database, specifically using data from the University of California Museum of Paleontology (UCMP) in Berkeley. This database provides fossil locality data on the County level.

Field Survey

A windshield survey was conducted for the length of the project area adjacent to roadways. Geologic units in most of the eastern portion of Line 406 and the western portion of Line 407 were not exposed and could not be examined or identified. Geologic units exposed along roadways within the project areas were inspected. All geologic units described above were identified and confirmed within the project areas where exposed.

5.0 Results

UCMP records document that Yolo County contains eight fossil localities of late Pleistocene age and 11 Pliocene age localities. Sutter County has five recorded late Pleistocene fossil localities, there are eight localities of this age in Sacramento County and one locality of that age in Placer County. These fossil localities include invertebrate, vertebrate, and plant fossils from the geologic units discussed below (BNHM 2007). UCMP paleontologists also conducted a record search based upon the project areas, and their records include three fossil localities within one mile of the western portion of Line 406.

Project Geology

The 406 – 407 pipeline project area runs over 40 miles east to west across the alluvial plains of the Central Valley. Soils in the flat, low sloping portions of the Central Valley have an average depth of 5 to 6 feet (McElhiney 1992). The sediments underlying the soil are late Pleistocene and Pliocene aged alluvium, which is generally derived from the erosion of the Sierra Nevada Range to the east and the Coastal Range to the west. Similarly aged geologic units are distinct along the western and eastern sides of the Central Valley due to their varied provenance.

Geological units are described by project area (Line 406, Line 407 East, Powerline Road Extension, then Line 407 West – Figure 1) and in stratigraphic sequence from oldest to youngest. The locations where the geologic unit will be impacted by project activity is noted with their descriptions.

The stratigraphically oldest geologic unit within the Line 406 project area (Figure 1) is the Pliocene age Tehama Formation (Helley and Harwood 1985; Wagner et al. 1987). This formation consists of sand and siltsone marked by lenses of pebbly conglomerate. This formation also contains a volcanic layer near the project area known as the Putah Tuff Member that has been K-Ar radiometric age of 3.3 ± 0.1 ma (Sarna-Wojcicki 1976). Tehama Formation sediments are exposed within the Line 406 project areas in Dunnigan Hills and in the hills just west of the project area.

Red Bluff Formation sediments, distinctive, bright-red weathered gravels, are exposed within the Line 406 project area as caps on Tehama Formation deposits in the Dunnigan Hills and in the hills just west of the project area. The age of this Pleistocene formation, between 450 ka and 1.1 ma, is known by the dating volcanic units that overlie and underlie this formation (Helley and Harwood 1985). Though younger than the Tehama formation, the Red Bluff Formation is still much older than the overlying Modesto Formation alluvium.

Loosely consolidated alluvial fan deposits Modesto Formation fill the flat, low-slope regions within the Line 406, and to a large extent the Line 407 East and the western portion of Line 407 West project areas (Helley and Harwood 1985; Wagner et al. 1987). Modesto Formation sediments consist of tan-gray gravely sand, silt, and clay. The age of this formation is approximately 12 – 40 ka based on radiocarbon dating (Marchand and Allwardt 1981).

The stratigraphically oldest geologic unit within the Line 407 East project area is the Turlock Lake Formation, exposed in the easternmost, higher-relief portions of the project area, near

the city of Roseville, California. This geologic unit consists of deeply-weathered arkosic gravels with metamorphic and quartz rock fragments (Helley and Harwood 1985; Wagner et al 1987). This formation includes the Corcoran Clay, a geologic unit that has been K-Ar dated to approximately 600 ka and may therefore have been deposited during roughly the same period as the Red Bluff Formation (Helly and Harwood 1985).

Late Pleistocene Modesto and Riverbank Formation alluvium stratigraphically overlies the older Turlock Lake Formation along the course of Line 407 East and the Powerline Road Extenstion (Figure 1). These alluvial deposits are unconsolidated gravels, those of the Riverbank Formation bearing a distinct dark-brown to reddish hue. The Riverbank Formation unconformably overlies the Turlock Lake Formation and is in turn unconformably overlain by Modesto Formation sediments within the Central Valley (Helley and Harwood 1985; Wagner et al. 1987). Riverbank sediments are likely twice as old as those of the Modesto Formation, approximately 100 ka, but has been dated between 130 – 450 ka further south in the San Joaquin Valley (Marchand and Allwardt 1981).

The Line 407 West project area (Figure 1) is underlain by Holocene aged basin deposits and recent alluvium (Helley and Harwood 1985; Wagner et al. 1987). These areas are very low-relief, flat-lying regions in the center of the Central Valley. This alluvium is usually thin, varying in thickness from a few centimeters to a few meters, and often corresponds to or is the same as the soil layer. Modesto and Riverbank Formation sediments underlie this thin veneer of soils and alluvium in the center of the Central Valley.

Project Paleontological Sensitivity

Sediments of the ages that correlate to all geologic units within the Line 406 and Line 407 project areas can be called Plio-Pleistocene, and correlate to three distinct land mammal assemblages in North America: the Blancan, Irvingtonian, and Rancholabrean (Bell et al. 2004). Each geologic unit within the Line 406 and 407 project areas contains significant vertebrate fossils from these land mammal ages (Berkeley Natural History Museum 2007).

The late Pliocene Tehama Formation has a high paleontological sensitivity. This formation has produced over 40 fossil localities and hundreds of Blancan (appr. 5 – 2 ma) age vertebrate fossil specimens. Fossils of this age are similar to those of later land mammal ages, but do not include *Mammuthus*, or Columbian Mammoth (Irvingtonian) or *Bison* (Rancholabrean) fossils. Specimens include, but are not limited to horse, camel, mastodon, ground sloth, saber-toothed cat, and rodents (Bell et al. 2004).

The Pleistocene includes both the Irvingtonian (appr. 1.8 ma – 100 ka) and Rancholabrean (appr. 100 – 10 ka) land mammal assemblages. Vertebrate fossils from these assemblages include many of the same taxa, but are distinguished by the presence of *Mammuthus* fossils (Irvingtonian) and then by *Bison* fossils (Rancholabrean) in North America. Berkeley Natural History Museum records document 22 vertebrate fossil localities of these ages from the counties in which Line 406, Line 407 East and Powerline Road Extension are located; the Turlock Lake, Riverbank and Red Bluff Formations include Irvingtonian age fossils. These three geologic units have high paleontological sensitivity.

The Riverbank and Modesto Formations include fossils from the Rancholabrean land

mammal age. As stated above the Riverbank has high paleontological sensitivity, as does the Modesto Formation Vertebrate fossils from the Pleistocene include, but are not limited to, horses, mammoths, bison, camels, ground sloths, saber-toothed cats, canids, rodents, mustelids, birds, reptiles, and amphibians (Savage 1951; Stirton 1951; Bell et al. 2004).

Only the Holocene-aged basin deposits and alluvium underlying the eastern portion of Line 407 West have low paleontological sensitivity. These units are underline at shallow depth by the Modesto formation, a highly sensitive geologic unit for paleontological resources (Helley and Harwood 1985).

To summarize, Line 406, Line 407 East and the Powerline Drive Extension project lie directly on geologic units that have high paleontological sensitivity. Line 407 West from Powerline Drive to the city of Yolo is underlain by Holocene alluvium that has low paleontological sensitivity, however, these geologic units are perhaps only 5 feet thick and are underlain by geologic units with high paleontological sensitivity. The portion of Line 407 West that lies west of Yolo, California, lies on geologic units with high paleontological sensitivity.

6.0 Recommendations

Project ground-disturbing activities will affect geologic units underlying the project area, some of which have high paleontological sensitivity. This may result in significant impacts to paleontological resources (fossils). GANDA recommends the following mitigation for project ground-disturbing activities that may impact paleontologically sensitive Plio-Pleistocene alluvial deposits underlying project areas.

Prior to ground-disturbing activities the project paleontologist will provide input for inclusion in the Worker Environmental Awareness Program (WEAP). The purpose of the WEAP is to inform construction contractors and their employees about the environmental compliance requirements of this project. The WEAP will include the paleontologic resource issues associated with the PG&E Line 406 and 407 Expansion Project, including:

1) what is a fossil;
2) the types of geologic units are the project areas;
3) any known fossil locales in or adjacent to the project areas;
4) the potential of the geologic units in the project area to produce fossils;
5) measures to follow in the event fossils are discovered in the project area.

All workers on the project involved in project ground-disturbing activities will be required to participate in the WEAP and will be familiar with the compliance measures pertaining to paleontological resources. The worker training program shall be sufficient in scope to make the workers aware of the importance and purpose of the paleontologic monitoring program and is not intended to enable workers to discern between fossil and non-fossil material. Workers will acknowledge an understanding of the paleontologic resource constraints through completion of the WEAP training.

For areas with high paleontological sensitivity (Line 406, Line 407 East, the portion of Line 407 West west of Yolo, California, and the Powerline Road Extension) GANDA recommends monitoring of ground-disturbing activities, data recovery and analysis, preparation of a data recovery report or other reports, and accessioning recovered fossil material to an accredited paleontological repository, such as the UCMP, for those project areas lying directly on geologic units. This includes the Tehama, Red Bluff, Turlock Lake, Riverbank and Modesto Formations.

For the portion of the Line 407 West project area east of Yolo, California, GANDA recommends monitoring of initial ground-disturbing activities and continued spot-check monitoring of ground-disturbing activities, data recovery and analysis, preparation of a data recovery report or other reports, and accessioning fossil material to an accredited paleontological repository, such as the UCMP.

Implementation of the proposed mitigation will reduce the potential impact of project ground-disturbing activities to paleontological resources to a less-than-significant level.

Monitoring

Paleontological monitors would be empowered to redirect and/or halt construction activities at the location of a discovery to review the possible paleontological material and to protect the resource while it is being evaluated. Monitoring should continue at each project site until the supervising qualified paleontologist determines that significant paleontological resources are not likely to be discovered. A supervising qualified paleontologist (Conformable Impact Mitigation Guidelines Committee 1995) may adjust the level of monitoring effort according to his or her evaluation of the impact that project ground-disturbance could have on paleontologically sensitive geologic units within the project area. Directional drilling cannot be directly monitored; however, any spoils that result from directional drilling, or from any other ground-disturbing activities that cannot be directly monitored (core drilling, etc.) should be examined for paleontological resources. Communication protocols would be established between construction supervisors and qualified paleontological monitors prior to project implementation.

Qualified paleontological monitors must be able to (1) recognize and appropriately handle fossils and paleontological deposits; (2) take accurate and detailed field notes, photographs, and GPS coordinates; and (3) record data documenting project ground-disturbing activities, their location, and other relevant information. Relevant activities and observations should be recorded photographically as well. This data will be compiled as a comprehensive database for use in preparation of the data recovery report.

Reporting

A data recovery report should be prepared that documents the methods and results of monitoring and provides an analysis of the nature and significance of fossils recovered during monitoring. At a minimum this report should include the following:

- A brief introduction to the background of the project from which they were recovered;
- An account of the legislative context under which the fossils were recovered and accessioned;
- A description of the project area and location;
- A methods section detailing any background research conducted, monitoring procedures, and fossil recovery techniques;
- A description of the geological and paleontological setting in the project area;
- The results of monitoring activities, including an account of all fossil specimens recovered; and
- A discussion of the significance of the paleontological resources recovered.

Curation of Recovered Fossils

After the data recovery report is prepared, fossil material recovered during project monitoring

activities will be accessioned for curation to a recognized paleontological repository, such as the University of California Museum of Paleontology.

Fossils recovered during monitoring must be prepared for curation prior to accession (Conformable Mitigation Committee 1996). Preparation of fossil specimens for accession must be done according to specifications provided by the repository that will receive the specimens. Preparation and accession requirements vary with each repository and must be met before fossil material can be accessioned. Arrangements to accession fossil material should be made with such a repository before monitoring begins so that the repository can inform the qualified monitoring paleontologist of requirements necessary to accession the fossil material (Conformable Mitigation Committee 1996). The data recovery report (see above) should accompany fossils accessioned for curation.

Unanticipated Discoveries

If paleontological resources are discovered during project activities, all work within 25 feet of the discovery should be redirected and/or halted until a qualified paleontologist has assessed the situation and made recommendations regarding treatment of the resources. Project personnel should not move or collect any paleontological resources.

It is recommended that adverse effects to paleontological resources be avoided by project activities. If avoidance is not feasible, the paleontological resources should be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, adverse effects must be avoided, or such effects must be mitigated (see above).

Upon completion of project ground-disturbance, a data recovery report should be prepared documenting the methods and results of the assessment. This report should be submitted to the lead agency and to the accredited paleontological repository where the fossils are curated.

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F-5: Historical/Architectural Survey Report

HISTORIC ARCHITECTURAL SURVEY REPORT AND FINDING OF EFFECT

FOR THE

PG&E LINES 406 AND 407 PIPELINE PROJECT

IN PLACER, SACRAMENTO, SUTTER AND YOLO COUNTIES, CALIFORNIA

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October 2008

SUMMARY OF FINDINGS

The Pacific Gas and Electric Company (PG&E) is proposing to construct and operate multiple natural gas transmission pipelines and a new distribution feeder main that cross California's Central Valley in Placer, Sacramento, Sutter and Yolo counties (see Appendix A, Maps 1 and 2). There are also eight alternative route areas (see Appendix A, Map 3). The PG&E Lines 406 and 407 Pipeline Project (Project) would run below ground, from Esparto in Yolo county to the west, then east to Roseville in Placer county. Project construction would involve a combination of conventional trenching, horizontal directional drilling (HDD) and hammer boring.

The California State Lands Commission (CSLC) and the U.S. Army Corps of Engineers (USACE) are co-lead agencies for the Project. There is Federal involvement because the pipelines are proposed to go through wetland areas and therefore section 404 permitting is required.

This Historic Architectural Survey Report (HASR) was prepared so that the USACE can comply with section 106 of the National Historic Preservation Act (36 CFR Part 800 et seq.). Properties located within the Project area that are greater than 45 years of age were identified. These previously unevaluated properties were evaluated for the National Register of Historic Places (NRHP). This document also addressed compliance under California state law for the proposed Project in accordance with the California Environmental Quality Act (CEQA) guidelines at Title 14 California Code of Regulations (CCR) §15064.5 and Public Resources Code (PRC) 5024, using the criteria for inclusion in the California Register of Historical Resources (CRHR).

Two separate studies were previously completed that addressed cultural resources and included architectural resources. The first, by Garcia and Associates, included the Line 406 corridor from the western edge of the Project area to near Yolo County Road 98 (August, 2007); the second, by Far Western Anthropological Research Group (Far Western), took in the Line 407 route from near County Road 98 to the eastern Project limits near the city of Roseville (July, 2008). These studies were made when separate environmental compliance

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documents were being completed for these two lines, and before there was a Federal component to this Project.

The Area of Potential Effects (APE) for the Project was established to include all resources that could potentially be directly or indirectly affected by the proposed undertaking. All of the resources are located within 50 feet boundaries on either side of the pipeline area. Map 3 of Appendix A illustrates the proposed architectural APE for this Project. The APE was determined to consist of all areas where trenching and construction shall occur, or may be affected by the proposed construction.

There are nine buildings that are greater than 45 years of age which are located within the APE for the proposed Project and that have the potential to be affected by the proposed undertaking. They are all located in Yolo County. 13464 County Road 97F, the Herman Richter House, was previously recorded and is listed in the Historic Resources Inventory, although it does not appear to have been evaluated for the NRHP or CRHR. For this study, it was determined to be eligible for the NRHP and CRHR under Criteria C/3. The other properties were not previously recorded or evaluated for the NRHP or CRHR, and were determined not to be eligible. All nine properties are listed below (the Map #s in the table below are referenced in Appendix A, Map 3):

Properties Within the APE: PG&E Lines 406 and 407 Pipeline Project				
Map #	**Location**	**Description**	**Dates of Residences**	**Status**
1	27390 County Road 17	This farmstead has a one-story single-family residence with no architectural style and a machinery barn.	circa 1940s	Not eligible for CR and NR
2	27960 County Road 19	This farmstead has a one-story single-family residence with no architectural style and a horse barn.	circa 1940s	Not eligible for CR and NR
3	27660 County Road 19	This farmstead has a one-story single-family residence with no architectural style and some wood out buildings.	circa 1950s	Not eligible for CR and NR
4	32840 County Road 17	The *Horgan farmstead* consists of two one-story single-family residences in the Craftsman and Minimal Traditional styles. This farm also has a wood frame barn dating to the late nineteenth century, a two-story grain storage building from the	Craftsman (late 1920s, significant remodel in 2006) and Minimal Traditional (1950)	Not eligible for CR and NR

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Properties Within the APE: PG&E Lines 406 and 407 Pipeline Project				
Map #	**Location**	**Description**	**Dates of Residences**	**Status**
		1930s and a metal barn from the 1950s.		
5	13464 County Road 97F	The *Herman Richter House* is a two-story Mediterranean Revival style single-family residence. The property also has an older one-story house. This farmstead has ancillary buildings such as an early 1900s garage, modern garage, smoke house, bird house, barn and granary.	Mediterranean Revival (1927) and one-story residence (some time between 1865 and 1875, significant remodels beginning in 1949)	ELIGIBLE for the CR and NR
6	13488 County Road 98	The *Gorman Ranch* consists of a two-story Prairie style single-family residence, as well as a one-story house. There are several other ancillary buildings and structures including a barn, windmill, garages, wells, as well as a modern warehouse.	Prairie (circa 1900, significant remodel in the 2000s) and one-story residence (circa 1930s)	Not eligible for CR and NR
7	38023 County Road 16A	This farmstead has a one-story single-family residence with no architectural style, barn/garage, two sheds as well as a modern warehouse.	ca. 1900 (remodels in the 1930s and 1990s)	Not eligible for CR and NR
8	38871 County Road 16A	This farmstead has a one-story single-family residence with no architectural style, three-car garage and barn.	ca. 1910s	Not eligible for CR and NR
9	14020 County Road 99A	This farmstead has a two-story single-family residence with no architectural style and two barns.	ca. late 1880s	Not eligible for CR and NR

In compliance with section 106, the proposed Project has the potential to affect one historic property, the Herman Richter House at 13464 County Road 97F, which is located within the APE. In compliance with the CEQA, the Project may also cause a substantial adverse change in the significance of a historical resource within the proposed project area, and therefore may have a significant effect on the environment (PRC §21084.1).

The Project pipes shall be located directly south of the property, with the pipes located below ground. This will not intentionally involve the physical destruction or alteration to the identified historic building, and will not change the character of the property's features or setting that contribute to its significance. However, there is construction activity that includes horizontal directional drilling (HDD).

This process would not cause significant enough vibration to potentially physically damage the historic building that is 100 feet away. However, in the event that any damage due to construction is encountered during this Project, work near the finding should be diverted, and a qualified architectural historian notified and consulted.

Therefore, in accordance with 36 CFR 800.5(b) of section 106, there is a finding of no adverse effect for the Project. In accordance with CEQA, there will be no significant impacts (Title 14 California Code of Regulations (CCR) § 15064.5(b)).

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I. INTRODUCTION

The Pacific Gas and Electric Company (PG&E) is proposing to construct and operate the PG&E Lines 406 and 407 Pipeline Project (Project), which are multiple natural gas transmission pipelines that cross California's Central Valley in Placer, Sacramento, Sutter and Yolo counties. There are also eight alternative route areas.

The California State Lands Commission (CSLC) and the U.S. Army Corps of Engineers (USACE) are co-lead agencies for the Project. Because the Project goes through wetlands, section 404 permitting is required, which is administered and enforced by the Federal agency, the USACE. Because the proposed undertaking is a Project that will be funded in part under the direct jurisdiction of a Federal agency [36 CFR Part 800.16(y)], and the proposed Project is the type of activity that has the potential to cause effects on historic properties [36 CFR Part 800.3(a)], the USACE must consult with the California State Historic Preservation Officer (SHPO) regarding the effects on historic properties in accordance with section 106 of the National Historic Preservation Act. This document also addressed compliance under California state law for the proposed Project in accordance with the California Environmental Quality Act (CEQA) guidelines at Title 14 California Code of Regulations (CCR) §15064.5 and Public Resources Code (PRC) 5024.

Two separate studies were previously completed that addressed cultural resources and therefore architectural resources. The first, by Garcia and Associates, included the Line 406 corridor from the western edge of the Project area to near Yolo County Road 98 (August, 2007). Garcia and Associates is a natural and cultural resources private consulting firm. The second, by Far Western Anthropological Research Group (Far Western), took in the Line 407 route from near County Road 98 to the eastern Project limits near the city of Roseville (July, 2008). Far Western is a cultural resources private consulting firm. These studies were completed when separate environmental compliance documents were being completed for these two lines, and before there was a Federal component to this Project.

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Galvin Preservation Associates Inc. (GPA) has prepared this report on behalf the USACE to allow PG&E to comply with 36 CFR Part 800 et seq., the regulations implementing section 106. This Historic Architectural Survey Report (HASR) includes resource identification, evaluation for significance and determination of Project effects on historic architectural properties, and the Finding of Effect (FOE) section addresses whether or not the proposed Project will cause a substantial adverse effect on any identified historic properties or historical resources within the proposed Project area.

II. PROJECT DESCRIPTION

The Project would run below ground, from Esparto in Yolo county to the west, then east to Roseville in Placer county (see Appendix A, Maps 1 and 2). The city of Woodland is located about three miles to the south, while the county seat of Sacramento is about ten miles to the south. Interstates 5 and 505, and State Highway 99 run through the Project area.

PG&E is proposing to construct and operate multiple natural gas transmission pipelines. The Project would specifically involve the construction and operation of three new lines: Line 406, Line 407 (West and East), and the Powerline Road Distribution Feeder Main (DFM). The Powerline Road DFM extends from the connection point with 407-W and 407-E south along Powerline Road to the Sacramento Metro Air Park development in Sacramento county. There are also eight alternative route areas that are labeled Options A through H on Map 3 in Appendix A.

Project construction would involve a combination of conventional trenching, horizontal directional drilling (HDD), and hammer boring. Conventional trenching involves installation of the pipes within an open trench followed by backfilling. The HDD construction technique uses a hydraulically-powered horizontal drilling rig to tunnel under vertically and/or horizontally-large sensitive surface features such as water courses, levees, and wetlands. Hammer boring is a non-steerable pipeline construction technique that drives an open-ended pipe for short distances under surface features such as roads or smaller water features. For this construction method, pits are required on either side of the surface feature to be avoided.

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The Area of Potential Effects (APE) for the proposed Project consists of the areas and resources that could potentially be directly or indirectly affected by the proposed Project (see Appendix A, Map 3), both within the preferred and alternative routes. The APE was determined to consist of the areas where trenching and construction shall occur located within the temporary construction easements. No buildings or structures are being proposed for demolition or alteration as part of this Project. However, the APE does include buildings that have the potential to be indirectly impacted by the proposed Project.

III. FIELD METHODS

Previous fieldwork was conducted separately for Lines 406 and 407 as part of their respective studies. Garcia and Associates conducted two surveys for Line 406. The first was a windshield survey on November 17, 2005, to help determine the probability of unrecorded cultural resources within or adjacent to the study area, based on the environmental setting and available historical documents and literature. The second survey conducted between December 2006 and February 2007 was an intensive pedestrian survey. Far Western carried out their fieldwork for Line 407 in July and September 2006, and May and June, 2007.

For this report, an architectural field survey was conducted by GPA consultants Andrea Galvin, Christeen Taniguchi and Jennifer Krintz on June 26, 2008. A follow up visit was then conducted by Ms. Krintz and Nicole Collum, also of GPA, on August 27, 2008. The consultants each meet the Secretary of the Interior's Professional Qualifications for Architectural History. The purpose of the field survey was to determine if there are any buildings or structures more than 45 years old that are located within the APE. The field survey concluded that there are a total of nine such properties, and that they had not been previously evaluated. The consultants photographed each property, as well as the surrounding context. Notes from visual observations were recorded and used for developing the inventory forms on the resources and the historic context.

IV. RECORDS SEARCH AND LITERATURE REVIEW

For the *Line 406 segment,* Garcia and Associates prepared a cultural resource constraints analysis report on December 30, 2005, based on a Northwest

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Information Center (NWIC) of the California Historic Resources Information Service (CHRIS) records search and a windshield survey of the study area in Yolo County, California (Cox et al. 2005). This previous report discussed cultural resource constraints associated with three proposed routing alternatives (1, 2A, 2B, and 3) for the Yolo Pipeline as outlined by PG&E. The study area, as designated by PG&E, was bounded by: Interstate Highway 5 to the east, the Coastal Range mountain slope to the west, the Yolo and Colusa County line to the north, and County Roads 18 and 19 and a portion of Cache Creek to the south.

The records search of the NWIC/CHRIS was performed from November 9 to 11, 2005. The records search included a review of all site records and study reports on file within a one-mile radius of the project area. The records search and literature review for this study were conducted in order to: (1) determine whether known cultural resources had been recorded within or adjacent to the project area, and (2) assess the likelihood of unrecorded cultural resources based on archaeological, ethnographic, and historical documents and literature, and on the environmental setting of nearby sites. Included in the review were the *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976) and the California Office of Historic Preservation's *Five Views: An Ethnic Historic Site Survey for California* (CA-OHP 1988), *California Historical Landmarks* (CA-OHP 1990), *California Points of Historical Interest* (CA-OHP 1992), and the *Historic Properties Directory Listing by City* (CA-OHP 2003). The *Historic Properties Directory* includes the National Register of Historic Places and the California Register of Historical Resources, and the most recent listings (through August 2005) of the California Historical Landmarks and California Points of Historical Interest.

Several farm buildings of potential historical significance were observed during the windshield survey.

For the *Line 407 segment*, Far Western conducted a records search at the North Central Information Center (NCIC), California State University, Sacramento, on June 29, 2006, for those portions of the project within Sacramento or Placer County. The Northeast Information Center (NEIC), California State University, Chico, provided in-house records searches on July 18, 2006, and January 18, 2007, for Sutter County. For the corridor reach in Yolo County west of the river,

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Far Western conducted a records search at the Northwest Information Center (NWIC), Sonoma State University, on January 22, 2007, and followed up with an additional records search at the same facility on April 23, 2007. Each records search addressed an area within one-quarter mile of each side of the project centerline within their respective counties.

For the project areas east of the Sacramento River, the records searches showed 14 surveys within the boundaries of the study area that covered approximately 55% of the project corridor. Considerably less research had been conducted west of the river, with only five surveys that encompassed less than 10% of the study area. In all, approximately 30% of the study area has been previously surveyed. A review of these previous surveys, however, indicated that several of them cannot be considered adequate, for one (or more) of the following reasons:

- The survey methods do not meet the Secretary of the Interior's Standards and Guidelines for intensive cultural resources inventory.
- The survey reports do not provide clear, unambiguous information on survey methods and coverage, and so cannot be assessed.
- The surveys are more than 20 years old.

Where previous inventories could not be considered adequate, those areas were re-surveyed for the current study.

The records searches also identified 122 known or possible cultural resources within the records search buffer, all of which were identified as historic-period sites and features. The APE also includes 19 previously recorded historic-period resources consisting of various structures, foundations, trash scatters, and railroad features. Of these, one (the Cramer House, P-57-000405) has been recommended eligible but not formally nominated to the National Register; two have been found not eligible; two railroad grades were found not eligible to the National Register in adjacent counties but have not been evaluated in Sutter County where they cross the APE; and the remaining 14 have not been evaluated for National or California register status. Some of these sites, (particularly residences) have potential for buried features such as privies and wells.

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In addition to the records search of previously identified resources, Garcia and Associates, and Far Western conducted general and building specific contextual research in 2006 and 2007 on the Project area in order to identify significant local historical events and personages, development patterns and unique interpretations of architectural styles. GPA then followed up this research from September to October 2008. The information was gathered from the following locations:

- **California History Room, California State Library** (900 N Street, Room 200; Sacramento, CA 95814)
- **Yolo County Archives** (226 Buckeye Street; Woodland, CA 95695)
- **Yolo County Assessor's Office** (625 Court Street, Room 104; Woodland, CA 95695)
- **Yolo County Historical Museum** (512 Gibson Road; Woodland, CA 95695)
- **Yolo County Historical Society** (P. O. Box 1447; Woodland, CA 95776)
- **Yolo County Planning & Public Works** (292 W. Beamer Street; Woodland, CA 95695)
- **Interviews** – A personal interview was conducted on June 27, 2008, with Susan Horgan of 32865 County Road 17. On August 27, 2008, a personal interview was conducted with Twyla Thompson of 13464 County Road 97F. Historic photographs of the property were provided by Ms. Thompson. Also on that date, an interview conducted with Carol Gorman of 13488 County Road 98, and a follow up visit was made with Ms. Horgan of 32865 County Road 17.

V. PUBLIC CONSULTING

Public consulting letters and maps were sent by GPA to the following historical organizations and agencies on September 11, 2008 (see Appendix B):

Placer County:	**Sacramento County:**
Placer County Genealogical Society Attn: Director P.O. Box 7385 Auburn, CA 95604	The California Museum for History, Women and the Arts Attn: Claudia French, Executive Director 1020 O Street Sacramento, CA 95814

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Placer County Historical Society Attn: Director P.O. Box 5643 Auburn, CA 95604	Planning & Community Development Dept. County of Sacramento 827 7th Street, Room 230 Sacramento, CA 95814
Placer County Planning Department Attn: Michael Johnson, Planning Director 3091 County Center Drive Auburn, CA 95603	Sacramento Historical Society Attn: Director P.O. Box 160065 Sacramento, CA 95816-0065
Rocklin Historical Society Attn: Director P.O. Box 752 Rocklin, CA 95677	West Sacramento Historical Society Attn: Director 324 Third Street West Sacramento, CA 95691
Sutter County:	**Yolo County:**
Community Memorial Museum of Sutter County Attn: Julie Stark 1333 Butte House Road Yuba City, CA 95993	Hattie Weber Museum of Davis Attn: Jim Becket, Director 445 C Street Davis, CA 95616-4102
Sutter County Historical Society Attn: Phyllis Smith P.O. Box 1004 Yuba City, CA 95993	Heidrick Ag History Center Attn: Colleen Thompson 1962 Hays Lane Woodland, CA 95776
Sutter County Planning Department Attn: Danielle Stylos, Division Chief 1130 Civic Center Blvd. Yuba City, CA 95993	Yolo County Archives 226 Buckeye Street Woodland, CA 95695
	Yolo County Historical Museum Gibson House Attn: Barbara Shreve, Director 512 Gibson Road Woodland, CA 95695
	Yolo County Historical Society Attn: B.J. Ford, Director P.O Box 1447 Woodland, CA 95776
	Yolo County Planning & Public Works Attn: John Bencomo, Director 292 West Beamer Street Woodland, CA 95695

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As of the date of this report, no responses have been received regarding this project or any historic resources associated with it.

VI. DESCRIPTION OF CULTURAL RESOURCES

There are nine properties located within the Project APE that require evaluation. They are all located in Yolo County. 13464 County Road 97F was previously recorded and is listed in the Historic Resources Inventory. However, it does not appear to have been previously evaluated for the NRHP and CRHR. The other eight properties have also not been evaluated. The map numbers in the table below are referenced in Map 3 of Appendix A. DPR 523 forms for these properties are located in Appendix C:

Properties Within the APE: PG&E Lines 406 and 407 Pipeline Project				
Map #	**Location**	**Description**	**Dates of Residences**	**Status**
1	27390 County Road 17	This farmstead has a one-story single-family residence with no architectural style and a machinery barn.	circa 1940s	Not eligible for CR and NR
2	27960 County Road 19	This farmstead has a one-story single-family residence with no architectural style and a horse barn.	circa 1940s	Not eligible for CR and NR
3	27660 County Road 19	This farmstead has a one-story single-family residence with no architectural style and some wood out buildings.	circa 1950s	Not eligible for CR and NR
4	32840 County Road 17	The *Horgan farmstead* consists of two one-story single-family residences in the Craftsman and Minimal Traditional styles. This farm also has a wood frame barn dating to the late nineteenth century, a two-story grain storage building from the 1930s and a metal barn from the 1950s.	Craftsman (late 1920s, significant remodel in 2006) and Minimal Traditional (1950)	Not eligible for CR and NR
5	13464 County Road 97F	The *Herman Richter House* is a two-story Mediterranean Revival style single-family residence. The property also has an older one-story house. This farmstead has ancillary buildings such as an early 1900s garage, modern garage, smoke house, bird house, barn	Mediterranean Revival (1927) and one-story residence (some time between 1865 and 1875, significant remodels beginning in 1949)	ELIGIBLE for the CR and NR

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Properties Within the APE: PG&E Lines 406 and 407 Pipeline Project				
Map #	**Location**	**Description**	**Dates of Residences**	**Status**
		and granary.		
6	13488 County Road 98	The *Gorman Ranch* consists of a two-story Prairie style single-family residence, as well as a one-story house. There are several other ancillary buildings and structures including a barn, windmill, garages, wells, as well as a modern warehouse.	Prairie (circa 1900, significant remodel in the 2000s) and one-story residence (circa 1930s)	Not eligible for CR and NR
7	38023 County Road 16A	This farmstead has a one-story single-family residence with no architectural style, barn/garage, two sheds as well as a modern warehouse.	ca. 1900 (remodels in the 1930s and 1990s)	Not eligible for CR and NR
8	38871 County Road 16A	This farmstead has a one-story single-family residence with no architectural style, three-car garage and barn.	ca. 1910s	Not eligible for CR and NR
9	14020 County Road 99A	This farmstead has a two-story single-family residence with no architectural style and two barns.	ca. late 1880s	Not eligible for CR and NR

VII. HISTORICAL OVERVIEW OF THE EVALUATED PROPERTIES

(Note: The following was taken from the previous cultural resources report created by Garcia and Associates.)

Portions of the following information have been excerpted from the Yolo County, California website (www.yolocounty.org) and the City of Woodland, California website (http://www.ci.woodland.ca.us/ history.pdf).

Yolo County was one of the original 27 counties created when California became a state in 1850. It is bounded by the Sacramento River on the east and the coastal mountains to the west. The plain in-between has a rich soil built up from centuries of sediment deposition from Sacramento River flooding.

As indicated above, "Yolo" is derived from the native Patwin Indian word *yoloy* meaning "abounding in the rushes." Most Patwin groups occupied the major

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river courses and tributary drainages of their territory, such as the Sacramento River, Cache and Putah creeks, and in some cases, springs. Other historians believe it to be the name of the Indian chief Yodo, or the Indian village of Yodoi.

The first recorded contact with Westerners occurred in the late 1820s. These included Spanish missionaries as well as trappers and hunters who could be found along the banks of "Cache Creek"—named by French-Canadian trappers. The proselytization and enslavement of the Patwin by the Spanish missionaries rapidly and dramatically reduced their numbers through hardship and disease. A malarial epidemic between 1830 and 1833, and a smallpox epidemic in 1837 decimated much of the surviving population.

In 1842 the Mexican government granted William Gordon two leagues of land (the Guesissosi grant) on both sides of Cache Creek from the western hills to the Sacramento River. He is said to have grown wheat and other crops in the fertile soils of the area. One historical document notes that the first laborers used by the earliest farmers of Woodland in the 1850s were the native Patwin peoples.

The survey area for this study passed through two land grants: Cañada de Capay and Rio Jesus Maria. The 40,078.58-acre land grant Cañada de Capay was confirmed to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant (26,637.42) to J. M. Harbin et al. on July 3, 1858.

In 1846 the nine-league Rancho Canada de Capay, extending from the western edge of Gordon's grant through the north end of the Capay Valley, was granted to the three Berryessa brothers. Livestock production became the principal economic activity of rancheros and their followers.

Money earned in the gold fields of California financed the purchase and cultivation of much of the farmland in Yolo County. The variety of crops grown in the region included alfalfa, tobacco, peanuts, grapes, rice, sugar beets, various grains and row crops. Wineries, livestock and dairy operations were also important agricultural operations. Ranch lands with sheep and agricultural fields of alfalfa fields were identified in the APE. Rich soil and climatic conditions were important factors in the modern historical development of the county.

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Irrigation was also a major contributor to the agricultural success of the region. The first irrigation canal was developed in 1856 by James Moore (Moore's Ditch), who owned exclusive water rights to Cache Creek. The agricultural fields of the APE had historically important water conveyances, such as the Hungry Hollow Canal and the Goodnow Slough that are being actively used. Several minor irrigation ditches and canals were also identified in the survey area.

Railroads played an important role in the development of the region because they facilitated the transport of agricultural products to market, and goods to local residents. In 1869, the California Pacific Railroad Company constructed a line between Davis (formerly Davisville) and Marysville with a Woodland station. The rail line expanded and was acquired by Southern Pacific Railroad.

Over time, modern highways replaced railroads as the dominant form of transportation. Interstate 505 is part of California's initial system of interstate highways, submitted by the State on June 27, 1945, and approved August 7, 1947 (California Department of Transportation, 1984). The 32.98 mile long highway cuts south from Interstate 5 (I-5) in Yolo County to Interstate 80 near Vacaville. The alignment for I-5 was adopted and acquisition of the rights-of-way began in 1959. I-5 opened in 1973. Both highways cross the path of the proposed Pipeline area.

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VIII. FINDINGS AND CONCLUSIONS

A. Findings

Nine farmstead properties were identified within the APE with buildings that are more than 45 years old. Although the Herman Richter House, located at 13464 County Road 97F, was previously recorded and is listed on the Historic Resources Inventory, it does not appear to have been evaluated against the NRHP or CRHR criteria. The other eight properties had also not been previously evaluated. Therefore, in accordance with 36 CFR Part 800.4(c) of section 106, the NRHP criteria were applied to determine whether there are eligible historic properties (36 CFR Part 63). A historical resource, for the purposes of the CEQA, is defined by Pub. Res. Code 5020.1 (j), as any object, building, structure, site, area, place, record, or manuscript which is determined to be

historically significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. The criteria used for evaluation in these areas include those that are outlined in Pub. Res. Code §5024.1, Title 14 CCR, section 4852 for inclusion in the CRHR.

This study found one historic property/historical resource as a result of the NRHP and CRHR evaluations that may be affected by a proposed undertaking. This is the Herman Richter House, a Mediterranean Revival style single-family residence located on a farmstead property at 13464 County Road 97F. The other properties did not meet the criteria for inclusion in the NRHP or CRHR.

B. Conclusions

In compliance with section 106 of the National Historic Preservation Act and the CEQA, GPA evaluated the potential for the proposed Project to have an effect on historic architectural properties/historical resources. The Herman Richter House at 13464 County Road 97F was determined to be a historic property for the purposes of section 106 and a historical resource under the CEQA. Therefore, this property may be affected by the proposed undertaking for the purposes of section 106 and this resource may be impacted by the proposed undertaking for the purposes of the CEQA.

Under section 106, an assessment was made whether this Project would have an adverse effect on this property. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association (section 800.5(a)(1)). An example of an adverse effect is the physical destruction of or damage to all or part of the properties.

Under the CEQA, GPA considered the potential for the proposed Project to have a significant effect on the environment. A Project that may cause a substantial adverse change in the significance of an historical resource is a Project that may have a significant effect on the environment (PRC §21084.1). The purpose of this assessment of impacts is to determine whether or not the proposed Project will cause a substantial adverse change on the identified historical resource

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within the proposed project area. Substantial adverse change to a historical resource includes demolition, destruction, relocation or alteration such that the significance of an historical resource would be impaired (PRC § 5020.1 (q)). The CEQA Guidelines provide that a Project that demolishes or alters those physical characteristics of a historical resource that conveys its historical significance (i.e., its character defining features) that justify its inclusion in the CRHR or its significance in a historical resource survey, can be considered to materially impair the resource's significance.

The Project pipes shall be located below ground near the property, about 100 feet south of the building that has been identified as a historic property/historical resource. This will not involve the direct physical destruction or alteration to the identified historic building, and will not change the character of the property's features or setting that contribute to its significance. However, the potential for damage as a result of the drilling shall be considered. The section of pipe within the APE involves 2,000 feet of horizontal directional drilling (HDD). HDD is a trenchless construction method that uses a hydraulically-powered horizontal drilling rig to tunnel under vertical, and in this case horizontal, large and sensitive surface areas. In recent years, this has become a preferred method for the installation of pipelines because it is a potentially low impact construction technique. It is used in situations such as lake crossings, wetland crossing and sensitive wildlife habitat. This process would not cause significant enough vibration to potentially physically damage the historic building that is 100 feet away.

However, in the event that any damage due to construction is encountered during this Project, work near the finding should be diverted and a qualified architectural historian notified and consulted. The architectural historian will assess the findings and provide mitigation recommendations.

Therefore, in accordance with 36 CFR 800.5(b) of section 106, there is a finding of no adverse effect for the Project. In accordance with CEQA, there will be no significant impacts (Title 14 California Code of Regulations (CCR) § 15064.5(b)).

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California Office of Historic Preservation (CA-OHP)

1988 *Five Views: An Ethnic Historic Site Survey for California*. State of California Department of Parks and Recreation, Sacramento.

1990 *California Historical Landmarks. State of California*. Department of Parks and Recreation, Sacramento.

1992 *California Points of Historical Interest*. State of California Department of Parks and Recreation, Sacramento.

2003 *Historic Properties Directory Listing by City* (updated through August 2005). State Office of Historic Preservation, Sacramento.

City of Woodland informational website, http://www.ci.woodland.ca.us/history.pdf, created November 2003, accessed March 14, 2007.

ADMINISTRATIVE DRAFT

Cox, Beatrice, Jason Minton, and John McCarthy

2005 Cultural Resource Constraints Associated with Alternative Routes 1, 2A, 2B and 3 of the Yolo Pipeline. Prepared for CH2M Hill, 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1 Saunders Ave., San Anselmo, CA 94960.

Derr, Eleanor

1990 A Cultural Resources Study for Environmental Impact Report for Wildhorse Golf Club and Residential Community, Yolo County, California. Cultural Resources Unlimited. Submitted to ECOS, Inc., Sacramento, California. A copy is on file at the California Historical Resources Information System, Northwest Information Center, Rohnert Park, California.

Harper, K. I.

1974 S-023627, Field survey of YOL 505 from Interstate 5 to Russell Boulevard near Winters. Prepared for Caltrans.

Helley, E.J., and Barker, J.A.

1979 *Preliminary geologic map of Cenozoic deposits of the Woodland quadrangle, California*. U.S. Geological Survey Open-File Report 79-1606, 4 sheets, scale 1:62,500.

Larkey, J. L. and S. Walters

1987 *Yolo County: land of changing patterns: an illustrated history*. Northridge, Calif., Windsor Publications.

United States Geological Survey (USGS)

1959 Esparto, Calif., 7.5-minute topographic quadrangle (revised 1993).

1992 Madison, Calif., 7.5-minute topographic quadrangle.

1952 Woodland, Calif., 7.5-minute topographic quadrangle (photorevised 1981).

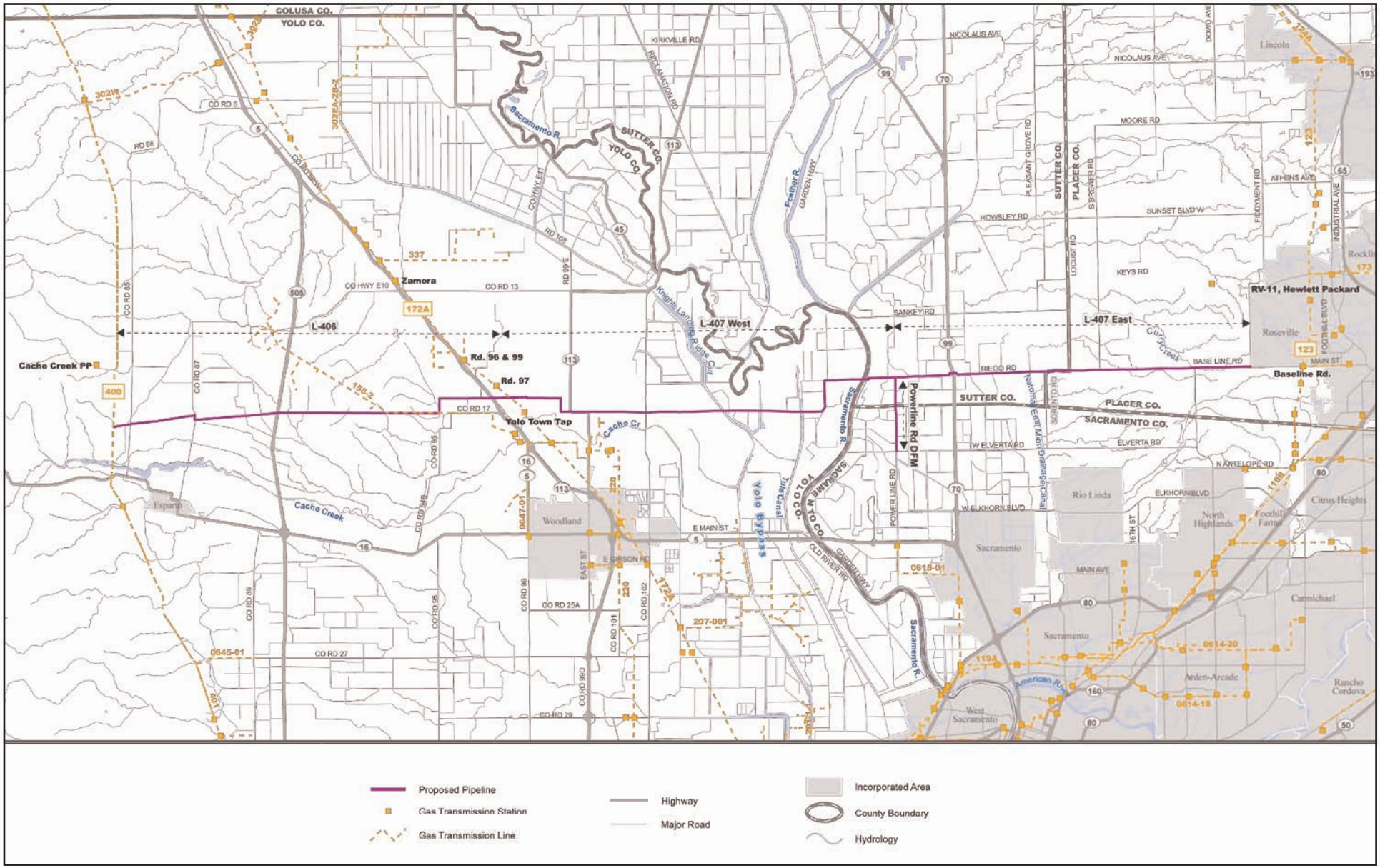
ADMINISTRATIVE DRAFT

Wohlgemuth, E.
2007 *Draft—Cultural Resources Survey for PG&E Line 407/Line 123 Extension/ Metro Air Park Distribution Feeder Main Project, Sacramento, Sutter, Placer, and Yolo Counties, California.* Volume I. Submitted to TRC Solutions, 637 Main Street, Half Moon Bay, CA 94019. Prepared for Pacific Gas and Electric Company, 2730 Gateway Oaks Drive, Suite 220, Sacramento, CA 95833. Prepared by Far Western Anthropological Research Group, Inc., 2727 Del Rio Place, Suite A, Davis, CA 95618.

Yolo County
1879 *The illustrated atlas and history of Yolo County, Cal., containing a history of California from 1513 to 1850, a history of Yolo County from 1825 to 1880, with statistics: portraits of well-known citizens, and the official county map*. San Francisco, De Pue & Co.

Yolo County
informational website, http://www.yolocounty.org/history.htm, accessed March 14, 2007.

ADMINISTRATIVE DRAFT

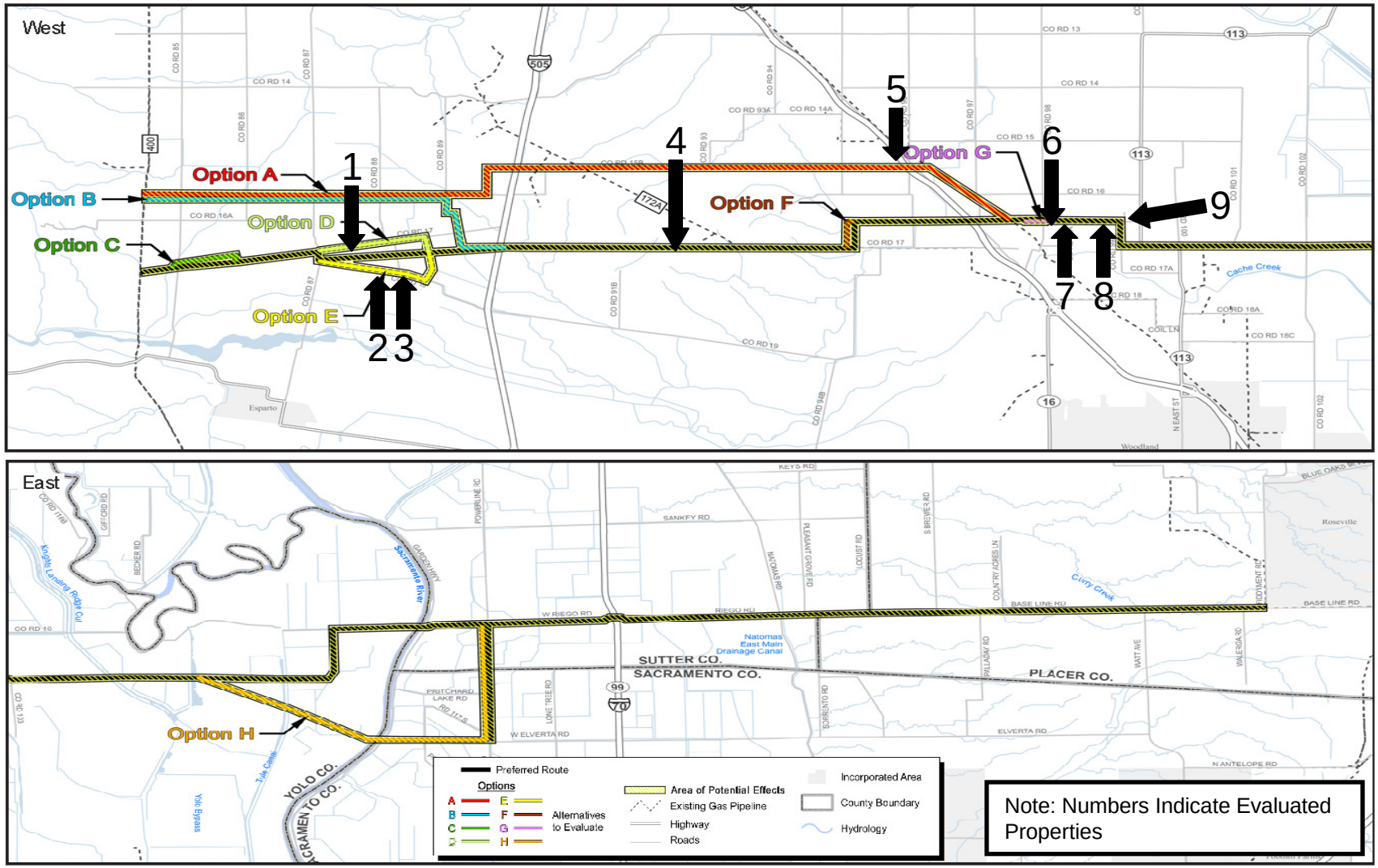


Source: Adapted from PG&E 2007.

NORTH

0 2.5 5.0 10.0 Miles

Map 2
PG&E Lines 406 and 407 Pipeline Project Location



Source: Adapted from PG&E 2007.

NORTH

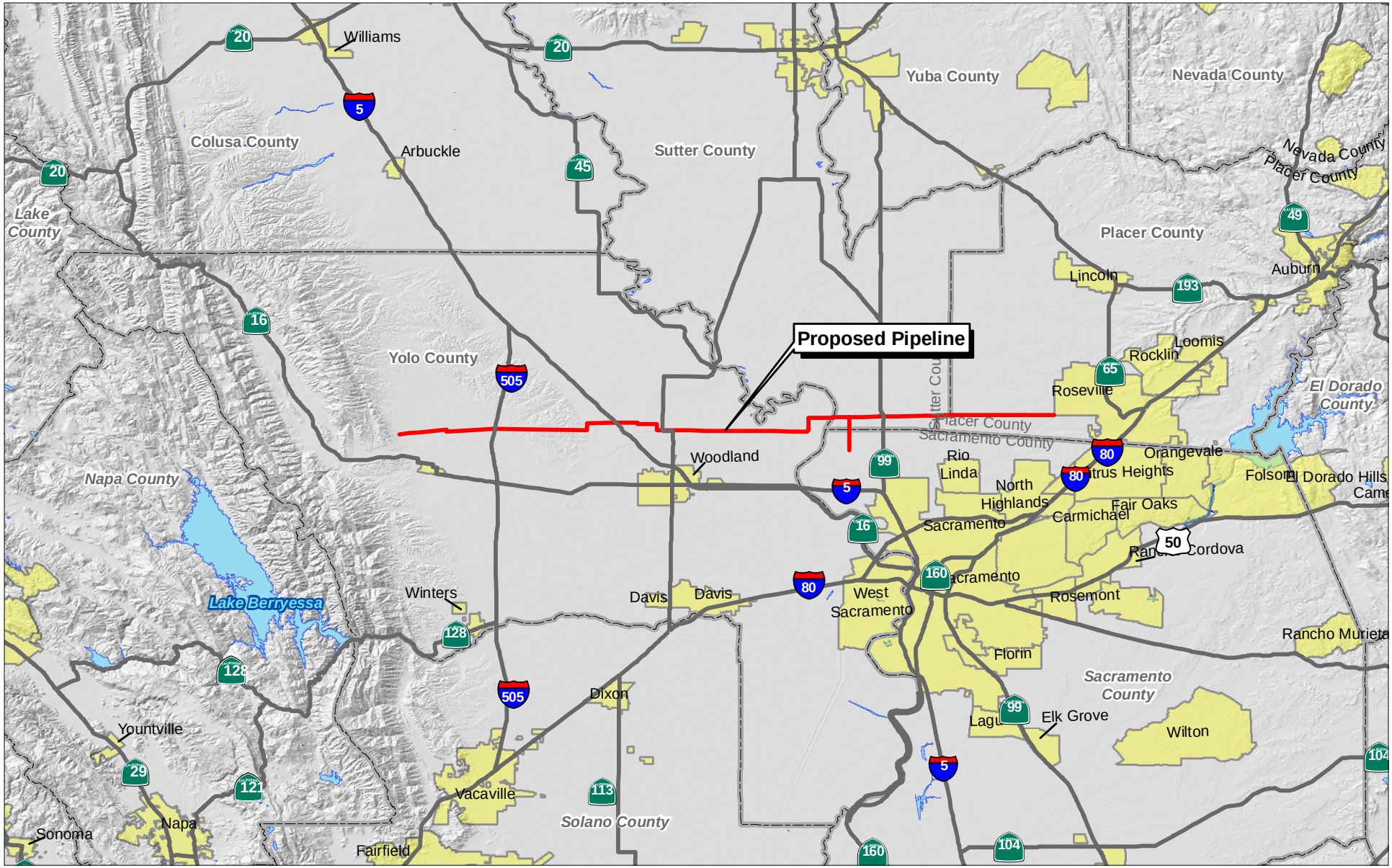
0 0.35 0.7 1.2 Miles

Map 3

PG&E Lines 406 and 407 Pipeline

Area of Potential Effects (APE)

Appendix A: Maps (Project Vicinity, Project Location, Area of Potential Effects)



Source: Adapted from PG&E 2007.

NORTH

0 2.5 5 10 Miles

Map 1
PG&E Lines 406 and 407 Pipeline Project Vicinity

Appendix B: Consultation with the Public

GalvinPreservationAssociates

September 10, 2008

Rocklin Historical Society
P.O. Box 752
Rocklin, CA 95677

RE: Request for Public Comments and Solicitation of Information Regarding the PG&E Lines 406 & 407 Natural Gas Pipeline Project in Sacramento, Yolo, Sutter and Placer Counties

To Whom It May Concern:

Pacific Gas and Electric Company (PG&E) is proposing to construct and operate multiple natural gas transmission pipelines that would ultimately cross California's Central Valley in the counties of Yolo, Sutter, Sacramento and Placer (see Maps). Lines 406 and 407 would run below ground; east to west, from the intersection of Fiddyment and Baseline Roads terminating approximately three miles northwest of the town of Esparto. Some of the notable features that the pipeline will cross through are the Sacramento River, Interstate 5, as well as Interstate 505. Fully constructed, the pipelines would span the lower Sacramento Valley.

As part of the Section 106 and California Environmental Quality Act (CEQA) environmental processes associated with this project, Galvin Preservation Associates (GPA) has been contracted to prepare historic architectural studies of the project area to determine if any historic properties may be affected as part of the proposed project. As such, GPA is soliciting comments from interested parties, such as your organization, to assist us in identifying any potential concerns with the proposed project, and also to gather any information regarding the proposed project site and area. The historic architectural studies that we are preparing will partially allow PG&E to comply with CEQA. Our historic architectural documentation will also allow PG&E to comply with Section 106 of the National Historic Preservation Act (36 CFR §800).

If you have any information to provide on potential historic properties located within the project area or any concerns about the project in relation to history, we would greatly appreciate hearing from you **within three weeks** so that we can include your comments in our report. If you have any questions at all, please feel free to contact me by telephone at (310) 792-2690 or by e-mail at jennifer@galvinpreservation.com. Thank you very much for your time, and we look forward to any comments you may have regarding this project.

Sincerely,

Jennifer L. Krintz
Architectural Historian II

your quality preservation team

1611 s. pacific coast highway, suite 104, redondo beach ca 90277 t. 310.792.2690 f. 310.792.2696

List of Public Consulting Letter Contacts

Public consulting letters and maps were sent by Galvin Preservation Associates Inc. to the following on September 10, 2008:

Placer County:

Placer County Genealogical Society
Attn: Director
P.O. Box 7385
Auburn, CA 95604

Placer County Historical Society
Attn: Director
P.O. Box 5643
Auburn, CA 95604

Placer County Planning Department
Attn: Michael Johnson,
Planning Director
3091 County Center Drive
Auburn, CA 95603

Rocklin Historical Society
Attn: Director
P.O. Box 752
Rocklin, CA 95677

Sacramento County:

The California Museum for History, Women and the Arts
Attn: Claudia French,
Executive Director
1020 O Street
Sacramento, CA 95814

Planning & Community
Development Dept.
County of Sacramento
827 7th Street, Room 230
Sacramento, CA 95814

Sacramento Historical Society
Attn: Director
P.O. Box 160065
Sacramento, CA 95816-0065

West Sacramento Historical Society
Attn: Director
324 Third Street
West Sacramento, CA 95691

Sutter County:

Community Memorial Museum
Of Sutter County
Attn: Julie Stark
1333 Butte House Road
Yuba City, CA 95993

Sutter County Historical Society
Attn: Phyllis Smith
P.O. Box 1004
Yuba City, CA 95993

Sutter County Planning Department
Attn: Danielle Stylos, Division Chief
1130 Civic Center Blvd.
Yuba City, CA 95993

Yolo County:

Hattie Weber Museum of Davis
Attn: Jim Becket, Director
445 C Street
Davis, CA 95616-4102

Heidrick Ag History Center
Attn: Colleen Thompson
1962 Hays Lane
Woodland, CA 95776

Yolo County Archives
226 Buckeye Street
Woodland, CA 95695

Yolo County Historical Museum
Gibson House
Attn: Barbara Shreve, Director
512 Gibson Road
Woodland, CA 95695

Yolo County Historical Society
Attn: B.J. Ford, Director
P.O Box 1447
Woodland, CA 95776

Yolo County Planning & Public Works
Attn: John Bencomo, Director
292 West Beamer Street
Woodland, CA 95695

As of the date of this report, no responses have been received regarding this project or any historic resources associated with it.

Appendix C: California DPR 523 Forms

State of California--- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI
Trinomial #
NRHP Status Code
Other Listings
Review Code Reviewer Date

*Resource Name or # (Assigned by recorder) 27390 County Road 17

P1. Other Identifier:

*P2. Location: ☐ Not for Publication ☐ Unrestricted *a. County Yolo

and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Date T ;R ; ¼of ¼ of Sec ; B.M.

c. Address 27390 County Road 17 City Esparto Zip 95627

d. UTM: (Give more than one for large and/or linear resources) Zone ; mE/ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

APN

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The agricultural property located at 27930 County Road 17 is a one-story single family residence that was constructed in circa 1940s in no architectural style. It is located on the north side of County Road 17. The building has a near rectangular plan and the foundation is not visible. The wood frame building is sheathed in vertical wood board siding. The residence has a side gable roof. The east-facing façade was not visible from the street at the time of the survey. The windows are primarily vinyl sliders and are surrounded by moderate casings. At the time of the survey, most of the building was obscured by vegetation. Also on the property is a large wood frame machinery barn, a one-story aluminum storage unit and a small one-story composite wood storage shed.

*P3b. Resource Attributes: (List attributes and codes) HP2. Single Family Property

*P4. Resources Present: ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.):

*P5a. Photograph or Drawing (Photograph required for buildings, structures or objects)

P5b. Description of Photo: (view, date, accession #) **Figure 1:** View looking northeast at the south and west elevations. Picture taken August 29, 2008

*P6. Date Constructed/Age and Sources: ☒Historic ☐Prehistoric ☐Both
circa 1940s, Visual Observation

*P7. Owner and Address:

*P8. Recorded by: Name, affiliation, and address)
Jennifer Krintz & Nicole Collum
Galvin Preservation Associates Inc.
1611 S. Pacific Coast Hwy. Suite 104
Redondo Beach CA, 90277

*P9. Date Recorded: 8/29/2008

*P10. Survey Type: (Describe)
☒ Intensive
☐ Reconnaissance

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Historic Architectural Survey Report and Finding of Effect for the PG&E Lines 406 and 407 Pipeline Project in Placer, Sacramento, Sutter and Yolo Counties, California

*Attachments: NONE ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure & Object Record
☐Archaeological Record ☐ District Record ☐Linear Feature Record ☐ Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photographic Record ☐ Other (List)

BUILDING, STRUCTURE AND OBJECT RECORD

*NRHP Status Code

B1. Historic Name: None
B2. Common Name: None
B3. Original Use: Single Family Residence B4. Present Use: Single Family Residence
*B5. Architectural Style None
*B6. Construction History: (Construction date, alterations, and date of alterations)

*B7. Moved? ☒No ☐Yes ☐Unknown Date: Original Location:
*B8. Related Features: Machinery barn circa 1950s

B9a. Architect: Unknown b. Builder: Unknown
*B10. Significance: Theme Yolo County Agriculture Area Esparto
Period of Significance: 1853 to 1963 Property Type: Single Family Property Applicable Criteria: N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Yolo County was one of the original 27 counties created when California became a state in 1850. It is bounded by the Sacramento River on the east and the coastal mountains to the west. The plain in between has a rich soil built up from centuries of sediment deposition from Sacramento River flooding.

As indicated above, "Yolo" is derived from the native Patwin Indian word yoloy meaning "abounding in the rushes". Most Patwin groups occupied the major river courses and tributary drainages of their territory, such as the Sacramento River, Cache, and Putah creeks, and in some cases, springs. Other historians believe it to be the name of the Indian chief Yodo, or the Indian village of Yodoi.

The first recorded contact with Westerners occurred in the late 1820s. These included Spanish missionaries as well as trappers and hunters who could be found along the banks of "Cache Creek"—named by French-Canadian trappers. The proselytization and enslavement of the Patwin by the Spanish missionaries rapidly and dramatically reduced their numbers through hardship and disease. A malarial epidemic in 1830–33 and a smallpox epidemic in 1837 decimated much of the surviving population.

However, despite disease, Yolo County began to develop during the modern historical era as a result of its rich soil and climatic conditions. In 1842 the Mexican government granted William Gordon two leagues of land (the Guesissosi grant) on both sides of Cache Creek from the western hills to the Sacramento River. He is said to have grown wheat and other crops in the fertile soils of the area. One historical document notes that the first laborers used by the earliest farmers of Woodland in the 1850s were the native Patwin peoples.

The survey area for this study passed through two land grants: Cañada de Capay and Rio Jesus Maria. The 40,078.58-acre land grant Cañada de Capay was confirmed to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant (26,637.42) to J. M. Harbin et al. on July 3, 1858.

(continued page 3)

B11. Additional Resource Attributes: (List attributes and codes) None
*B12. References: See Page 4

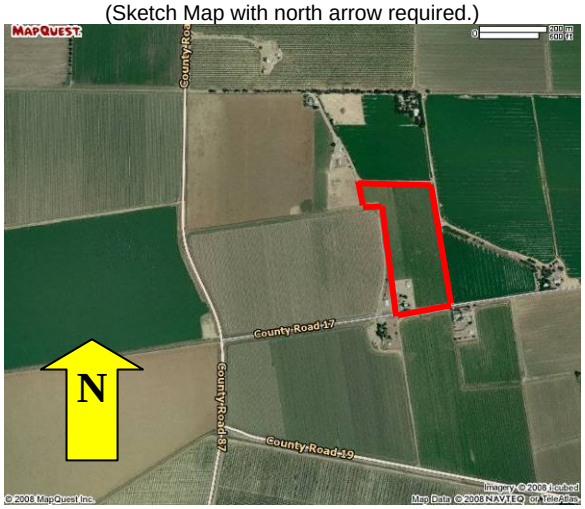
B13. Remarks: None

*B14. Evaluator: Jennifer Krintz & Nicole Collum
Galvin Preservation Associates Inc.
1611 South Pacific Coast Highway, Suite 104
Redondo Beach, CA 90277

*Date of Evaluation: September 2008

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



The red outline indicates the subject parcel. Map courtesy of mapquest.com.

(continued from page 2)

***B10. Significance:**

In 1846 the nine-league Rancho Canada de Capay, extending from the western edge of Gordon's grant through the north end of the Capay Valley, was granted to the three Berryessa brothers. Livestock production became the principal economic activity of rancheros and their followers.

Money earned in the gold fields of California financed the purchase and cultivation of much of the farmland in Yolo County. The variety of crops grown in the region included alfalfa, tobacco, peanuts, grapes, rice, sugar beets, various grains, and row crops. Wineries, livestock, and dairy operations were also important agricultural operations. Ranch lands with sheep and agricultural fields of alfalfa fields were identified in the APE.

Irrigation was a major contributor to the agricultural success of the region. The first irrigation canal was developed in 1856 by James Moore (Moore's Ditch), who owned exclusive water rights to Cache Creek. The agricultural fields of the APE had historically important water conveyances, such as the Hungry Hollow Canal and the Goodnow Slough that are being actively used. Several minor irrigation ditches and canals were also identified in the survey area.

Integrity Statement

The subject building was evaluated against the seven aspects of integrity as outlined in National Register Bulletin 15. The seven aspects of integrity include location, setting, feeling, association, materials, design and workmanship. There is no evidence that any of the buildings on the evaluated property were moved. The location remains the same. The area has remained relatively similar since its inception. The setting is slightly altered. The character of the place has remained farmland. Accordingly, the feeling of the place is the same. The property is associated with the agricultural heritage of Yolo County. This association remains the same with the machinery barn. However, the main house appears to have been constructed later than the barn. Much of the materials appear to remain on the machinery barn, as well as on the main house. The basic designs of the buildings remain intact. There are a few remnants of evidence of workmanship left on the property. The main residence, which was built in the circa 1940s appears to retain much of its overall integrity. Smaller ancillary buildings to the rear of the property appear to be more recent, and therefore affect the overall property integrity.

Therefore, the overall property has fair integrity.

National Register of Historic Places Evaluation

The property was assessed under National Register of Historic Places (NRHP) Criterion A for its potential significance as a part of a historic trend that may have made a significant contribution to the broad patterns of our history. Although, the farmhouse still remains on a large agricultural parcel and the original machinery barn still remains, the farmhouse has been altered considerably and many of the additional ancillary buildings that would likely be associated with this type of property are no longer present. Therefore this property no longer conveys the feel of the original farmstead. Therefore, as a whole, the property no longer conveys enough historic significance that could be related to a historic trend that may have made a significant contribution to the broad patterns of our history and does not qualify for the NRHP under Criterion A.

The property was considered under Criterion B for its association with the lives of persons significant in our past. No significant persons were identified with the building. Therefore, the property does not appear to qualify for the NRHP under Criterion B.

The property was evaluated under Criterion C for embodying the distinctive characteristics of a type, period, or method of construction, or representing the work of a master, possessing high artistic values, or representing a significant and distinguishable entity whose components lack individual distinction. There was no architect for this residence and it also does not possess high artistic values. The property does not contribute to a potential historic district. Therefore, it does not appear to qualify for the NRHP under Criterion C.

The property was considered for Criterion D for the potential to yield or likelihood to yield information to prehistory or history. In order for buildings, structures, and objects to be eligible for this Criterion, they would need to "be, or must have been, the principal source of important information." This is not the case with this property. Therefore, it does not appear to qualify for the NRHP under Criterion D.

In summary, the property does not appear to qualify for the NRHP under any of these criteria. **Therefore, this property does not meet any of the criteria for inclusion in the National Register of Historic Places and is not a historic property for the purposes of Section 106 of the National Historic Preservation Act (NHPA).**

California Register Eligibility Evaluation

This property was also evaluated in accordance with Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. These four criteria parallel those of the NRHP. This property does not meet the four criteria for California Register eligibility, for the reasons described above under the NRHP evaluation. **Therefore, this is not a historical resource for the purposes of CEQA.**

***B12. References:**

Allen, R., A. M. Medin, R. S. Baxter, B. Wickstrom, C. Young, J. Costello, G. White, A. Huberland, H. M. Johnson, J. Meyer, and M. Hylkema.
1999 *Upgrade of the Guadalupe Parkway, San Jose: Historic Properties Treatment Plan.* Prepared for California Department of Transportation, District 4, Oakland, California. Prepared by Past Forward, Foothill Resources, Ltd., KEA Environmental, Archaeology Laboratory at California State University, Chico.

CH2M HILL
2006 *Draft Report—L400/401 to L172A Feasibility and Routing Study*. Prepared for Pacific Gas and Electric. Prepared by CH2MHILL.

California Department of Parks and Recreation
1976 *California Inventory of Historic Resources.* State of California Department of Parks and Recreation, Sacramento.

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1979 *Preliminary geologic map of Cenozoic deposits of the Woodland quadrangle, California*. U.S. Geological Survey Open-File Report 79-1606, 4 sheets, scale 1:62,500.

Larkey, J. L. and S. Walters
1987 *Yolo County: land of changing patterns: an illustrated history*. Northridge, Calif., Windsor Publications.

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Wohlgemuth, E.
2007 *Draft—Cultural Resources Survey for PG&E Line 407/Line 123 Extension/ Metro Air Park Distribution Feeder Main Project, Sacramento, Sutter, Placer, and Yolo Counties, California.* Volume I. Submitted to TRC Solutions, 637 Main Street, Half Moon Bay, CA 94019. Prepared for Pacific Gas and Electric Company, 2730 Gateway Oaks Drive, Suite 220, Sacramento, CA 95833. Prepared by Far Western Anthropological Research Group, Inc., 2727 Del Rio Place, Suite A, Davis, CA 95618.

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1879 *The illustrated atlas and history of Yolo County, Cal., containing a history of California from 1513 to 1850, a history of Yolo County from 1825 to 1880, with statistics: portraits of well-known citizens, and the official county map*. San Francisco, De Pue & Co.

Yolo County
informational website, http://www.yolocounty.org/history.htm, accessed March 14, 2007.

CONTINUATION SHEET

*Resource Name or # (Assigned by recorder) 27390 County Road 17

Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

Figure 1: View looking north at the machinery barn

Figure 2: View looking northeast at the overall property

State of California--- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI
Trinomial #
NRHP Status Code
Other Listings
Review Code Reviewer Date

*Resource Name or # (Assigned by recorder) 27960 County Road 19

P1. Other Identifier:

*P2. Location: ☐ Not for Publication ☐ Unrestricted *a. County Yolo

and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Date T ;R ; ¼of ¼ of Sec ; B.M.

c. Address 27960 County Road 19 City Esparto Zip 95627

d. UTM: (Give more than one for large and/or linear resources) Zone ; mE/ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

APN

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

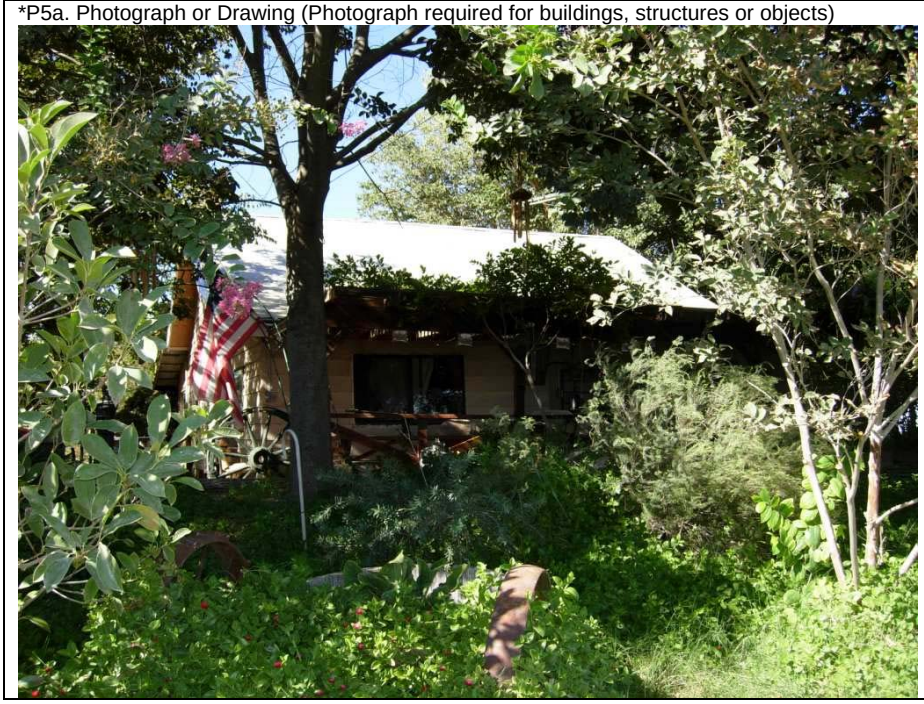
The agricultural property located at 27960 County Road 19 is a one-story single family residence that was constructed in the circa 1940s in no discernible architectural style. It is located on the north side of County Road 19. The building has a near rectangular plan and the foundation is not visible. The wood frame building is sheathed in wood clapboard siding. The residence has a side gable roof. There are exposed rafters underneath the overhanging eaves. At the south-facing façade, there is a secondary dropped roof covering a full-width porch. Squared wooden posts support the shed porch roof. In between the columns of the porch is a wooden balustrade. A primary entrance door is located on the west elevation. The windows are primarily aluminum sliders. There is also a one-story shed roof addition to the rear of the building. At the time the photo was taken, the house was mostly obscured by vegetation. Also on the property are several outbuildings and barns including a large wood-clad horse barn, a front gable wood board shed, and other one-story sheds. There appears to be a two-story building which was obscured by tree canopy and vegetation.

Modifications include a replacement door and possible replacement windows.

*P3b. Resource Attributes: (List attributes and codes) HP2. Single Family Property

*P4. Resources Present: ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.):

*P5a. Photograph or Drawing (Photograph required for buildings, structures or objects)



P5b. Description of Photo: (view, date, accession #) **Figure 1**: View looking northeast at the façade. Picture Taken on August 29, 2008.

*P6. Date Constructed/Age and Sources: ☒Historic ☐Prehistoric ☐Both
circa 1940s, Visual Observation

*P7. Owner and Address:

*P8. Recorded by: Name, affiliation, and address)
Jennifer Krintz & Nicole Collum
Galvin Preservation Associates Inc.
1611 S. Pacific Coast Hwy. Suite 104
Redondo Beach CA, 90277

*P9. Date Recorded: 08/29/2008

*P10. Survey Type: (Describe)
☒ Intensive
☐ Reconnaissance

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Historic Architectural Survey Report and Finding of Effect for the PG&E Lines 406 and 407 Pipeline Project in Placer, Sacramento, Sutter and Yolo Counties, California

*Attachments: NONE ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure & Object Record
☐Archaeological Record ☐ District Record ☐Linear Feature Record ☐ Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photographic Record ☐ Other (List)

BUILDING, STRUCTURE AND OBJECT RECORD

*NRHP Status Code

B1. Historic Name: None
B2. Common Name: None
B3. Original Use: Single Family Residence B4. Present Use: Single Family Residence
*B5. Architectural Style None
*B6. Construction History: (Construction date, alterations, and date of alterations)

*B7. Moved? ☒No ☐Yes ☐Unknown Date: Original Location:
*B8. Related Features: Horse barn circa 1850s

B9a. Architect: Unknown b. Builder: Unknown
*B10. Significance: Theme Yolo County Agriculture Area Esparto
Period of Significance: 1850s to 1963 Property Type: Single Family Property Applicable Criteria: N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Yolo County was one of the original 27 counties created when California became a state in 1850. It is bounded by the Sacramento River on the east and the coastal mountains to the west. The plain in between has a rich soil built up from centuries of sediment deposition from Sacramento River flooding.

As indicated above, "Yolo" is derived from the native Patwin Indian word yoloy meaning "abounding in the rushes". Most Patwin groups occupied the major river courses and tributary drainages of their territory, such as the Sacramento River, Cache, and Putah creeks, and in some cases, springs. Other historians believe it to be the name of the Indian chief Yodo, or the Indian village of Yodoi.

The first recorded contact with Westerners occurred in the late 1820s. These included Spanish missionaries as well as trappers and hunters who could be found along the banks of "Cache Creek"—named by French-Canadian trappers. The proselytization and enslavement of the Patwin by the Spanish missionaries rapidly and dramatically reduced their numbers through hardship and disease. A malarial epidemic in 1830–33 and a smallpox epidemic in 1837 decimated much of the surviving population.

A main factor of Yolo County's modern historical development was its rich soil and climatic conditions.

In 1842 the Mexican government granted William Gordon two leagues of land (the Guesissosi grant) on both sides of Cache Creek from the western hills to the Sacramento River. He is said to have grown wheat and other crops in the fertile soils of the area. One historical document notes that the first laborers used by the earliest farmers of Woodland in the 1850s were the native Patwin peoples.

The survey area for this study passed through two land grants: Cañada de Capay and Rio Jesus Maria. The 40,078.58-acre land grant Cañada de Capay was confirmed to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant (26,637.42) to J. M. Harbin et al. on July 3, 1858.

(continued page 3)

B11. Additional Resource Attributes: (List attributes and codes) None
*B12. References: See Page 4

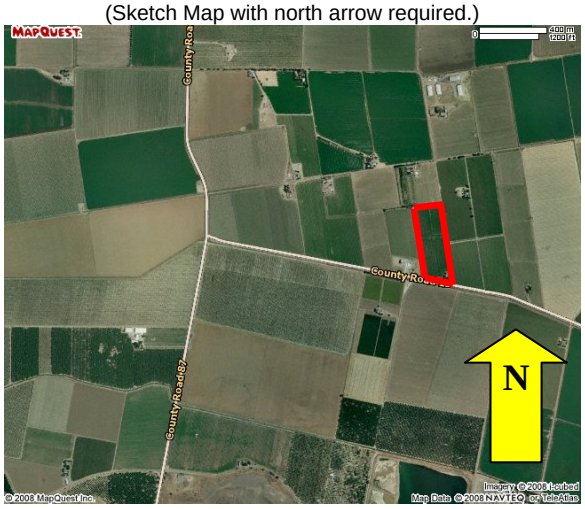
B13. Remarks: None

*B14. Evaluator: Jennifer Krintz & Nicole Collum
Galvin Preservation Associates Inc.
1611 South Pacific Coast Highway, Suite 104
Redondo Beach, CA 90277

*Date of Evaluation: September 2008

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



The red outline indicates the subject parcel. Map courtesy of mapquest.com

(continued from page 2)

***B10. Significance:**

In 1846 the nine-league Rancho Canada de Capay, extending from the western edge of Gordon's grant through the north end of the Capay Valley, was granted to the three Berryessa brothers. Livestock production became the principal economic activity of rancheros and their followers.

Money earned in the gold fields of California financed the purchase and cultivation of much of the farmland in Yolo County. The variety of crops grown in the region included alfalfa, tobacco, peanuts, grapes, rice, sugar beets, various grains, and row crops. Wineries, livestock, and dairy operations were also important agricultural operations. Ranch lands with sheep and agricultural fields of alfalfa fields were identified in the APE.

Irrigation was a major contributor to the agricultural success of the region. The first irrigation canal was developed in 1856 by James Moore (Moore's Ditch), who owned exclusive water rights to Cache Creek. The agricultural fields of the APE had historically important water conveyances, such as the Hungry Hollow Canal and the Goodnow Slough that are being actively used. Several minor irrigation ditches and canals were also identified in the survey area.

Integrity Statement

The subject building was evaluated against the seven aspects of integrity as outlined in National Register Bulletin 15. The seven aspects of integrity include location, setting, feeling, association, materials, design and workmanship. There is no evidence that any of the buildings on the evaluated property were moved. The location remains the same. The area has remained relatively similar since its inception. The setting is slightly altered. The character of the place has remained farmland. Accordingly, the feeling of the place is the same. The property is associated with the agricultural heritage of Yolo County. This association remains the same with the present of the rear horse barn and other farming outbuildings. The main house appears to be of newer construction than of the rear farming buildings. Much of the materials appear to be intact on the main house and on the horse barn. The basic designs of the buildings remain intact. There are few remnants of evidence of workmanship left on the property. The main residence, which was built in the circa 1940's has been extensively altered. Smaller ancillary buildings to the rear of the property appear to be more recent, and therefore affect the integrity. Today, the building appears to be a single family residence and it is unclear what the association is to the farmland.

Therefore, the property has fair integrity.

National Register of Historic Places Evaluation

The property was assessed under National Register of Historic Places (NRHP) Criterion A for its potential significance as a part of a historic trend that may have made a significant contribution to the broad patterns of our history. The property has been altered so significantly it no longer conveys enough historic significance that could be related to a historic trend that may have made a significant contribution to the broad patterns of our history. Therefore, the evaluated property does not appear to qualify for the NRHP under Criterion A.

The property was considered under Criterion B for its association with the lives of persons significant in our past. No significant persons were identified with the building. Therefore, the property does not appear to qualify for the NRHP under Criterion B.

The property was evaluated under Criterion C for embodying the distinctive characteristics of a type, period, or method of construction, or representing the work of a master, possessing high artistic values, or representing a significant and distinguishable entity whose components lack individual distinction. There was no architect for this residence and it also does not possess high artistic values. The property does not contribute to a potential historic district. Therefore, it does not appear to qualify for the NRHP under Criterion C.

The property was considered for Criterion D for the potential to yield or likelihood to yield information to prehistory or history. In order for buildings, structures, and objects to be eligible for this Criterion, they would need to "be, or must have been, the principal source of important information." This is not the case with this property. Therefore, it does not appear to qualify for the NRHP under Criterion D.

In summary, the property does not appear to qualify for the NRHP under any of these criteria. **Therefore, this property does not meet any of the criteria for inclusion in the National Register of Historic Places and is not a historic property for the purposes of Section 106 of the National Historic Preservation Act (NHPA).**

California Register Eligibility Evaluation

This property was also evaluated in accordance with Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. These four criteria parallel those of the NRHP. This property does not meet the four criteria for California Register eligibility, for the reasons described above under the NRHP evaluation. **Therefore, this is not a historical resource for the purposes of CEQA.**

***B12. References:**

Allen, R., A. M. Medin, R. S. Baxter, B. Wickstrom, C. Young, J. Costello, G. White, A. Huberland, H. M. Johnson, J. Meyer, and M. Hylkema.
1999 *Upgrade of the Guadalupe Parkway, San Jose: Historic Properties Treatment Plan.* Prepared for California Department of Transportation, District 4, Oakland, California. Prepared by Past Forward, Foothill Resources, Ltd., KEA Environmental, Archaeology Laboratory at California State University, Chico.

CH2M HILL
2006 *Draft Report—L400/401 to L172A Feasibility and Routing Study*. Prepared for Pacific Gas and Electric. Prepared by CH2MHILL.

California Department of Parks and Recreation
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California Office of Historic Preservation (CA-OHP)
1988 *Five Views: An Ethnic Historic Site Survey for California.* State of California Department of Parks and Recreation, Sacramento.

1990 *California Historical Landmarks. State of California*. Department of Parks and Recreation, Sacramento.

1992 *California Points of Historical Interest*. State of California Department of Parks and Recreation, Sacramento.

2003 *Historic Properties Directory Listing by City* (updated through August 2005). State Office of Historic Preservation, Sacramento.

City of Woodland informational website, http://www.ci.woodland.ca.us/history.pdf, created November 2003, accessed March 14, 2007.

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2005 Cultural Resource Constraints Associated with Alternative Routes 1, 2A, 2B and 3 of the Yolo Pipeline. Prepared for CH2M Hill, 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1 Saunders Ave., San Anselmo, CA 94960.

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1990 A Cultural Resources Study for Environmental Impact Report for Wildhorse Golf Club and Residential Community, Yolo County, California. Cultural Resources Unlimited. Submitted to ECOS, Inc., Sacramento, California. A copy is on file at the California Historical Resources Information System, Northwest Information Center, Rohnert Park, California.

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1979 *Preliminary geologic map of Cenozoic deposits of the Woodland quadrangle, California*. U.S. Geological Survey Open-File Report 79-1606, 4 sheets, scale 1:62,500.

Larkey, J. L. and S. Walters
1987 *Yolo County: land of changing patterns: an illustrated history*. Northridge, Calif., Windsor Publications.

United States Geological Survey (USGS)
1959 Esparto, Calif., 7.5-minute topographic quadrangle (revised 1993).

1992 Madison, Calif., 7.5-minute topographic quadrangle.

1952 Woodland, Calif., 7.5-minute topographic quadrangle (photorevised 1981).

Wohlgemuth, E.
2007 *Draft—Cultural Resources Survey for PG&E Line 407/Line 123 Extension/ Metro Air Park Distribution Feeder Main Project, Sacramento, Sutter, Placer, and Yolo Counties, California.* Volume I. Submitted to TRC Solutions, 637 Main Street, Half Moon Bay, CA 94019. Prepared for Pacific Gas and Electric Company, 2730 Gateway Oaks Drive, Suite 220, Sacramento, CA 95833. Prepared by Far Western Anthropological Research Group, Inc., 2727 Del Rio Place, Suite A, Davis, CA 95618.

Yolo County
1879 *The illustrated atlas and history of Yolo County, Cal., containing a history of California from 1513 to 1850, a history of Yolo County from 1825 to 1880, with statistics: portraits of well-known citizens, and the official county map*. San Francisco, De Pue & Co.

Yolo County
informational website, http://www.yolocounty.org/history.htm, accessed March 14, 2007.

*Resource Name or # (Assigned by recorder) 27960 County Road 19

Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

Figure 2: View looking northeast at the primary entryway.

Figure 3: View looking northwest at the overall property.

State of California--- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI
Trinomial #
NRHP Status Code
Other Listings
Review Code Reviewer Date

*Resource Name or # (Assigned by recorder) 27660 County Road 19

P1. Other Identifier: 27777, 28000 County Road 19

*P2. Location: ☐ Not for Publication ☐ Unrestricted *a. County Yolo

and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Date T ;R ; ¼of ¼ of Sec ; B.M.

c. Address 27660 County Road 19 City Esparto Zip 95627

d. UTM: (Give more than one for large and/or linear resources) Zone ; mE/ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

APN

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

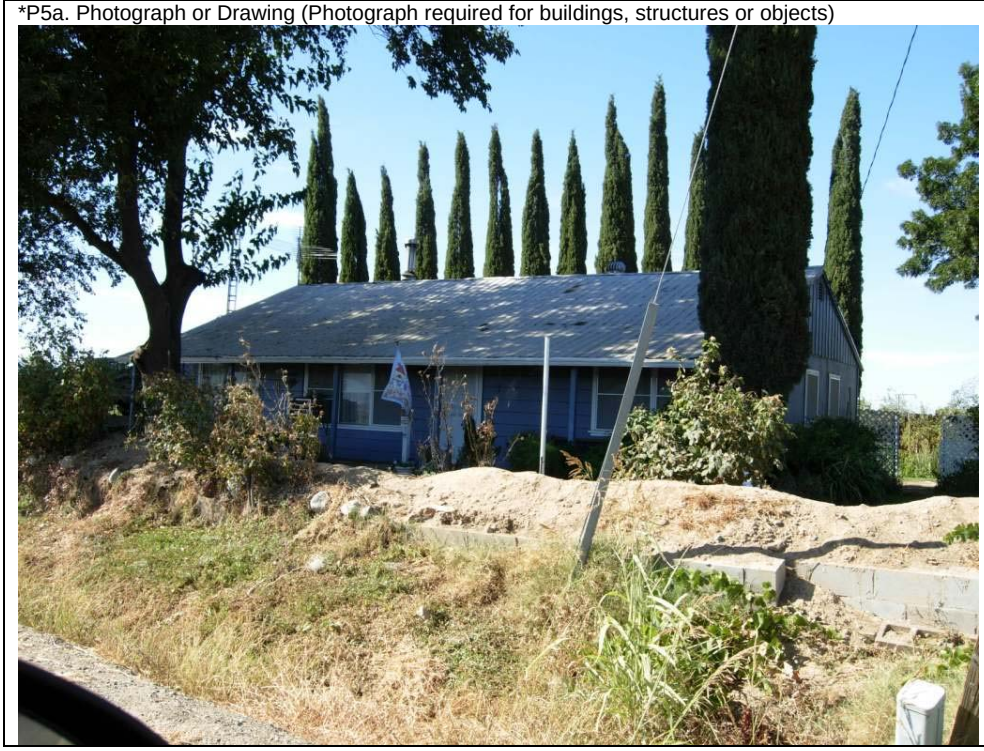
The agricultural property located at 27660 County Road 19 is a one-story single family residence that was constructed in the circa 1950's in the Minimal Traditional/Ranch style. It is located on the north side of County Road 19. The building has a near rectangular plan and the foundation is not visible. The wood frame building is sheathed in wide horizontal wood board siding on the façade and vertical wood board siding on the other elevations. The residence has a side-gable roof with a standing seam metal roof. At the south-facing façade, a concrete walkway leads to a recessed full-width porch. Squared wooden posts support the recessed porch roof. The primary entrance door is located off-center within the porch and is surrounded by moderate casings and is obscured by a metal security door. The windows are primarily double-hung vinyl sash and are surrounded by moderate casings. There are also vinyl casements and fixed windows on the building. There is also a one-story shed-roof porch on the west elevation. Landscaping features include a line of cypress trees along the rear of the property as well as various vegetations partially obscuring the building from the street. Also on the property are four or five one-story wooden storage sheds and ancillary buildings located to the rear of the property.

Modifications to the building include window replacement and some siding replacement.

*P3b. Resource Attributes: (List attributes and codes) HP2. Single Family Property

*P4. Resources Present: ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.):

*P5a. Photograph or Drawing (Photograph required for buildings, structures or objects)



P5b. Description of Photo: (view, date, accession #) **Figure 1:** View looking northwest at the façade. picture taken August 29, 2008.

*P6. Date Constructed/Age and Sources: ☒Historic ☐Prehistoric ☐Both
circa 1950s, Visual Observation

*P7. Owner and Address:

*P8. Recorded by: Name, affiliation, and address)
Jennifer Krintz & Nicole Collum
Galvin Preservation Associates Inc.
1611 S. Pacific Coast Hwy. Suite 104
Redondo Beach CA, 90277

*P9. Date Recorded: 08/29/2008

*P10. Survey Type: (Describe)
☒ Intensive
☐ Reconnaissance

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Historic Architectural Survey Report and Finding of Effect for the PG&E lines 406 & 407 Pipeline Project in Placer, Sacramento, Sutter and Yolo Counties, California

*Attachments: NONE ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure & Object Record
☐Archaeological Record ☐ District Record ☐Linear Feature Record ☐ Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photographic Record ☐ Other (List)

BUILDING, STRUCTURE AND OBJECT RECORD

*NRHP Status Code

B1. Historic Name: None
B2. Common Name: None
B3. Original Use: Single Family Residence B4. Present Use: Single Family Residence
*B5. Architectural Style Minimal Traditional/Ranch
*B6. Construction History: (Construction date, alterations, and date of alterations)

*B7. Moved? ☒No ☐Yes ☐Unknown Date: Original Location:
*B8. Related Features: Utility sheds circa 1890

B9a. Architect: Unknown b. Builder: Unknown
*B10. Significance: Theme 1) Yolo County Agriculture Area Esparto
Period of Significance: 1850s to 1963 Property Type: Single Family Residence Applicable Criteria: N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Yolo County was one of the original 27 counties created when California became a state in 1850. It is bounded by the Sacramento River on the east and the coastal mountains to the west. The plain in between has a rich soil built up from centuries of sediment deposition from Sacramento River flooding.

As indicated above, "Yolo" is derived from the native Patwin Indian word yoloy meaning "abounding in the rushes". Most Patwin groups occupied the major river courses and tributary drainages of their territory, such as the Sacramento River, Cache, and Putah creeks, and in some cases, springs. Other historians believe it to be the name of the Indian chief Yodo, or the Indian village of Yodoi.

The first recorded contact with Westerners occurred in the late 1820s. These included Spanish missionaries as well as trappers and hunters who could be found along the banks of "Cache Creek"—named by French-Canadian trappers. The proselytization and enslavement of the Patwin by the Spanish missionaries rapidly and dramatically reduced their numbers through hardship and disease. A malarial epidemic in 1830–33 and a smallpox epidemic in 1837 decimated much of the surviving population.

However, despite disease, Yolo County began to develop during the modern historical era as a result of its rich soil and climatic conditions. In 1842 the Mexican government granted William Gordon two leagues of land (the Guesissosi grant) on both sides of Cache Creek from the western hills to the Sacramento River. He is said to have grown wheat and other crops in the fertile soils of the area. One historical document notes that the first laborers used by the earliest farmers of Woodland in the 1850s were the native Patwin peoples.

The survey area for this study passed through two land grants: Cañada de Capay and Rio Jesus Maria. The 40,078.58-acre land grant Cañada de Capay was confirmed to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant (26,637.42) to J. M. Harbin et al. on July 3, 1858.

(continued page 3)

B11. Additional Resource Attributes: (List attributes and codes) None
*B12. References: See Page 4

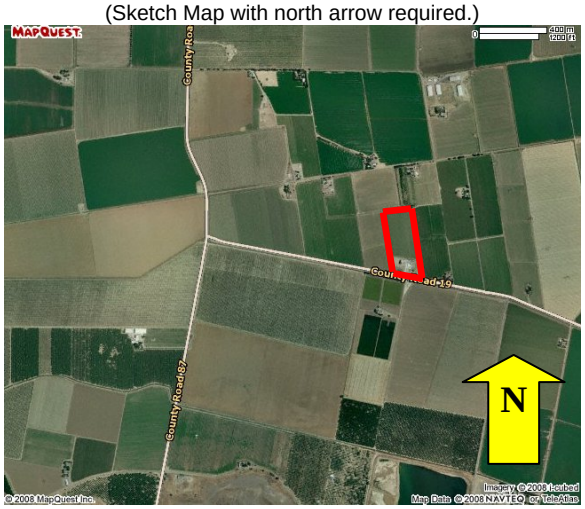
B13. Remarks: None

*B14. Evaluator: Jennifer Krintz & Nicole Collum
Galvin Preservation Associates Inc.
1611 South Pacific Coast Highway, Suite 104
Redondo Beach, CA 90277

*Date of Evaluation: September 2008

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



The red outline indicates the subject parcel. Map courtesy of mapquest.com.

*Resource Name or # (Assigned by recorder) 27660 County Road 19
Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

(continued from page 2)

***B10. Significance:**

In 1846 the nine-league Rancho Canada de Capay, extending from the western edge of Gordon's grant through the north end of the Capay Valley, was granted to the three Berryessa brothers. Livestock production became the principal economic activity of rancheros and their followers.

Money earned in the gold fields of California financed the purchase and cultivation of much of the farmland in Yolo County. The variety of crops grown in the region included alfalfa, tobacco, peanuts, grapes, rice, sugar beets, various grains, and row crops. Wineries, livestock, and dairy operations were also important agricultural operations. Ranch lands with sheep and agricultural fields of alfalfa fields were identified in the APE.

Irrigation was a major contributor to the agricultural success of the region. The first irrigation canal was developed in 1856 by James Moore (Moore's Ditch), who owned exclusive water rights to Cache Creek. The agricultural fields of the APE had historically important water conveyances, such as the Hungry Hollow Canal and the Goodnow Slough that are being actively used. Several minor irrigation ditches and canals were also identified in the survey area.

The Minimal Traditional Style

The Minimal Traditional Style was popular in southern California starting in the late 1930s and reached its peak in popularity during post-war housing boom that started in the late 1940s and lasting into the mid-1960s.

The style is typically characterized by a relatively small one-story, modestly-sized plan with moderately-pitched multi-gabled roof, shallow eaves, a brick chimney on the gable end, minimal decoration, textured stucco finish, wood board siding used on the gable ends, a partial width porch that is usually sheltered by an extension of the primary roof and window consisting of either wood sash double-hung or metal casement windows. The residence contained within the evaluated property exhibits a channeled wood drop exterior, a moderately pitched double front gabled roof, wood sash double-hung windows and a façade porch sheltered by a flat roof supported by squared wood posts.

Integrity Statement

The subject building was evaluated against the seven aspects of integrity as outlined in National Register Bulletin 15. The seven aspects of integrity include location, setting, feeling, association, materials, design and workmanship. There is no evidence that any of the buildings on the evaluated property were moved. The location remains the same. The area has remained relatively similar since its inception. The setting is slightly altered. The character of the place has remained farmland. Accordingly, the feeling of the place is the same. The property is associated with the agricultural heritage of Yolo County. This association may be altered because there are no farm buildings left on the property; if there were any. However, the main house remains. Much of the materials appear to have been replaced or removed on the main house. The basic designs of the buildings remain intact. There are a few remnants of evidence of workmanship left on the property. The main residence, which was built in the circa 1950s has been extensively altered. Smaller ancillary buildings to the rear of the property appear to be more recent, and therefore affect the integrity. Today, the building appears to be a single family residence and it is unclear what the association is to the farmland.

Therefore, the property has fair integrity.

National Register of Historic Places Evaluation

The property was assessed under National Register of Historic Places (NRHP) Criterion A for its potential significance as a part of a historic trend that may have made a significant contribution to the broad patterns of our history. The property has been altered so significantly it no longer conveys enough historic significance that could be related to a historic trend that may have made a significant contribution to the broad patterns of our history. Therefore, the evaluated property does not appear to qualify for the NRHP under Criterion A.

The property was considered under Criterion B for its association with the lives of persons significant in our past. No significant persons were identified with the building. Therefore, the property does not appear to qualify for the NRHP under Criterion B.

*Resource Name or # (Assigned by recorder) 27660 County Road 19
Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

The property was evaluated under Criterion C for embodying the distinctive characteristics of a type, period, or method of construction, or representing the work of a master, possessing high artistic values, or representing a significant and distinguishable entity whose components lack individual distinction. There was no architect for this residence and it also does not possess high artistic values. The property does not contribute to a potential historic district. Therefore, it does not appear to qualify for the NRHP under Criterion C.

The property was considered for Criterion D for the potential to yield or likelihood to yield information to prehistory or history. In order for buildings, structures, and objects to be eligible for this Criterion, they would need to "be, or must have been, the principal source of important information." This is not the case with this property. Therefore, it does not appear to qualify for the NRHP under Criterion D.

In summary, the property does not appear to qualify for the NRHP under any of these criteria. **Therefore, this property does not meet any of the criteria for inclusion in the National Register of Historic Places and is not a historic property for the purposes of Section 106 of the National Historic Preservation Act (NHPA).**

California Register Eligibility Evaluation

This property was also evaluated in accordance with Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. These four criteria parallel those of the NRHP. This property does not meet the four criteria for California Register eligibility, for the reasons described above under the NRHP evaluation. **Therefore, this is not a historical resource for the purposes of CEQA.**

***B12. References:**

Allen, R., A. M. Medin, R. S. Baxter, B. Wickstrom, C. Young, J. Costello, G. White, A. Huberland, H. M. Johnson, J. Meyer, and M. Hylkema.
1999 *Upgrade of the Guadalupe Parkway, San Jose: Historic Properties Treatment Plan.* Prepared for California Department of Transportation, District 4, Oakland, California. Prepared by Past Forward, Foothill Resources, Ltd., KEA Environmental, Archaeology Laboratory at California State University, Chico.

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1987 *Yolo County: land of changing patterns: an illustrated history*. Northridge, Calif., Windsor Publications.

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1879 *The illustrated atlas and history of Yolo County, Cal., containing a history of California from 1513 to 1850, a history of Yolo County from 1825 to 1880, with statistics: portraits of well-known citizens, and the official county map*. San Francisco, De Pue & Co.

Yolo County
informational website, http://www.yolocounty.org/history.htm, accessed March 14, 2007.

CONTINUATION SHEET

*Resource Name or # (Assigned by recorder) 27660 County Road 19

Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

Figure 2: View looking northwest at the south and east elevations and rear outbuildings.

Figure 3: View looking north at the west elevation and rear outbuildings.

Figure 4: View looking northeast at the rear outbuildings and open porch on the west elevation.

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Y-7

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Yolo

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Madison **Date:** 1992 **T** 10N ; **R**1E; SE **¼ of** SW **¼ of Sec** 5; M.D.M **B.M.**

c. Address: 32852 and 32865 County Road 17 **City:** Woodland **Zip:** 95695

d. UTM: NAD 83 **Zone:** 10 ; 596534 **mE/** 4288128 **mN** (G.P.S.) *(southeast corner of metal barn/granary)*

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 175 feet amsl

This property is located at the easternmost gate across County Road 17 between Interstates 5 and 505. There is a 1904 USGS datum (169 feet) on the side of the road in front of the property.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Historically, as well as today, agriculture has been Yolo County's primary industry and this barn and associated farm reflects small rural dry-grain crop operations throughout the region. The historic property has four farm buildings, including a granary (Building No. 1), two barns (Building Nos. 2 & 3), and a residence (Building No. 4), that are more than 50 years old. The property is presently occupied, and also features several modern buildings including residences, horse stables, and storage sheds. Movable stock, such as farming equipment and vintage motorized vehicles were also noted on the property. According to a personal communication with Carol Knight, the main residence at 32840 County Road 17 was built in the 1920s. In 2006, the exterior walls were re-sided and it received a new roof. (See continuation sheets for historic farm building descriptions)

***P3b. Resource Attributes:** (List attributes and codes) HP33. Farm/ranch

***P4. Resources Present:** ☒Building ☒Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #)
Overview of farm buildings, facing east; 12/05/2006/ ; 1.jpg

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Harold Horgan
32840 County Road 17, Woodland, CA 95695

***P8. Recorded by:** (Name, affiliation, and address)
C. Descantes, B.Texier, and C. Denardo
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:** 03/20/2007

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
Descantes, Christophe
2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☒Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

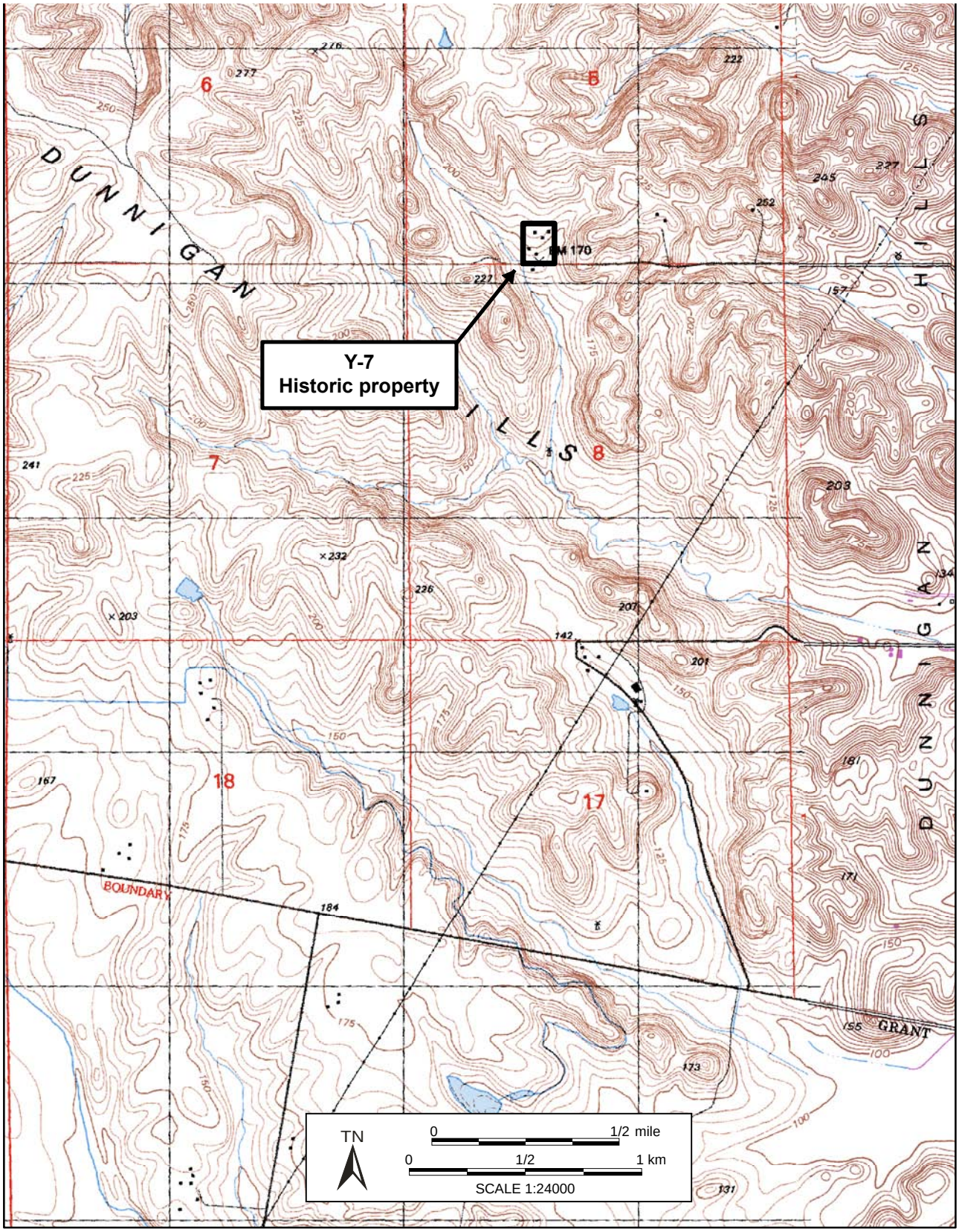
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

 *Resource Name or # Y-7

*Map Name: Madison, Calif. *Scale: 1:24000 *Date of Map: 1992



 *Required Information

***Recorded by:** C. Descantes, B. Texier, and C. Denardo ***Date:** 03/21/2007 ☒ Continuation ☐ Update

Farm Building No. 1 is a tall, narrow two-story building built in the 1940s as a granary, but now used for storage. It is at the southwestern portion of the property and measures 50 feet long x 25 feet wide x 25 feet high. The building is timber-framed and the exterior walls are clad with vertical galvanized metal panels. The eastern quarter of the building has a concrete slab foundation; the remainder of the building features a dirt floor with a concrete footing along the perimeter. The building is side-gabled with a steeply pitched roof sheathed with corrugated iron panels, and there is a cupola along the roof ridgeline. The gabled roof cupola mimics the tall narrow form of the granary building; it is entirely clad with vertical galvanized metal panels. It is probable that the cupola once featured louvers for ventilation.

Fenestration on the north façade includes two evenly spaced windows below the roofline. One of the windows has a hinged sheet metal door and the other displays a single fixed pane. There is a large door opening at the east end of the façade and a more recently installed human door to the west of it. Similar to the façade, the south elevation features two windows at the roofline; one is broken but once had six-panes, while the other has been replaced with a single pane. A large sliding door clad with galvanized metal panels is at the east end of the south elevation. Fenestration on the east elevation includes a window at each end, below the gable. The one on the south end has a single pane, whereas the glass is missing from the window at the north end. A square hole pierces the center of the elevation, and above it are two evenly spaced pipes which extend downward. Centered below the gable at the west elevation is an open human doorway that leads onto a redwood balcony with wood rails and supports.

Granaries were commonly constructed with an upper grain storeroom and storage space below. The building was constructed with few windows to minimize invasions from rodents and other pests. However, the cupola was probably once vented using louvers to prevent spontaneous combustion, although it is also possible that there had been a door in the cupola to allow grain to be delivered into the building by an elevated conveyor. It is likely that the two pipes extending down on the east elevation were used for easy access to the grain for feeding livestock. Structurally, the former granary is in good condition; however, there have been modifications made to some of the windows, the cupola has been modified, and the balcony is a recent addition.

Southeastern overview of northern façade and western elevation of Building No.1, the granary at Y-7; 03/21/2007; IMG_1467.

Farm Building #2 is northwest of Farm Building No. 1 and measures approximately 81 feet long x 56 feet wide, excluding the shed-roof projection on the north elevation. The barn was built in 1881 and appears to be the oldest building on the property. It exhibits two-stories and a wide expanse roofline. The moderate pitched front-gabled roof is sheathed with corrugated iron panels. The barn has a concrete foundation with a dirt floor, although concrete slabs cover sections of the floor. The timber-framed barn is sided with vertical wood planks on all, but the west elevation, and displays both cut nails and round-headed nails. Corrugated metal siding covers the west elevation. The east façade of the building features a large sliding wood-plank door in the center with an overhead track equipped with pulleys. New wood panels (or T-1-11 plywood) replace wood planks at either side of the door. The west elevation displays a smaller corrugated metal sliding door with an overhead track and pulleys on the west end. There is evidence that there was once a large door at the center of the elevation, similar to the one on the façade, but the door was later replaced by corrugated metal siding. The north elevation features a shed-roof extended roofline that is supported by wood posts. The extension is open–sided and miscellaneous equipment is stored under it. The only windows on the barn are on the south elevation. There are four aluminum-framed 1:1 pane windows spaced across the side of the building. The recently repaired barn is presently used for storing farming equipment, although it is likely that it was once used for livestock and/or hay storage. The replacement of wood plank cladding with corrugated metal panels and the addition of aluminium sliders on the south elevation have affected the integrity of the building.

Overview of east façade and north elevation of hay/horse barn at Y-7, facing southwest; 03/21/2007; IMG_1473.

References:

Halsted, Byron D. (editor). *Barns, Sheds, and Outbuildings: Placement, Design, and Construction.* Chambersberg, Pennsylvania: Alan C. Hood & Company, 1994.

Noble, Allen G., and Richard K. Cleek. *The Old Barn Book: A Field Guide to North American Barns & Other Farm Structures*. New Brunswick, New Jersey: Rutgers University Press, 1995.

Farm Building No. 3 is east of Farm Building No. 2 and measures approximately 50 feet long x 32 feet wide. According to the owner, the barn was constructed in the 1940s. The barn is two-stories with a wide expanse roofline and moderate pitched front-gabled roof. It has timber-framing and the roof and exterior walls are clad with corrugated metal panels. The barn has a concrete foundation with a dirt floor. The west façade of the building features a swinging corrugated panel door on the north end, although fenestration is absent. The barn presently houses horses and/or other livestock. A fence abutting the building is used as a horse pen.

Overview of west façade and north elevation of the horse barn (Farm Building No. 3) at Y-7, facing southeast, 03/21/2007.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

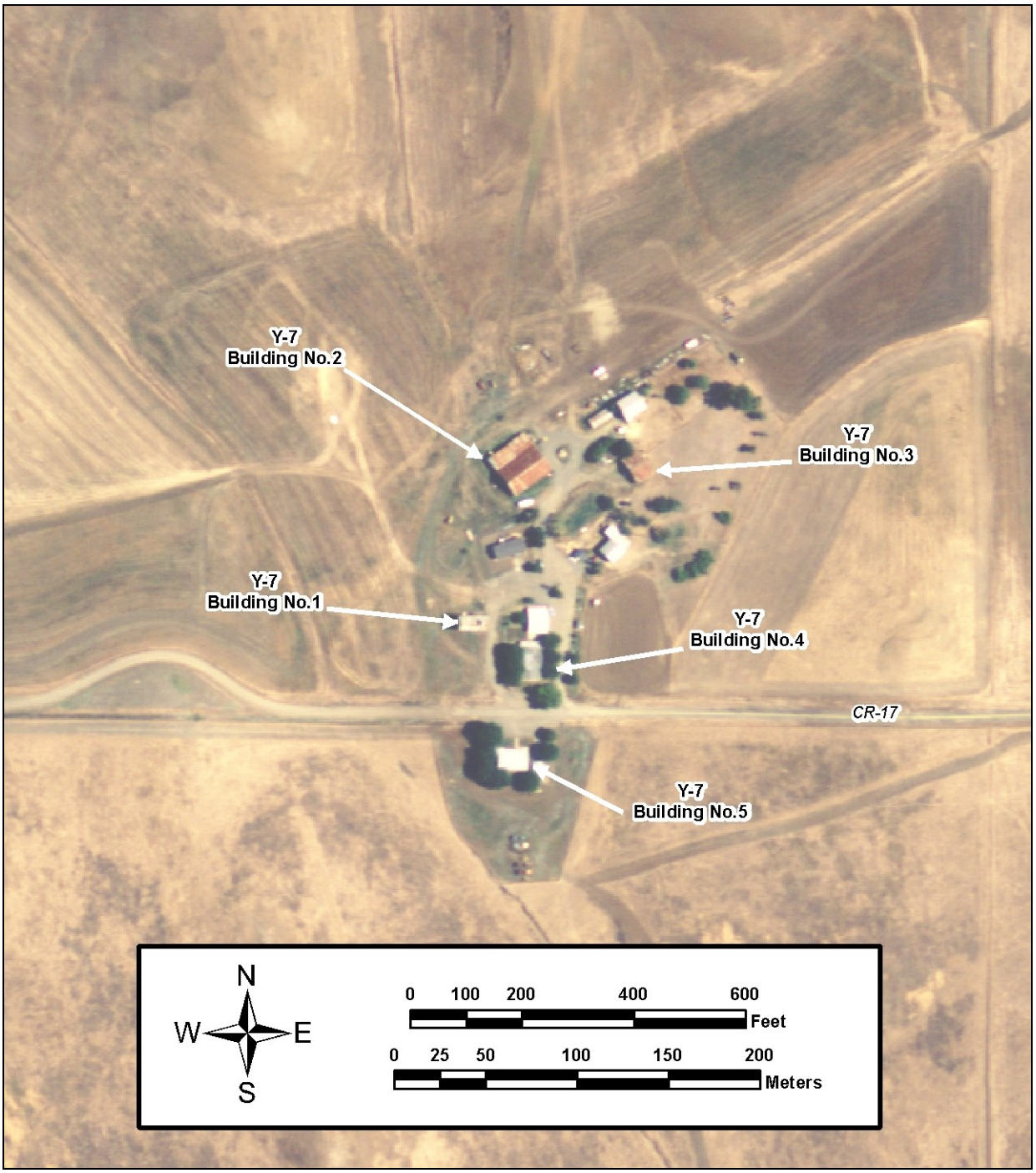
SKETCH MAP

Primary #
HRI#
Trinomial _____

***Resource Name or #** (Assigned by recorder) Y-7

***Recorded by:** C. Descantes, B. Texier, C. Denardo

***Date:** 03/21/2007 ☒ Continuation ☐ Update



*Required information

BUILDING, STRUCTURE AND OBJECT RECORD

B1. Historic Name: None
B2. Common Name: Horgan Farm
B3. Original Use: Farm B4. Present Use: Farm
***B5. Architectural Style** None
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The main residence was built in the circa late 1920s. It has been altered since.
***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** N/A **Original Location:** N/A
***B8. Related Features:** A secondary residence built in 1950; a horse barn, a granary, a chicken house, a smokehouse, and a garage remain on the property as well.
B9a. Architect: Unknown b. Builder: John Horgan, Jr.
***B10. Significance: Theme** Yolo County Agriculture **Area** Yolo County
Period of Significance: 1850s to 1963 **Property Type:** Farm **Applicable Criteria:** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Yolo County was one of the original 27 counties created when California became a state in 1850. It is bounded by the Sacramento River on the east and the coastal mountains to the west. The plain in between has a rich soil built up from centuries of sediment deposition from Sacramento River flooding.

As indicated above, "Yolo" is derived from the native Patwin Indian word yoloy meaning "abounding in the rushes". Most Patwin groups occupied the major river courses and tributary drainages of their territory, such as the Sacramento River, Cache, and Putah creeks, and in some cases, springs. Other historians believe it to be the name of the Indian chief Yodo, or the Indian village of Yodoi.

The first recorded contact with Westerners occurred in the late 1820s. These included Spanish missionaries as well as trappers and hunters who could be found along the banks of "Cache Creek"—named by French-Canadian trappers. The proselytization and enslavement of the Patwin by the Spanish missionaries rapidly and dramatically reduced their numbers through hardship and disease. A malarial epidemic in 1830–33 and a smallpox epidemic in 1837 decimated much of the surviving population.

However, despite disease, Yolo County began to develop during the modern historical era as a result of its rich soil and climatic conditions. In 1842 the Mexican government granted William Gordon two leagues of land (the Guesissosi grant) on both sides of Cache Creek from the western hills to the Sacramento River. He is said to have grown wheat and other crops in the fertile soils of the area. One historical document notes that the first laborers used by the earliest farmers of Woodland in the 1850s were the native Patwin peoples.

The survey area for this study passed through two land grants: Cañada de Capay and Rio Jesus Maria. The 40,078.58-acre land grant Cañada de Capay was confirmed to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant (26,637.42) to J. M. Harbin et al. on July 3, 1858.

(continued page 3)

B11. Additional Resource Attributes: (List attributes and codes) None
***B12. References:** See Page 4

B13. Remarks: None

***B14. Evaluator:** Jennifer Krintz & Nicole Collum
Galvin Preservation Associates Inc.
1611 South Pacific Coast Highway, Suite 104
Redondo Beach, CA 90277

***Date of Evaluation:** September 2008

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

The red outline indicates the subject property. Map courtesy of mapquest.com.

*Resource Name or # (Assigned by recorder) 32852 and 32865 County Road 17
Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

(continued from page 2)

***B10. Significance:**

In 1846 the nine-league Rancho Canada de Capay, extending from the western edge of Gordon's grant through the north end of the Capay Valley, was granted to the three Berryessa brothers. Livestock production became the principal economic activity of rancheros and their followers.

Money earned in the gold fields of California financed the purchase and cultivation of much of the farmland in Yolo County. The variety of crops grown in the region included alfalfa, tobacco, peanuts, grapes, rice, sugar beets, various grains, and row crops. Wineries, livestock, and dairy operations were also important agricultural operations. Ranch lands with sheep and agricultural fields of alfalfa fields were identified in the APE.

Irrigation was a major contributor to the agricultural success of the region. The first irrigation canal was developed in 1856 by James Moore (Moore's Ditch), who owned exclusive water rights to Cache Creek. The agricultural fields of the APE had historically important water conveyances, such as the Hungry Hollow Canal and the Goodnow Slough that are being actively used. Several minor irrigation ditches and canals were also identified in the survey area.

History of the Property

The main residence located at 32852 Country Road 17 was built in the late1920s by John Horgan Jr. The property remains within the Horgan family and today, Harold and Cristen Horgan live in this house. The rear horse barn was built in the circa late 1890s. In 1950 a secondary residence located at 32865 Country Road 17, was built on the south side of County Road 17 by Vernon Horgan. As with the main residence this secondary residence remains within the Horgan family and currently, Susan Horgan lives at the residence.

Integrity Statement

The subject building was evaluated against the seven aspects of integrity as outlined in National Register Bulletin 15. The seven aspects of integrity include location, setting, feeling, association, materials, design and workmanship. There is no evidence that any of the buildings on the evaluated property were moved. The location remains the same. The area has remained relatively similar since its inception. The setting is slightly altered. The character of the place has remained farmland. Accordingly, the feeling of the place is the same. The property is associated with the agricultural heritage of Yolo County. This association remains the same because the farm and barn buildings remain on the property, such as the granary and the horse barn. Much of the materials appear to have been replaced or removed on the main house. Much of the original material remains on the farm buildings. The basic designs of the buildings remain intact. There are a few remnants of evidence of workmanship left on the property. The main residence, which was built in the circa late 1920s has been extensively altered. Smaller ancillary buildings to the rear of the property appear to be more recent, and therefore affect the integrity.

Therefore, the overall property has fair integrity.

National Register of Historic Places Evaluation

The property was assessed under National Register of Historic Places (NRHP) Criterion A for its potential significance as a part of a historic trend that may have made a significant contribution to the broad patterns of our history. The property has been altered so significantly it no longer conveys enough historic significance that could be related to a historic trend that may have made a significant contribution to the broad patterns of our history. Therefore, the evaluated property does not appear to qualify for the NRHP under Criterion A.

The property was considered under Criterion B for its association with the lives of persons significant in our past. No significant persons were identified with the building. Therefore, the property does not appear to qualify for the NRHP under Criterion B.

The property was evaluated under Criterion C for embodying the distinctive characteristics of a type, period, or method of construction, or representing the work of a master, possessing high artistic values, or representing a significant and distinguishable entity whose components lack individual distinction. There was no architect for this residence and it also does not possess high artistic values. The property does not contribute to a potential historic district. Therefore, it does not appear to qualify for the NRHP under Criterion C.

*Resource Name or # (Assigned by recorder) 32852 and 32865 County Road 17
Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

The property was considered for Criterion D for the potential to yield or likelihood to yield information to prehistory or history. In order for buildings, structures, and objects to be eligible for this Criterion, they would need to "be, or must have been, the principal source of important information." This is not the case with this property. Therefore, it does not appear to qualify for the NRHP under Criterion D.

In summary, the property does not appear to qualify for the NRHP under any of these criteria. **Therefore, this property does not meet any of the criteria for inclusion in the National Register of Historic Places and is not a historic property for the purposes of Section 106 of the National Historic Preservation Act (NHPA).**

California Register Eligibility Evaluation

This property was also evaluated in accordance with Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. These four criteria parallel those of the NRHP. This property does not meet the four criteria for California Register eligibility, for the reasons described above under the NRHP evaluation. **Therefore, this is not a historical resource for the purposes of CEQA.**

(Continued from page 5)

***P3a. Description:**

Farm Building No. 4 is a one-story single family property that was constructed in the circa late 1920s in the Craftsman style and has since been extensively altered. It is located on the north side of County Road 17. The building has a near rectangular plan and the foundation is not visible. The wood frame building is sheathed in stucco siding. The residence has a cross-gable roof clad in standing seam metal. There are exposed rafter tails underneath the open eaves. At the east-facing façade, concrete steps lead to a small recessed stoop. The primary entrance door is located within the stoop. The windows are primarily vinyl sliders and are surrounded by molded casings. There is a one-story shed-roof porch located to the rear of the property. Modifications to the building include replacement windows and doors. There appears to have been a second story porch located on the rear of the building, which has been replaced by the current porch. The address found associated with this building is 32852 County Road 17.

Farm Building No. 5 is a one-story single family residence that was constructed in 1950 in the Minimal Traditional style. It is located on the south side of County Road 17. The building has a near rectangular plan and the foundation is not visible. The wood frame building is sheathed in smooth stucco siding. The residence has a side gable roof and a smaller front gable projection on the facade. There are exposed rafter tails under the eaves. At the north-facing façade, a concrete walkway leads to a slightly recessed stoop. The primary entrance door is located off-center on the façade and is surrounded by narrow casings and is covered by a screen door. The windows are primarily double-hung wood sash and are surrounded by narrow casings. There is a rear one-story shed-roof porch located to the rear of the building. Modifications to the building include There appear to be no modifications to the building. The address found associated with this building is 32865 County Road 17.

***B12. References:**

Allen, R., A. M. Medin, R. S. Baxter, B. Wickstrom, C. Young, J. Costello, G. White, A. Huberland, H. M. Johnson, J. Meyer, and M. Hylkema.
1999 *Upgrade of the Guadalupe Parkway, San Jose: Historic Properties Treatment Plan.* Prepared for California Department of Transportation, District 4, Oakland, California. Prepared by Past Forward, Foothill Resources, Ltd., KEA Environmental, Archaeology Laboratory at California State University, Chico.

CH2M HILL
2006 *Draft Report—L400/401 to L172A Feasibility and Routing Study*. Prepared for Pacific Gas and Electric. Prepared by CH2MHILL.

California Department of Parks and Recreation
1976 *California Inventory of Historic Resources.* State of California Department of Parks and Recreation, Sacramento.

California Department of Transportation
1984 History of California's Interstate Routes. November 1984.

*Resource Name or # (Assigned by recorder) 32852 and 32865 County Road 17
Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

California Office of Historic Preservation (CA-OHP)
1988 *Five Views: An Ethnic Historic Site Survey for California*. State of California Department of Parks and Recreation, Sacramento.

1990 *California Historical Landmarks. State of California*. Department of Parks and Recreation, Sacramento.

1992 *California Points of Historical Interest*. State of California Department of Parks and Recreation, Sacramento.

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Derr, Eleanor
1990 A Cultural Resources Study for Environmental Impact Report for Wildhorse Golf Club and Residential Community, Yolo County, California. Cultural Resources Unlimited. Submitted to ECOS, Inc., Sacramento, California. A copy is on file at the California Historical Resources Information System, Northwest Information Center, Rohnert Park, California.

Harper, K. I.
1974 S-023627, Field survey of YOL 505 from Interstate 5 to Russell Boulevard near Winters. Prepared for Caltrans.

Helley, E.J., and Barker, J.A.
1979 *Preliminary geologic map of Cenozoic deposits of the Woodland quadrangle, California*. U.S. Geological Survey Open-File Report 79-1606, 4 sheets, scale 1:62,500.

Larkey, J. L. and S. Walters
1987 *Yolo County: land of changing patterns: an illustrated history*. Northridge, Calif., Windsor Publications.

United States Geological Survey (USGS)
1959 Esparto, Calif., 7.5-minute topographic quadrangle (revised 1993).

1992 Madison, Calif., 7.5-minute topographic quadrangle.

1952 Woodland, Calif., 7.5-minute topographic quadrangle (photorevised 1981).

Wohlgemuth, E.
2007 *Draft—Cultural Resources Survey for PG&E Line 407/Line 123 Extension/ Metro Air Park Distribution Feeder Main Project, Sacramento, Sutter, Placer, and Yolo Counties, California.* Volume I. Submitted to TRC Solutions, 637 Main Street, Half Moon Bay, CA 94019. Prepared for Pacific Gas and Electric Company, 2730 Gateway Oaks Drive, Suite 220, Sacramento, CA 95833. Prepared by Far Western Anthropological Research Group, Inc., 2727 Del Rio Place, Suite A, Davis, CA 95618.

Yolo County
1879 *The illustrated atlas and history of Yolo County, Cal., containing a history of California from 1513 to 1850, a history of Yolo County from 1825 to 1880, with statistics: portraits of well-known citizens, and the official county map*. San Francisco, De Pue & Co.

Yolo County
informational website, http://www.yolocounty.org/history.htm, accessed March 14, 2007.

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # YOL-HRI-4/114 Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Herman Richter House

P1. Other Identifier:

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County** Yolo **and**

***b. USGS 7.5' Quad** Woodland, Calif. **Date** 1981 **T** 10N **; R 1E ;** SW **¼ of** NE **¼ of Sec** 2**;** Mt. Diablo **B.M.**

c. Address 13464 County Road 97F **City** Woodland **Zip** 95695

d. UTM: Zone 10; *NAD 83:* 602052 mE/ 4288920 mN *(SW corner of brick house)*

e. Other Locational Data: Parcel number 25-240-28.

***P3a. Description:** This historic site was previously recorded and is listed in the Historic Resources Inventory. This record is an update. All of the buildings are in excellent condition. Both residences on the property are occupied. The property has several (n=7) buildings of historic age and significance: two residences, a barn, a granary, a bird house, a smokehouse, and a garage – which are all very well maintained and show evidence of renovation with modern materials.

Building No. 1: Built in 1927, this residence is constructed of brick, and measures approximately 43 feet by 42 feet. The Mediterranean Revival-style house appears to have two floors and a basement. It has a ceramic tile roof and a brick foundation. The house also has two chimneys. The garden is well groomed and consists of a lawn with a bird bath, trimmed hedges and a grape vine fence, fruit trees, and a cork oak tree *(see Continuation Sheet, page 2).*

***P3b. Resource Attributes:** AH3. Landscaping/orchard; AH4. Privies/dumps/trash scatters; AH11. Walls/fences; AH15. Standing structures.

***P4. Resources Present:** ☒Building ☒Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo:
Northern overview of the southern façade of residence (Building No.1); 03/21/2007; CP003.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
Twyla and Robert Thompson
13464 County Road 97F Woodland, CA 95695

***P8. Recorded by:**
C. Descantes and B. Texier
Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612

***P9. Date Recorded:**
03/21/2007

***P10. Survey Type:** Intensive

***P11. Report Citation:**
Descantes, Christophe
2007 Archaeological Survey Report for the PG&E Line 406 Pipeline Project, Yolo County, California. Prepared for CH2M HILL. 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1512 Franklin Street, Suite 100, Oakland, CA 94612.

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (list)

Building No. 2: This other older single-storied residence was, according to the owner, built between 1865 and 1875. The house still has its original foundations. The home was remodeled in 1949 and was originally two stories; it measures approximately 50 feet by 28 feet. The house has asbestos siding, one chimney, and a modern tar shingle roof. The house is surrounded by trees with a garden constructed of brick that has star-, clover -, circle- and square-shaped designs made of upside down beige stoneware bottles (circa. 1870).

Building No. 3: This resource is a garage built in the early 1900s. It has red painted wood siding, a sheet metal roof, track doors, and a cement foundation. The garage measures approximately 32 feet by 18.5 feet.

Building No. 4: This resource is a smoke house built in the l880s. It is approximately 15 feet high with red painted vertical side boards and a roof consisting of tar paper shingles, and measures approximately 10 feet 8 inches by 6.5 feet. It also has a 1 foot high concrete slab foundation on top of an older brick footing. The floor is poured concrete. There is evidence of square nails on the building.

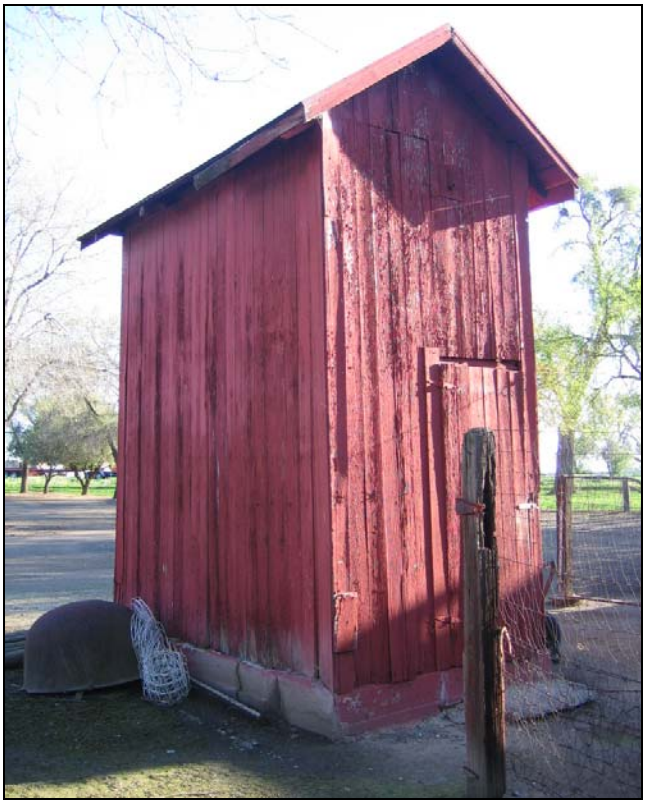
Building No. 5: This resource is a bird house with a red painted wood siding and a corrugated iron roof. It has no visible foundation, but does have square nails; it measures approximately 15 feet by 10 feet 8 inches.

Building No. 6: This resource is a large barn built in the early 1900s. It is approximately 25 feet high has red painted wood board siding and an unpainted corrugated roof. The barn measures 68.5 feet by 50 feet. It also has six track doors (three on the south facade and three on the north facade) and a cement footing edge around the entire barn. The second story of the barn has wooden window openings. The barn also has square and modern nails.

Building No. 7: This resource is a large wooden granary. It is sided with red painted wooden planking and appears to be approximately 25 feet high, and measures approximately 59 feet by 41 feet. The roof is relatively new and consists of unpainted corrugated metal. The foundation is made of brick and is four bricks high. The wooden siding of the granary has evidence of square and modern nails. This building also has four large doors.

Eastern façade of Building No.2, the older residence at HRI-4/114; 03/21/2007; CP018.

Southerly overview, from east to west, of three red historic buildings: the garage, the smoke house, and the bird house of HRI-4/114; 03/21/2007; CP032.



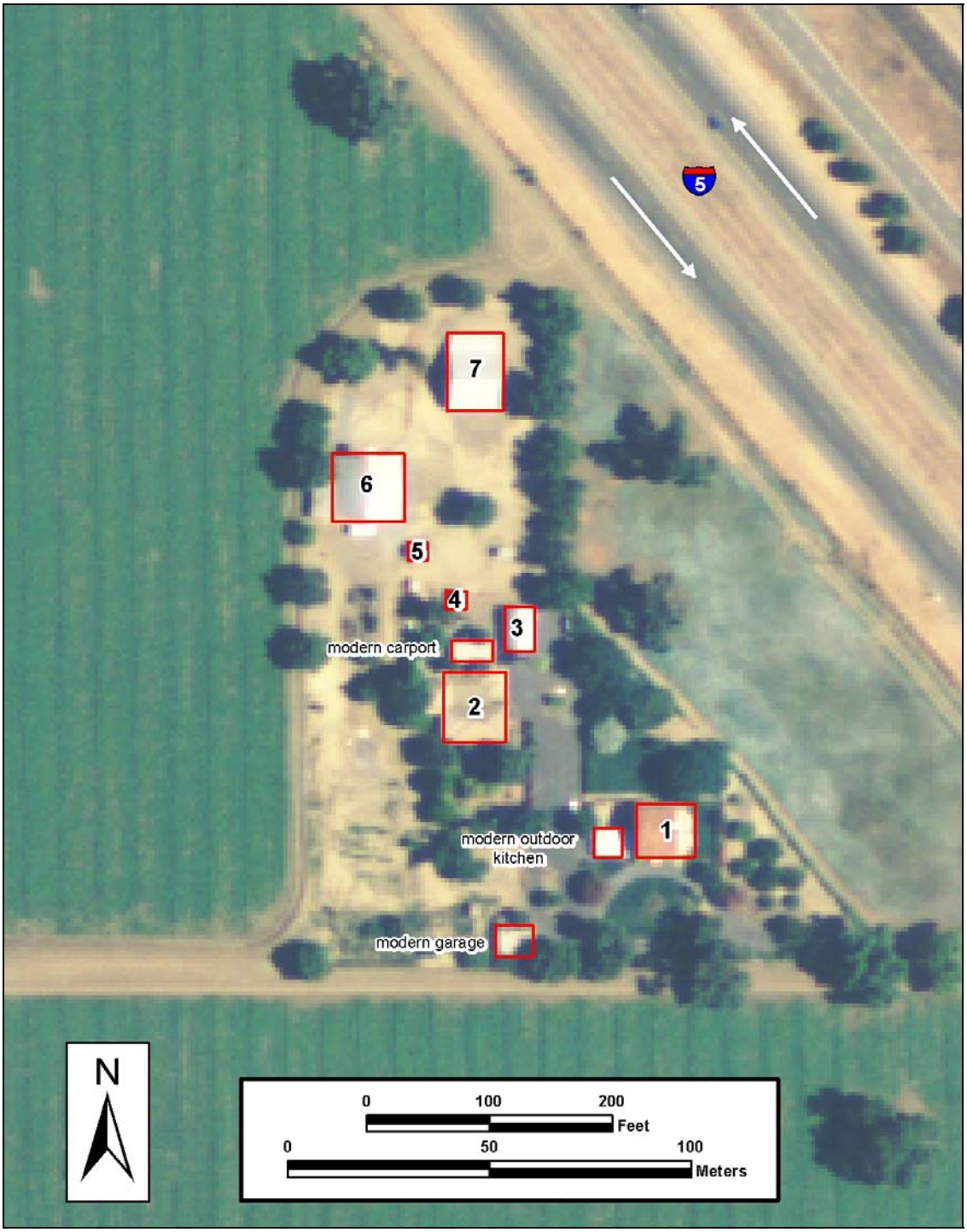
Northeasterly overview of the western elevation and southern façade of the smoke house (Building No. 4) at HRI-4/114; 03/21/2007; CP024.

Southwesterly overview of the eastern façade and northern elevation of the bird house (Building No. 4) at HRI-4/114; 03/21/2007; CP026.

Northwestern overview of the southern façade and eastern elevation of the barn (Building No. 6) at HRI4/114; 03/21/2007; CP028.

Southwesterly overview of eastern façade and northern elevation of the granary (Building No. 7) at HRI-4/114; 03/21/2007; CP030.

*Drawn by B.Texier *Date 03/21/2007



Legend:
1. Brick house; 2. Wood house; 3. Garage; 4. Smoke house; 5. Bird house; 6. Barn; 7. Granary

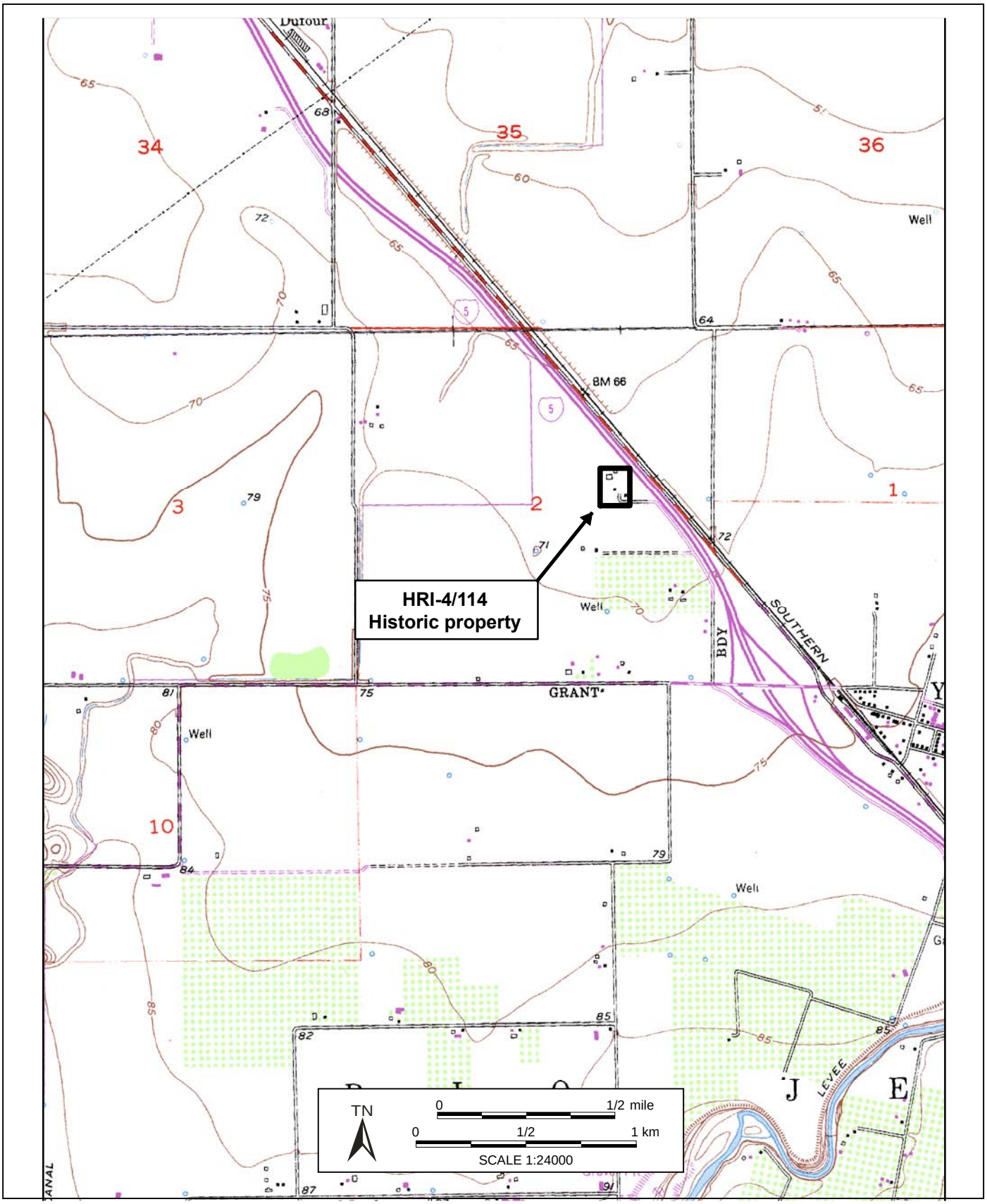
State of California — The Resource Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI# YOL-HRI-4/114
Trinomial

 *Resource Name or # Herman Richter House

*Map Name: Woodland, Calif. *Scale: 1:24000 *Date of Map: 1981



B1. Historic Name: Herman Richter House
B2. Common Name: Twyla Thompson House
B3. Original Use: Residence B4. Present Use: Residence
*B5. Architectural Style Mediterranean Revival Style
*B6. Construction History: (Construction date, alterations, and date of alterations)
The main house was built in 1927.
*B7. Moved? ☒No ☐Yes ☐Unknown Date: N/A Original Location: N/A
*B8. Related Features: Horse Barn, Smoke House, Chicken House, Garage, Granery, Secondary Residence built in 1949

B9a. Architect: Joe Matroni b. Builder: Herman Richter
*B10. Significance: Theme Yolo County Agriculture Area Woodland
Period of Significance: 1850s to 1963 Property Type: Single Family Property Applicable Criteria: CR: 3 NR: C
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Yolo County was one of the original 27 counties created when California became a state in 1850. It is bounded by the Sacramento River on the east and the coastal mountains to the west. The plain in between has a rich soil built up from centuries of sediment deposition from Sacramento River flooding.

As indicated above, “Yolo” is derived from the native Patwin Indian word yoloy meaning “abounding in the rushes”. Most Patwin groups occupied the major river courses and tributary drainages of their territory, such as the Sacramento River, Cache, and Putah creeks, and in some cases, springs. Other historians believe it to be the name of the Indian chief Yodo, or the Indian village of Yodoi.

The first recorded contact with Westerners occurred in the late 1820s. These included Spanish missionaries as well as trappers and hunters who could be found along the banks of "Cache Creek"—named by French-Canadian trappers. The proselytization and enslavement of the Patwin by the Spanish missionaries rapidly and dramatically reduced their numbers through hardship and disease. A malarial epidemic in 1830–33 and a smallpox epidemic in 1837 decimated much of the surviving population.

However, despite disease, Yolo County began to develop during the modern historical era as a result of its rich soil and climatic conditions. In 1842 the Mexican government granted William Gordon two leagues of land (the Guesissosi grant) on both sides of Cache Creek from the western hills to the Sacramento River. He is said to have grown wheat and other crops in the fertile soils of the area. One historical document notes that the first laborers used by the earliest farmers of Woodland in the 1850s were the native Patwin peoples.

The survey area for this study passed through two land grants: Cañada de Capay and Rio Jesus Maria. The 40,078.58-acre land grant Cañada de Capay was confirmed to Jasper O'Farrell et al. on February 16, 1865, and the Rio Jesus Maria land grant (26,637.42) to J. M. Harbin et al. on July 3, 1858.

(continued page 3)

B11. Additional Resource Attributes: (List attributes and codes) None
*B12. References: See Page 4

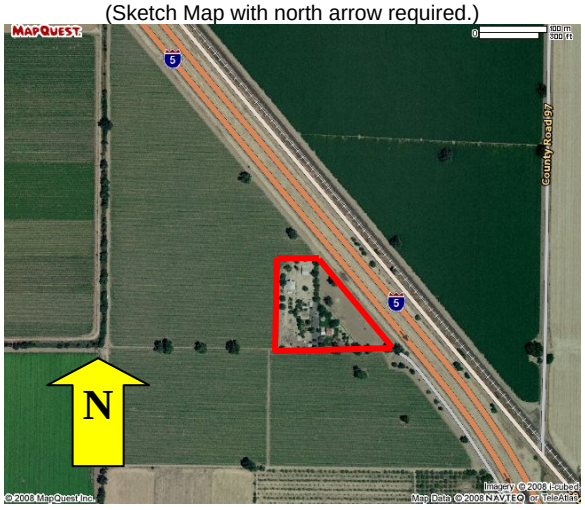
B13. Remarks: None

*B14. Evaluator: Jennifer Krintz, Nicole Collum & Christeen Taniguchi
Galvin Preservation Associates Inc.
1611 South Pacific Coast Highway, Suite 104
Redondo Beach, CA 90277

*Date of Evaluation: September 2008

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



The red outline indicates the subject property. Map courtesy of mapquest.com.

*Resource Name or # (Assigned by recorder) 13464 County Road 17
Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

(continued from page 2)

***B10. Significance:**

In 1846 the nine-league Rancho Canada de Capay, extending from the western edge of Gordon's grant through the north end of the Capay Valley, was granted to the three Berryessa brothers. Livestock production became the principal economic activity of rancheros and their followers.

Money earned in the gold fields of California financed the purchase and cultivation of much of the farmland in Yolo County. The variety of crops grown in the region included alfalfa, tobacco, peanuts, grapes, rice, sugar beets, various grains, and row crops. Wineries, livestock, and dairy operations were also important agricultural operations. Ranch lands with sheep and agricultural fields of alfalfa fields were identified in the APE.

Irrigation was a major contributor to the agricultural success of the region. The first irrigation canal was developed in 1856 by James Moore (Moore's Ditch), who owned exclusive water rights to Cache Creek. The agricultural fields of the APE had historically important water conveyances, such as the Hungry Hollow Canal and the Goodnow Slough that are being actively used. Several minor irrigation ditches and canals were also identified in the survey area.

The Mediterranean Revival Style

The Mediterranean Revival Style was popular in southern California from the 1920s to the 1950s.

The style is typically characterized by clay tile roofs or shaped parapets; stucco clad walls, often start white or pastel colored; exterior ornament that includes ornate doors and door surrounds, unique window patterns, and applied medallions.

History of the Property

The property was acquired by Twyla Thompson's grandfather some time in the late 19th century to the early 20th century. According to Ms. Thompson, the secondary house was originally a two-story farmhouse built in the 1850s, but was rebuilt to the one-story residence in 1949. The main house was built by Twyla Thompson's father in 1927. The property was originally and remains a farm, although the original farm buildings pre-dating the main house are now all used as storage sheds. Some of the crop rotations on the farmland include tomatoes, wheat, sunflowers and alfalfa. Today, Twyla Thompson and her husband Robert live in the secondary house and rent out the main house to caretakers of the property.

Integrity Statement

The subject building was evaluated against the seven aspects of integrity as outlined in National Register Bulletin 15. The seven aspects of integrity include location, setting, feeling, association, materials, design and workmanship. According to Ms. Thompson, the horse barn was the only building moved from its original location. The location remains the same. The area has remained similar since its inception. The setting remains the same. The character of the place has remained farmland. Accordingly, the feeling of the place is the same. The property is associated with the agricultural heritage of Yolo County. This association remains the same because the original farm buildings are still present on the property and the property is still a working farm. The materials on the main house are all original and the original barns retain much of their original material or have been replaced in kind. The secondary house has been altered and added onto since 1949. The basic designs of most of the buildings remain intact. There are several remnants of evidence of workmanship left on the property, especially on the main house and the rear barns.

Therefore, the overall property has good to excellent integrity.

National Register of Historic Places Evaluation

*Resource Name or # (Assigned by recorder) 13464 County Road 17
Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

The property was assessed under National Register of Historic Places (NRHP) Criterion A for its potential significance as a part of a historic trend that may have made a significant contribution to the broad patterns of our history. The property is a complex of farm buildings that is typical in this area. The property does not individually convey significance as part of a historic trend that may have made a significant contribution to the broad patterns of our history. Therefore, the evaluated property does not appear to qualify for the NRHP under Criterion A.

The property was considered under Criterion B for its association with the lives of persons significant in our past. No significant persons were identified with the building. Therefore, the property does not appear to qualify for the NRHP under Criterion B.

The property was evaluated under Criterion C for embodying the distinctive characteristics of a type, period, or method of construction, or representing the work of a master, possessing high artistic values, or representing a significant and distinguishable entity whose components lack individual distinction. The architect for this property is Joe Matroni. No other information has been found on this architect. The main house does embody distinctive characteristics of the Mediterranean Revival Style. The building is a distinguishable entity within the area of Woodland. The building possesses high artistic values with its high integrity and character defining features, such as: the red tile roof, the two-story brick-facade prominence (not typical in other farmhouses), its concrete ornate balustrades and prominent overall house shape and size that distinguishes it from other farm houses in the area. Therefore, it does appear to qualify for the NRHP under Criterion C.

The property was considered for Criterion D for the potential to yield or likelihood to yield information to prehistory or history. In order for buildings, structures, and objects to be eligible for this Criterion, they would need to "be, or must have been, the principal source of important information." This is not the case with this property. Therefore, it does not appear to qualify for the NRHP under Criterion D.

In summary, the property does appear to qualify for the NRHP under criteria C. **Therefore, this property does meet criteria for inclusion in the National Register of Historic Places and is a historic property for the purposes of Section 106 of the National Historic Preservation Act (NHPA).**

California Register Eligibility Evaluation

This property was also evaluated in accordance with Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. These four criteria parallel those of the NRHP. This property meets Criterion 3 for California Register eligibility, for the reasons described above under the NRHP evaluation. **Therefore, this is a historical resource for the purposes of CEQA.**

***B12. References:**

Allen, R., A. M. Medin, R. S. Baxter, B. Wickstrom, C. Young, J. Costello, G. White, A. Huberland, H. M. Johnson, J. Meyer, and M. Hylkema.
1999 *Upgrade of the Guadalupe Parkway, San Jose: Historic Properties Treatment Plan.* Prepared for California Department of Transportation, District 4, Oakland, California. Prepared by Past Forward, Foothill Resources, Ltd., KEA Environmental, Archaeology Laboratory at California State University, Chico.

CH2M HILL
2006 *Draft Report—L400/401 to L172A Feasibility and Routing Study*. Prepared for Pacific Gas and Electric. Prepared by CH2MHILL.

California Department of Parks and Recreation
1976 *California Inventory of Historic Resources.* State of California Department of Parks and Recreation, Sacramento.

California Department of Transportation
1984 History of California's Interstate Routes. November 1984.

California Office of Historic Preservation (CA-OHP)
1988 *Five Views: An Ethnic Historic Site Survey for California.* State of California Department of Parks and Recreation, Sacramento.

1990 *California Historical Landmarks. State of California*. Department of Parks and Recreation, Sacramento.

*Resource Name or # (Assigned by recorder) 32852 and 32865 County Road 17
Recorded By: Jennifer Krintz & Nicole Collum Date: September 2008 ☒ Continuation ☐ Update

1992 *California Points of Historical Interest*. State of California Department of Parks and Recreation, Sacramento.

2003 *Historic Properties Directory Listing by City* (updated through August 2005). State Office of Historic Preservation, Sacramento.

City of Woodland informational website, http://www.ci.woodland.ca.us/history.pdf, created November 2003, accessed March 14, 2007.

Cox, Beatrice, Jason Minton, and John McCarthy
2005 Cultural Resource Constraints Associated with Alternative Routes 1, 2A, 2B and 3 of the Yolo Pipeline. Prepared for CH2M Hill, 155 Grand Avenue, Suite 100, Oakland, CA 94612. Prepared by Garcia and Associates, 1 Saunders Ave., San Anselmo, CA 94960.

Derr, Eleanor
1990 A Cultural Resources Study for Environmental Impact Report for Wildhorse Golf Club and Residential Community, Yolo County, California. Cultural Resources Unlimited. Submitted to ECOS, Inc., Sacramento, California. A copy is on file at the California Historical Resources Information System, Northwest Information Center, Rohnert Park, California.

Harper, K. I.
1974 S-023627, Field survey of YOL 505 from Interstate 5 to Russell Boulevard near Winters. Prepared for Caltrans.

Helley, E.J., and Barker, J.A.
1979 *Preliminary geologic map of Cenozoic deposits of the Woodland quadrangle, California*. U.S. Geological Survey Open-File Report 79-1606, 4 sheets, scale 1:62,500.

Larkey, J. L. and S. Walters
1987 *Yolo County: land of changing patterns: an illustrated history*. Northridge, Calif., Windsor Publications.

United States Geological Survey (USGS)
1959 Esparto, Calif., 7.5-minute topographic quadrangle (revised 1993).

1992 Madison, Calif., 7.5-minute topographic quadrangle.

1952 Woodland, Calif., 7.5-minute topographic quadrangle (photorevised 1981).

Wohlgemuth, E.
2007 *Draft—Cultural Resources Survey for PG&E Line 407/Line 123 Extension/ Metro Air Park Distribution Feeder Main Project, Sacramento, Sutter, Placer, and Yolo Counties, California.* Volume I. Submitted to TRC Solutions, 637 Main Street, Half Moon Bay, CA 94019. Prepared for Pacific Gas and Electric Company, 2730 Gateway Oaks Drive, Suite 220, Sacramento, CA 95833. Prepared by Far Western Anthropological Research Group, Inc., 2727 Del Rio Place, Suite A, Davis, CA 95618.

Yolo County
1879 *The illustrated atlas and history of Yolo County, Cal., containing a history of California from 1513 to 1850, a history of Yolo County from 1825 to 1880, with statistics: portraits of well-known citizens, and the official county map*. San Francisco, De Pue & Co.

Yolo County
informational website, http://www.yolocounty.org/history.htm, accessed March 14, 2007.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code _____
Other Listings _____
Review Code _____ Reviewer _____ Date _____

 *Resource Name or #: Site 33

P1. Other Identifier: Gorman Ranch; S33
* P2. Location: ☑ Not for Publication ☐ Unrestricted *a. County: Yolo
* b. USGS Quad: Woodland (1952; photorevised 1980); T10N R2E, ;
c. Address: 13488 CR 98
d. UTM: Zone 11; 603940 mE/ 4288934 mN NAD27 See Continuation Sheet.
e. Other Locational Data:
In Rio Jesus Maria land grant. APN 025-250-16-1-At northwest corner of Road 16A and Road 98.

* P3a. Description:
This property serves as the focal point of a large farming operation. There are two houses, two garages, a carport, a privy, seven sheds, two corrals, windmill, three wells, a greenhouse and chicken coop on the 10-acre parcel. The main house appears to have been built around 1900 with a second house built in around 1930. Other outbuildings appear to date to the early 20th century. (continued).

* P3b. Resource Attributes: HP2. Single family home
* P4. Resources Present: ☑ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo or Drawing: none

*P5b. Description of Photo:
See Continuation Sheet.

*P6. Date Constructed/Age & Sources:
☑ Historic ☐ Prehistoric ☐ Both
House 1-circa 1900, House 2-circa 1930, Barn-circa 1900

*P7. Owner and Address:
Rominger, Harvey L., 13492 Creek #98; Woodland, CA 95695

*P8. Recorded by:
Mary L. Maniery, PAR Environmental Services, Inc., PO Box 160756, Sacramento, CA 95816

*P9. Date Recorded: 6/10/2007
*P10. Survey Type:
Intensive survey of PG&E pipeline corridor

* P11. Citation: Wohlgemuth et al. 2007. Cultural Resources Survey for PG&E Line 407 Project, Placer, Sacramento, Sutter, and Yolo Counties, California.

* Attachments: ☐ None ☑ Location Map ☐ Sketch Map ☑ Continuation Sheet ☑ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

Primary # _____
HRI # _____

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code:
*Resource Name or #: Site 33

B1. Historic Name:
B2. Common Name: Gorman Ranch
B3. Original Use: Farmstead **B4. Present Use:** Farmstead
***B5. Architectural Style:** Main House: Prairie Style; 2nd house: Minimal Traditional
***B6. Construction History:**
The main house is depicted on a 1905 map and may have been built in the late 1890s or 1900, likely by the Scarlett family. It has been extensively modified since 2000 by several additions, replacement of original windows with aluminum sliders, covering of original window openings, covering of original wood siding with stucco, and addition of French doors.

***B7. Moved?** ☑ No ☐ Yes ☐ Unknown **Date:** **Original Location:**
***B8. Related Features:**
agricultural fields

B9a. Architect: Unknown **B9b. Builder:** Unknown
***B10. Signficance: Theme:** Agriculture/Farm Architecture **Area:** Yolo County
Period of Significance: n/a **Property Type:** n/a **Applicable Criteria:** n/a
Development of this portion of Yolo County began in the 1850s with scattered farmsteads associated with wheat and grain farming. In 1879 this parcel was part of a 150-acre farm owned by R. Aucker. By 1900 L. W. Scarlett owned the land and had enlarged his holdings to 315 acres. His son, James, retained ownership by 1915 through the 1920s. The Gorman's bought the property after 1940 and retain ownership today.

This farmstead appears to have been expanded through the years, including in the 1930s. The main structures, the two houses, have been significantly altered. Although the Prairie style house retains its mass, the window and door fabric and placement, exterior fabric, and addition of a one-story garage/office have significantly altered original architectural detailing and compromised the overall integrity of the structure. The second house has also been altered and does not retain original integrity. As a result of the changes to the original residential structures, this property no longer retains adequate integrity to qualify for inclusion in the National Register of Historic Places or the California Register of Historic Resources.

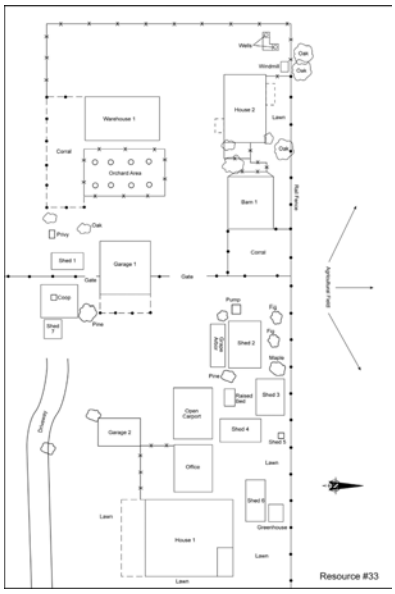
B11. Additional Resource Attributes: None
***B12. References:**
Ashley. W.
1900 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento.

B13. Remarks:
none

***B14. Evaluator:** Mary L. Maniery

***Date of Evaluation:** 6/21/2007

(This space reserved for official comments.)



P3. Description:

east end of the parcel. The house is on a brick foundation and has a hipped roof with overhanging eaves and a small gable-roof louver dormer on each side. A hipped roof wrap-around porch, supported by large square columns, is on the south and east. All roofs are covered with composition shingles. The house originally was clad with wood siding; it is now covered with stucco. A one-story gable-roofed two-car garage and office is attached to the west side of the house. While it is a free-standing building, the roof continues to the main house, creating a covered walkway. Two exterior brick chimneys are present. The east side chimney is covered with stucco. The north side chimney is part of a shed-roofed brick addition on the northeast corner of the house. The rear (north) of the house has been expanded with a flat-roofed addition.
Fenestration throughout the house is symmetrical. There are a few original wood frame, double-hung windows on the rear façade. Most of the original windows have been replaced with larger aluminum slides. Windows on the upper story of the south-facing façade have shutters. The main entry is centrally located on the south side and is a large wooden door flanked by large aluminum sliders. Two sets of double sliding glass doors are on the east and a set of French doors is on the west.

Landscaping includes lawn, foundation shrubs and flowers. A brick wall and post fence, with chains between the posts, sets off the main house from the driveway. Lanterns are mounted on the posts on either side of the brick walkway leading to the house.

House #2:
The house is at the far west end of the parcel and is a single-story, rectangular, wood-frame building. The structure was built around the 1930s in a Minimal Traditional style. The house has a cross-gabled roof (with exposed rafter tails) clad with composition shingles. The house is covered with board and batten siding on the west and part of the north facades and with 3-in-1 horizontal board siding elsewhere.

The rear (north) façade has a centrally-located entry with a shed-roof portico supported by two square posts. A set of two wood-frame double-hung windows is to the east of the entry. The main (south) façade has, from west to east, a lift-up wood garage bay door, two 12-pane casement windows, a central entry with a small shed-roof porch with four posts and balustrade, vertical sliding window. The east end is a shed-roof addition with sliding windows.

Landscaping is present on the north and includes a lawn and bushes to the east. The house is shaded by a large oak on the east.

Barn 1:
A barn and corral is situated east of House #2. The barn is a wood-frame square structure with a metal-clad gable roof. The siding consists of vertical boards. Sliding double bay wood doors are on the north and south facades and two framed openings are on the east and west. The area north and east of the barn is open, enclosed with a board rail fence, and serves as a horse corral.

Warehouse:
A modern rectangular warehouse is south of House #2. It has a slightly gabled roof clad with metal sheets, metal vertical ribbed siding, metal bay doors on the north and east facades and a pedestrian door on the east.

An area enclosed by a board rail fence, used as a corral, is south and east of the warehouse. An orchard, enclosed with a metal post and wire fence, is to the east.

Water systems:
Water-related features at the ranch include a windmill with pump, several wells and another pump. The windmill and two wells are located west of House #2 on the edge of the parcel.

The windmill is a steel frame, four-legged structure that tapers at the top. The metal flag extending from the blades has painted in red "THE AERMOTOR CO/CHICAGO." A concrete trough and well casing are at the base of the windmill.

Two well casings within an L-shaped concrete trough are located west of the windmill. A metal pump is present on the westernmost well. These features appear historic.

Another modern well, protected by a wood-slat structure with a five-sided cone-shaped roof, sits on a concrete foundation between the barn corral and Shed #2.

Privy:
A wood-framed privy is located on the south side of the parcel just east of the warehouse corral. This structure has channel siding, a shed roof clad with wood shingles and screened vents on the three sides. A plywood door is on the east side.

Garages:
Two garages are on the property. Garage #1 is in the center, just southeast of the barn. It has a gable roof clad with metal sheets and exposed rafter tails. The south side has board and batten siding, an eight-pane window, and two nine-pane windows. The west side has three sliding bay doors. The east side has a shed drop roof supported by four posts that provides a covered work area.

Garage #2 is just west of the main house. It is square in shape and has a gable with drop-shed roof clad with corrugated metal sheets. Siding is vertical wood boards. A double sliding wood bay is on the west side.

Chicken Coop:
A coop is situated between the large Garage 1 and Shed 7.

This is a small wood-frame structure within a wire fence-enclosed area. The coop has a wood clad gable roof, plywood siding and an entry on the east façade. It is elevated and accessed by a wooden board ladder.

Sheds/Outbuildings:
There are seven sheds or outbuildings on the parcel mostly near the main house.

Shed #1 is south of Garage 1. It has a metal-clad shed roof with exposed rafter tails, a lift-up wood bay door, and vertical board and plywood siding. It has a rectangular mass.

Shed #2 is northeast of Garage 1 adjacent (north) to a grape arbor. This shed is a rectangular wood frame structure. The gable roof is covered with metal and the sides are covered with horizontal boards. A single double-hung window is on the north, south and east facades and a wooden door is on the south.

Shed #3 is rectangular, has a metal-clad shed roof, plywood siding and two nine-pane windows on the south façade. Entry is on the east.

Shed #4 is directly east of Shed 2 and is separated by a raised bed once used for flowers. This shed has a gable-roof clad with wood shingles and plywood with board batten siding. It is rectangular with entry on the north. Metal louvers are in the gable ends.

Shed #5:
This structure is a small (4 foot by 5 foot), metal clad shed roof structure. Siding is horizontal board with a vertical board door on the south façade.

Shed #6/Greenhouse
A wood-frame shed, currently used for gardening, is just north of the main house. It has a corrugated metal-clad gable roof and metal siding. Windows are present on the north, south and east facades and are 2/2 double hung. A wood frame greenhouse with a flat metal roof and corrugated plastic siding is less than a foot east of the shed.

Shed #7
This wood frame structure is just east of the chicken coop. It is rectangular (15 feet by 10 feet) with a metal clad gable roof, exposed rafter tails and louvers in the gable ends. A paneled wood door is on the north façade. Siding consists of horizontal boards.

Carport
A flat-roof, open-sided carport is west of the main house. It is supported by six posts and is less than 50 years of age.

Landscaping
The area around the main house is lavishly landscaped with lawn, oaks, mature walnut, shrubs, figs, grapes, maple and a pine. Generally the property is divided into two by a wood fence and gates. The main house sheds 2-7 and the chicken coop are on the east half. The barn, corrals, warehouse and House #2 are in the west half. The west half is sparsely landscaped.

B6.Construction History:

The second house was built in the 1930s and served as the foreman's house, a use it retains. It also has had numerous window replacements and two additions. The warehouse, open carport, greenhouse and sheds 3 and 5 are less than 20 years of age. All other outbuildings reflect the 1890s-1910 construction period and have not been altered.

B12. References:

DePue and Co.
1879 Illustrated History of Yolo County. DePue & Co., San Francisco. On file, California History Room, California State Library, Sacramento.

Gorman, Carol
2007 Personal communication with Mary Maniery, PAR Environmental Services, Inc., Sacramento.

Proctor
1915 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento.

1926 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento

View southwest of House 1, rear addition, May 10, 2007, 047.jpg

View northwest of House 1, May 10, 2007, 050.jpg

View southwest of the south façade, May 10, 2007, 017.jpg

View northeast of barn, May 10, 2007, 018.jpg

View southwest of warehouse, May 10, 2007, 014.jpg

View southwest of windmill, May 10, 2007, 004.jpg

***Recorded By:** Mary L. Maniery ***Date:** 6/10/2007 ☐ Continuation ☐ Update

Detail of windmill blade, May 10, 2007, 007.jpg

View north of wells near windmill, May 10, 2007, 008.jpg

View south of modern well, May 10, 2007, 035.jpg

View south of privy, May 10, 2007, 016.jpg

View north of west and south garage facades, May 10, 2007, 022.jpg

View west of east and north garage facades, May 10, 2007, 028.jpg

View east of Garage #2, May 10, 2007, 037.jpg

View southwest of coop, May 10, 2007, 025.jpg

View southeast of Shed #1, May 10, 2007, 021.jpg

View northeast of Shed #2, May 10, 2007 029.jpg

View northeast of Shed 3, May 10, 2007, 030.jpg

View east of Shed #4 and raised flower bed, May 10, 2007, 031.jpg

View northeast of Shed #5, May 10, 2007, 033.jpg

View east of shed with vegetation and greenhouse in back, May 10, 2007, 041.jpg

***Recorded By:** Mary L. Maniery ***Date:** 6/21/2007 ☐ Continuation ☐ Update

View south of Shed #7, May 10, 2007, 026.jpg

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

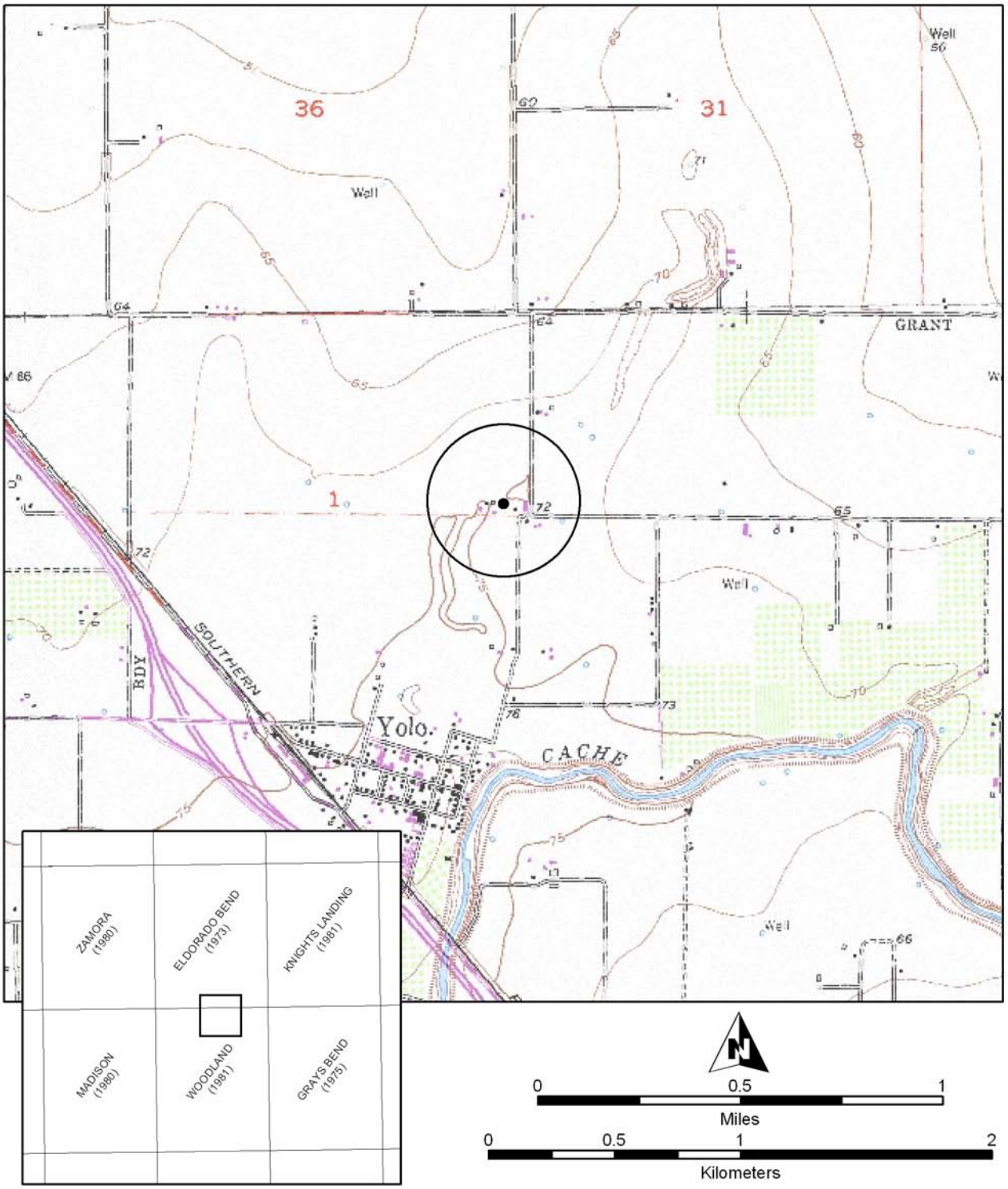
LOCATION MAP

Primary # _____
HRI # _____
Trinomial _____

***Resource Name or #:** Site 33

***Map Name:**

***Year:**



Key to USGS 7.5' quads depicted

SCALE 1:24,000

***Required Information**

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code _____
Other Listings _____
Review Code _____ Reviewer _____ Date _____

***Resource Name or #:** Site 31

P1. Other Identifier: S31

*** P2. Location:** ☑ **Not for Publication** ☐ **Unrestricted** ***a. County:** Yolo

*** b. USGS Quad:**

c. Address: 38023 County Road 16A

d. UTM: Zone 11; 604129 mE/ 4288666 mN NAD27 Parcel 638

e. Other Locational Data:

APN: 027-109-01-1-Southeast corner of Road16A and Road 98.

*** P3a. Description:**

This property consists of a single-family residence and three ancillary structures, a barn/garage and two sheds. In addition, a modern warehouse is on the parcel. The house is rectangular in mass with a cross-gable roof clad with composition shingles. Siding on the house is aluminum with simulated horizontal boards and there are louvers in the gable ends. The house is on a concrete slab foundation and there are exterior brick chimneys on the west central façade and the south end of the north façade. The east and west façades have brick wainscoting. Fenestration is symmetrical and consists of vertical aluminum siding modern windows. A bay window is present on the main (north) façade. There are several entries into the house, all accessed by a single concrete riser. The east central entry is protected by a gable portico. The house is surrounded by lawn and is separated from the remainder of the property by a brick wall and a wood fence on the east and a three-rail wood fence on the other three sides.

*** P3b. Resource Attributes:** HP2. Single family home HP4. Ancillary buildings; HP33, Farm/Ranch

*** P4. Resources Present:** ☑ Building ☑ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

***P5b. Description of Photo:**
View southwest of house, May 10, 2007; 058.jpg

***P6. Date Constructed/Age & Sources:**
☑ Historic ☐ Prehistoric ☐ Both
ca. 1900, remolded 1930s, 1990s

***P7. Owner and Address:**
Leonard, Richard E. and Laura E., 38023 Creek 16A; Woodland, CA 95695

***P8. Recorded by:**
Mary L. Maniery, PAR Environmental Services, Inc., PO Box 160756, Sacramento, CA 95816

***P9. Date Recorded:** 6/21/2007

***P10. Survey Type:**
Intensive survey of PG&E pipeline corridor

*** P11. Citation:** Wohlgemuth et al. 2007. Cultural Resources Survey for PG&E Line 407 Project, Placer, Sacramento, Sutter, and Yolo Counties, California.

*** Attachments:** ☐ None ☑ Location Map ☐ Sketch Map ☑ Continuation Sheet ☑ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

Primary # _____
HRI # _____

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code:
*Resource Name or #: Site 31

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: Farmstead
B4. Present Use: Farmstead
*** B5. Architectural Style:** n/a
*** B6. Construction History:**
According to Carol Gorman, her father and mother purchased this property in the 1930s. At that time the house was used as a bunkhouse and it was depicted on a 1905 map. Her parents completely remodeled and enlarged the structure through the years, resulting in the appearance today. Alterations include aluminum slider windows and sliding glass doors, creation of a bay

*** B7. Moved?** ☑ No ☐ Yes ☐ Unknown **Date:** **Original Location:**
*** B8. Related Features:**
agricultural fields

B9a. Architect: Unknown
B9b. Builder: Unknown
*** B10. Signficance: Theme:** Agriculture/Farm Architecture
Area: Yolo County
Period of Significance: N/A **Property Type:** N/A **Applicable Criteria:** N/A
Development of this portion of Yolo County began in the 1850s with scattered farmsteads associated with wheat and grain farming. Over time these large-scale farms were divided and sold, or expanded and shared among family members, resulting in construction of additional residences. In 1879 this property was owned the heirs of Jas. A. Hutton. James Hutton established a ranch by 1892 and the town of Cacheville (now Yolo) grew up around his ranch site (Les 1986). This parcel was part of Hutton's holdings. It was subdivided into smaller parcels by 1926 was owned by Emmanuel Heuberald at that time. This property was built in the 1920s likely by Heuberald and was bought and enlarged in the 1930s by the Gorman family.

While the property is associated with local farming, key elements, such as the house, have been heavily modified and no longer resemble the 1920s farmstead design. The original appearance of the house in particular has been altered by additions, window replacement, and exterior fabric modifications and does not retain original integrity. As a result of the loss on integrity, this property no longer retains adequate integrity to qualify for inclusion in the National Register of Historic Places or the California Register of Historic Resources under any criteria.

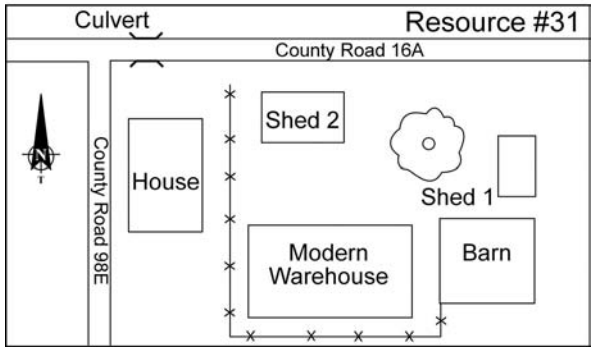
B11. Additional Resource Attributes: None
*** B12. References:**
DePue & Co.
1879 Illustrated History of Yolo County California. DePue & Co, San Francisco. On file, California History Room, California State Library, Sacramento, CA.

B13. Remarks:
none

*** B14. Evaluator:** Mary L. Maniery

*** Date of Evaluation:** 6/21/2007

(This space reserved for official comments.)



P3. Description Cont.

A modern, metal-clad storehouse is located east of the house. The other three ancillary buildings east of the house are sheds and a garage, all more than 50 years of age.

Shed #1 is at the far eastern end of the property, just north of the garage. This shed is a wood-frame structure clad with galvanized corrugated metal sheets. The shed roof is also metal clad with exposed rafter tails on the west sides. The shed is accessed by a double door with a central latch.

The garage appears to have originally served as a barn. It has a gable-with-shed-roof clad with galvanized corrugated metal sheets. The facades are clad with vertical board siding. A top sliding wood double bay door is on the west side and a pedestrian door is on the north.

The second shed is west of shed #1 near the road. It is a rectangular, gable-roofed structure clad with the sheets of galvanized corrugated metal. Original windows (one on each side) have been replaced with vertical sliding aluminum windows. A door, protected by a portico, is present on the south side. The shed is on a concrete slab foundation.

B6. Construction History:
creation of a bay window, exterior chimney, brick skirt and replacement of exterior fabric. The barn and sheds are contemporary with the original house (circa 1910s) but are now clad with metal. The warehouse is less than 20 years old.

B12. References:

Gorman, Carol
2007 Personal communication with Mary Maniery, PAR Environmental Services, Inc., Sacramento.

Les, Kathleen
1986 Yolo County Historic Resources Survey. Les-Thomas Associates and Yolo County Community Development Agency.

Lewis Publication Company
1891 Yolo County History: A Memorial and Biographical History of Northern California. Chicago.

Proctor
1926 Official Map of Yolo County, California. On file, California History room, California State Library, Sacramento, CA.

View east of shed #1, May 10, 2007, 061.jpg

View southeast of garage, May 10, 2007, 060.jpg

***Recorded By:** Mary L. Maniery ***Date:** 6/21/2007 ☐ Continuation ☐ Update

View west of shed #2, May 10, 2007, 063.jpg

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

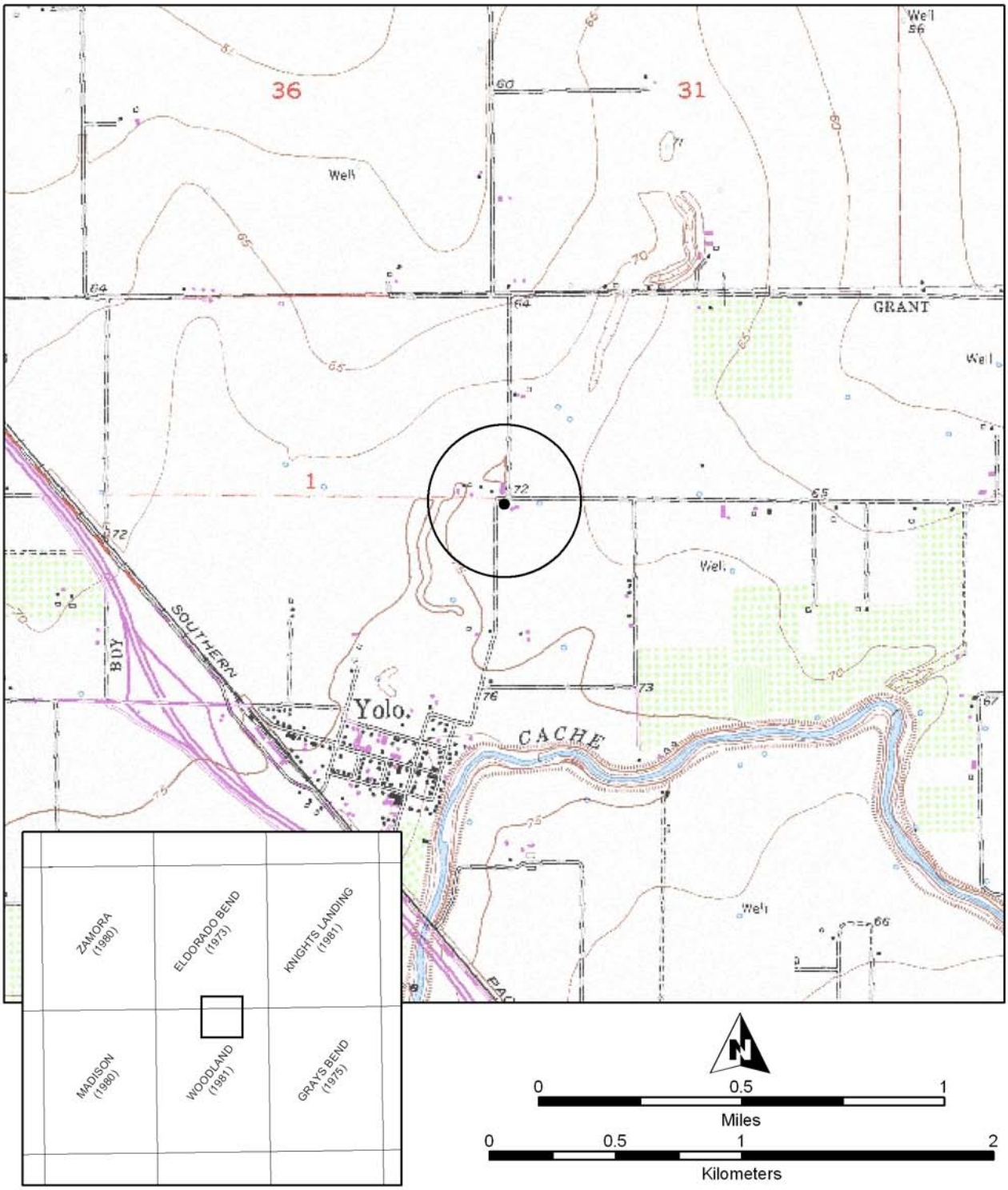
LOCATION MAP

Primary # _____
HRI # _____
Trinomial _____

***Resource Name or #:** Site 31

***Map Name:**

***Year:**



Key to USGS 7.5' quads depicted

SCALE 1:24,000

***Required Information**

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-57-000407
HRI #
Trinomial
NRHP Status Code 7
Other Listings
Review Code Reviewer Date

*Resource Name or # (Assigned by recorder) REF 5-H

P1. Other Identifier: 38871 County Road 16A

*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County Yolo
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Woodland Date 1952 photorevised 1968 T___; R ___; ___ ¼ of Sec ___; _____ B.M. (Map#5141)

c. Address 38871 County Road 16A City Woodland Zip 95695

d. UTM: (give more than one for large and/or linear resources) Zone (10); (605460mE) mE/ (4288640mN) mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
APN: 27-240-02-1

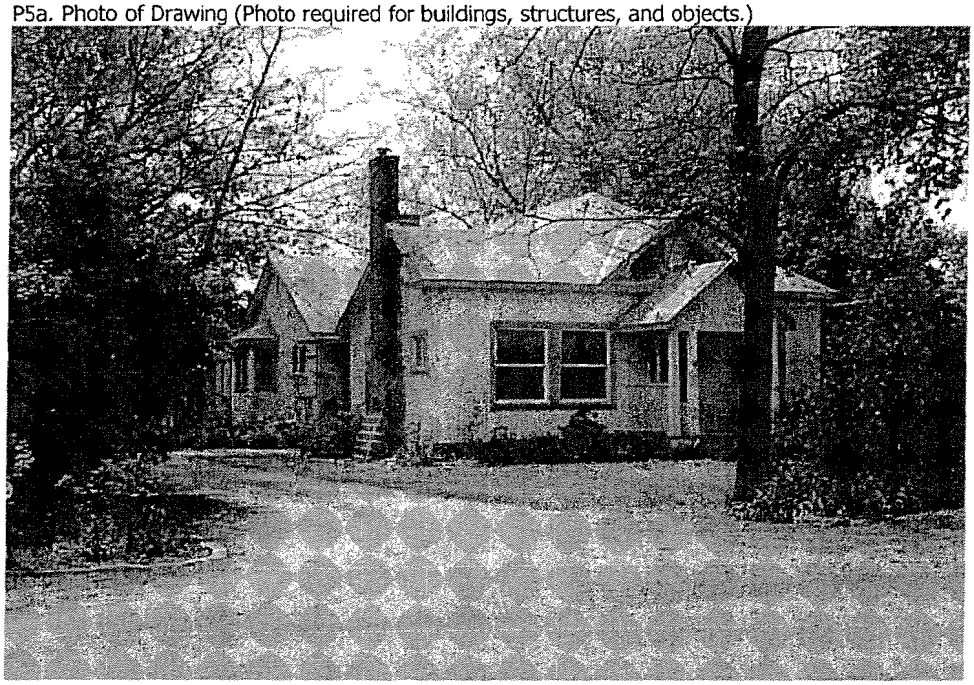
*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Located on a 20 acre parcel, the house at 38871 County Road 16A is a one-story cottage with a modern detached garage and barn to the south. The house sits close to the road and a gravel driveway running south provides access to the garage. Sitting on a brick foundation with an irregular shaped plan, it is covered with a gable on hip roof as shown in Photograph 1. There are two small attached front gables over the covered entry. The covered entry is supported by paired tapered columns and a wooden balustrade with attached benches. Fenestration consists of one-over-one double hung wood sash arranged in pairs and singles. The fenestration is surrounded by wide wood trim with a slip sill. On the east side there is a bay window with a pent roof. Also on the east side is an exterior end brick chimney with a stepped shoulder and a porch on the southeast corner.

*P3b. Resource Attributes: (List attributes and codes) HP33 Farm/ranch

*P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #) Photograph # 1, camera facing southwest, April 5, 2002

*P6. Date Constructed/Age and Sources:
☒ Historic ☐ Prehistoric ☐ Both
circa 1910s

*P7. Owner and Address:
Michael and Treva Valentine
38871 County Road 16A
Woodland, CA 95695-9126 R003

*P8. Recorded by: (Name, affiliation, address)
Amanda Blosser and Andy Walters
JRP Historical Consulting Services,
1490 Drew Ave, Suite 110, Davis,
CA 95616

*P9. Date Recorded: April 5, 2002

*P10. Survey Type: (Describe) Intensive

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") JRP Historical Consulting Services, AFC Enron Roseville Energy Facility, Yolo, Sacramento, Placer and Sutter Counties, June 2002

*Attachments: NONE ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☐ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record
☐ Other (list)

P3a. Description (continued):

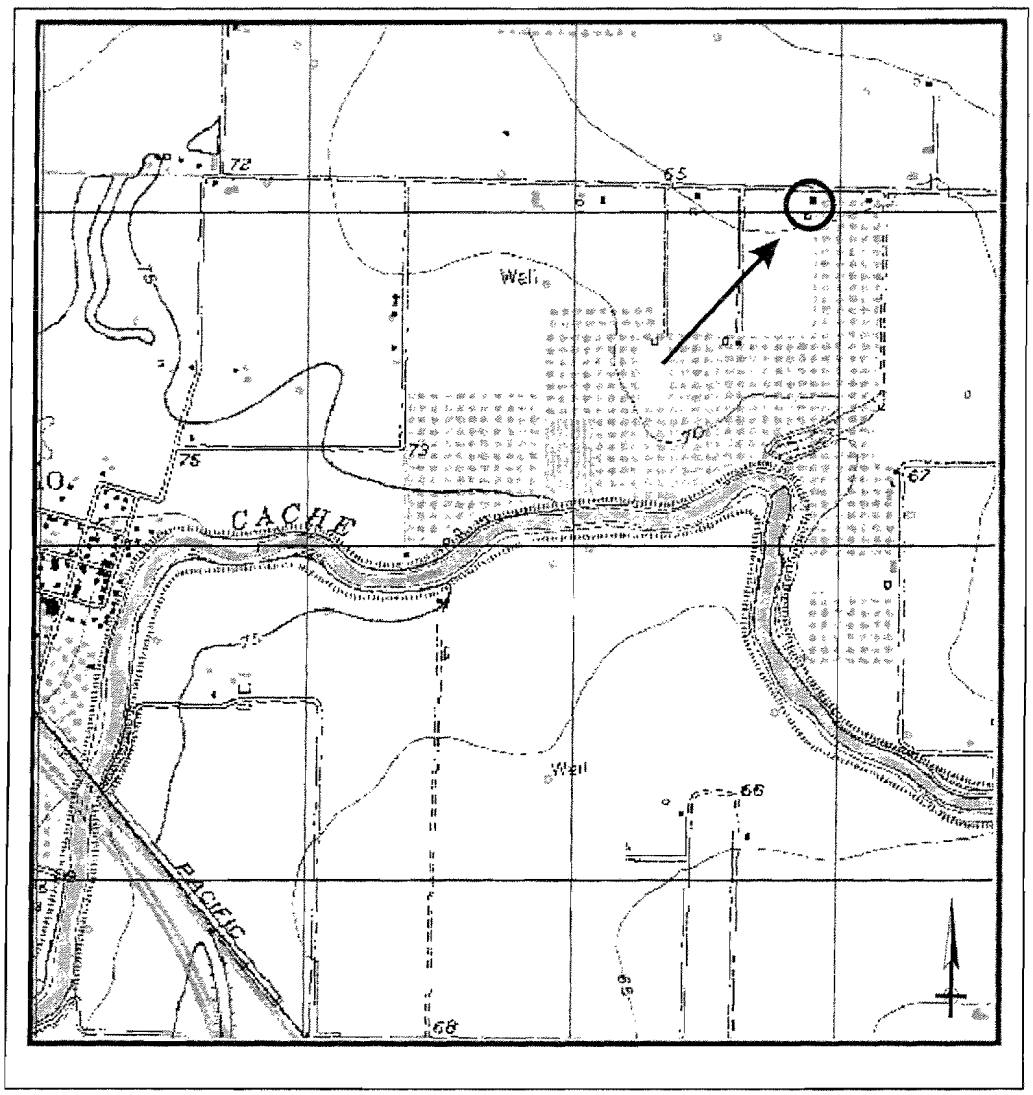
This porch has an engaged roof and is supported by tapered wood columns.

Located on the south side of the house is a one story detached garage. Built of modern materials, it covered with a hip roof sheathed in composition shingles. There are two garage doors on the east side. The wood plank barn sits south of the garage and is covered with a front gable roof. The roof is sheathed with corrugated metal. A door is located on the east side of the barn. Trees and bushes run along the driveway on the east side and obscure view of the barn and garage from the road.

*Resource Name or # (Assigned by recorder) REF 5-H

*Recorded by Amanda Blosser and Andy Walters *Date April 5, 2002 ☒ Continuation ☐ Update

Location Map



***Recorded By:** Mary L. Maniery ***Date:** 6/10/2007 ☐ Continuation ☑ Update

This property was recorded in 2002 by JRP Historical Consulting Services. It was revisited on May 7, 2007 by Mary L. Maniery, PAR Environmental Services, Inc.

The chimney described by JRP on the east side of the house is flanked by decorative window sets, each with two windows and each window with nine panes. A recessed entry is centered on the east façade. A decorative wrought iron fence extends out (east) from the chimney.

Since 2002 the garage has been expanded north towards the house with a hip-on-gable-roof addition. This addition has shiplap siding, symmetrical double hung windows and an entry on the north façade. An elevated wood deck connects the house and the garage/addition. It has an open wood beam cover supported by columns.

A barn is south of the garage. It is a wood-frame structure covered with corrugated metal sheets. The gable roof is also covered with metal. The roof peak extends out on the south side to accommodate a hay hook. The south side has two metal-covered sliding wooden doors.

A garden is on the west side of the property.

B12. References:

DePue and Co.
1879 Illustrated History of Yolo County. DePue & Co., San Francisco. On file, California History Room, California State Library, Sacramento.

B12. References:

Proctor
1915 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento.

1926 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento

Primary # P-57-000407 (UPDATE)
HRI #

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code:
*Resource Name or #: (UPDATE)

B1. Historic Name: n/A
B2. Common Name: n/A
B3. Original Use: farmstead **B4. Present Use:** farmstead
*** B5. Architectural Style:**
*** B6. Construction History:**
JRP notes that this house was built in the 1910s. It retains little appearance of this early construction date. A massive addition, connecting deck and some replacement windows, all added since 2002, have overwhelmed the original structure. The barn, however, does reflect an early 1910s construction date, although it has been covered with metal sheeting.

*** B7. Moved?** ☑ No ☐ Yes ☐ Unknown **Date:** **Original Location:**
*** B8. Related Features:**
Agricultural fields

B9a. Architect: Unknown **B9b. Builder:** Unknown
*** B10. Signficance: Theme:** Agriculture **Area:**
Period of Significance: n/A **Property Type:** n/A **Applicable Criteria:** n/A
Settlement and farming in this area of Yolo County began by 1850s, focusing on animal husbandry and grain production. Following a major flood in 1878 many farmers left the region. This property, part of a 413-acre parcel, was acquired by George B. Eustis and William V. Jubb soon after the flood, likely on speculation. Eustis was the sole owner by 1915. He subdivided the large parcel into 8 lots by 1926 and two of those were then subdivided into 8 additional lots (DePue 1879; Proctor 1915, 1926). After the parcel was subdivided this lot was owned by Thornton M. Craig, a local merchant. It is probable that the house was built for Craig between 1915 and 1925.

While the property is associated with local farming, key elements, such as the house, have been heavily modified and no longer resemble the 1910s-1920s farmstead design. The original appearance of the house in particular has been altered by additions and window replacements and does not retain original integrity. As a result of the loss on integrity, this property no longer retains adequate integrity to qualify for inclusion in the National Register of Historic Places or the California Register of Historic Resources under any criteria.

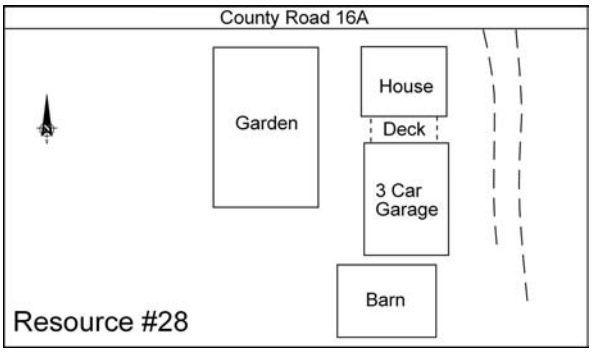
B11. Additional Resource Attributes: none
*** B12. References:**
Ashley. W.
1900 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento

B13. Remarks:
None

*** B14. Evaluator:** Mary L. Maniery

*** Date of Evaluation:** 6/8/2007

(This space reserved for official comments.)



This property was recorded in 2002 by JRP Historical Consulting Services. It was revisited on May 7, 2007 by Mary L. Maniery, PAR Environmental Services, Inc.

The chimney described by JRP on the east side of the house is flanked by decorative window sets, each with two windows and each window with nine panes. A recessed entry is centered on the east façade. A decorative wrought iron fence extends out (east) from the chimney.

Since 2002 the garage has been expanded north towards the house with a hip-on-gable-roof addition. This addition has shiplap siding, symmetrical double hung windows and an entry on the north façade. An elevated wood deck connects the house and the garage/addition. It has an open wood beam cover supported by columns.

A barn is south of the garage. It is a wood-frame structure covered with corrugated metal sheets. The gable roof is also covered with metal. The roof peak extends out on the south side to accommodate a hay hook. The south side has two metal-covered sliding wooden doors.

A garden is on the west side of the property.

B12. References:

DePue and Co.
1879 Illustrated History of Yolo County. DePue & Co., San Francisco. On file, California History Room, California State Library, Sacramento.

View west of barn, May 7, 2007, 046.jpg

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

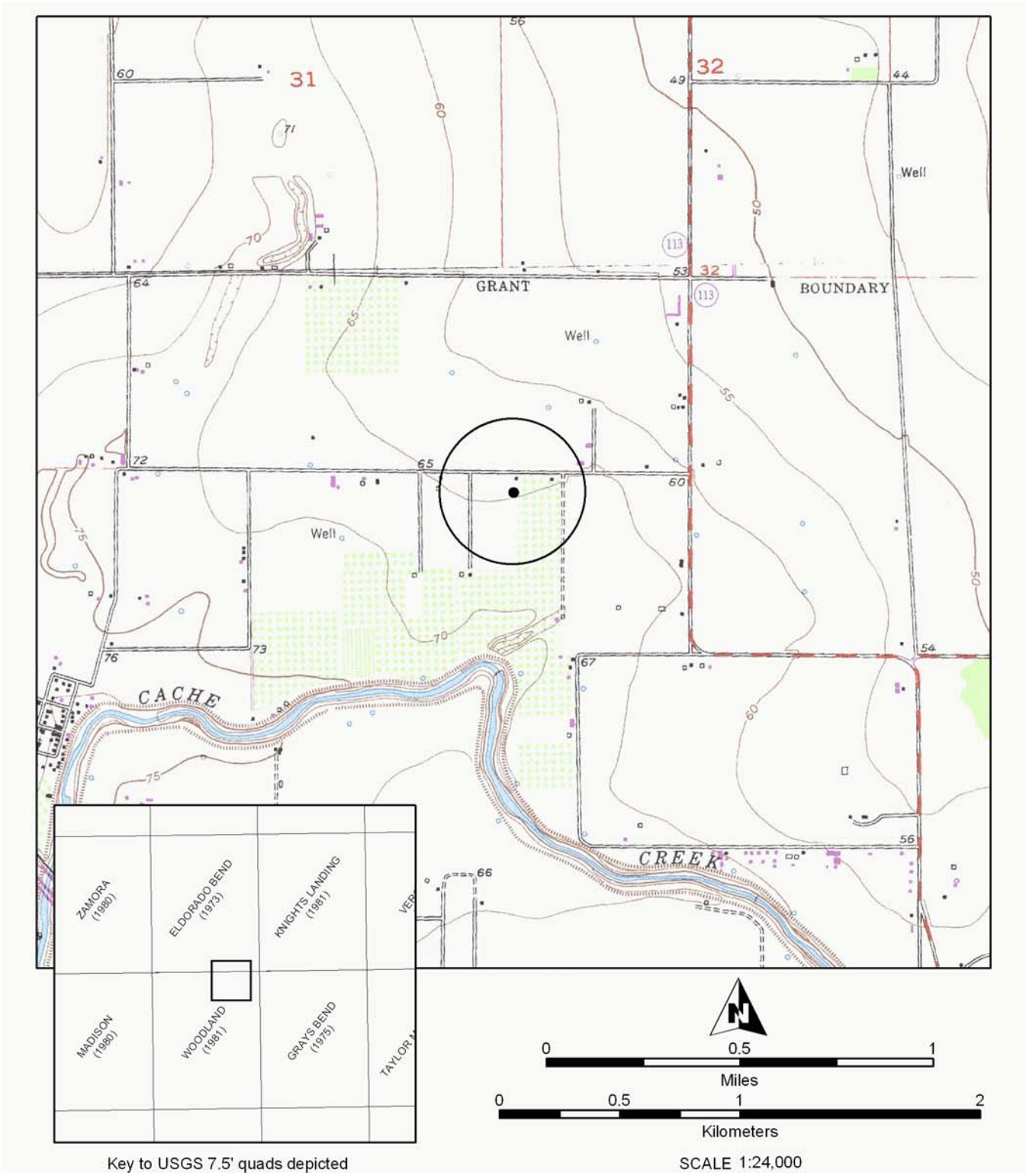
LOCATION MAP

Primary # P-57-000407 (UPDATE)
HRI #
Trinomial

***Resource Name or #:** (UPDATE)

***Map Name:**

***Year:**



***Required Information**

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code _____
Other Listings _____
Review Code _____ Reviewer _____ Date _____

 ***Resource Name or #:** Site 26

P1. Other Identifier: S26
*** P2. Location:** ☑ **Not for Publication** ☐ **Unrestricted** ***a. County:** Yolo
*** b. USGS Quad:** Woodland (1952; photorevised 1980); T10N R2E, ; MDBM
c. Address: 14020 Country Road 99A, Parcel 457
d. UTM: See Continuation Sheet
e. Other Locational Data:
APN 027-160-08-1-Southwest corner of Road 17 and Rad 99A.

*** P3a. Description:**
This property consists of a house and, barns surrounded by mature trees and shrubs. The property is on the east side of agricultural fields and serves as a ranch/farmstead.

House: The house (#1) has a two-story, gable-roofed rectangular center with a one-story, cross-gable addition and a on the north side and a one-story wrap-around shed-roof addition on the north and west sides.

The roofs are covered with composition shingles. The two-story section has a wood louver in one gable end and a window in the other. The window appears to be an addition. Siding throughout the structure is channeled horizontal boards.

*** P3b. Resource Attributes:**
*** P4. Resources Present:** ☐Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

***P5b. Description of Photo:**
View of house, northwest, May 7, 2007, 01915.jpg

***P6. Date Constructed/Age & Sources:**
☑Historic ☐Prehistoric ☐Both
ca. 1880s

***P7. Owner and Address:**
Douglas W. and Diane P. Beard, 14080 Creek 99A; Woodland, CA 95695

***P8. Recorded by:**
Mary L. Maniery, PAR Environmental Services, Inc., PO Box 160756, Sacramento, CA 95816

***P9. Date Recorded:** 6/7/2007

***P10. Survey Type:**
Intensive survey of PG&E pipeline corridor

*** P11. Citation:** Wohlgemuth et al. 2007. Cultural Resources Survey for PG&E Line 407 Project, Placer, Sacramento, Sutter, and Yolo Counties, California.

*** Attachments:** ☐ None ☑ Location Map ☐ Sketch Map ☑ Continuation Sheet ☑ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

Primary # _____
HRI # _____

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code:
*Resource Name or #: Site 26

B1. Historic Name: n/A
B2. Common Name: n/A
B3. Original Use: farmstead
B4. Present Use: farmstead
*** B5. Architectural Style:** Folk Victorian with modifications
*** B6. Construction History:**
The house is depicted on a 1905 map and was likely built by the late 1880s. Since then it has and two single story additions and some original window openings have been boarded over. New aluminum sliders are present as well. These alterations have changed the overall appearance and integrity of the house. The outbuildings, while contemporary with the house, have

*** B7. Moved?** ☑ No ☐ Yes ☐ Unknown **Date:** **Original Location:**
*** B8. Related Features:**
Agricultural fields

B9a. Architect: Unknown
B9b. Builder: Unknown
*** B10. Signficance: Theme:** Agriculture
Area: Yolo County
Period of Significance: n/A **Property Type:** n/A **Applicable Criteria:** n/A
Settlement and farming in this area of Yolo County began by 1850s, focusing on animal husbandry and grain production. Following a major flood in 1878 many farmers left the region. This property, part of a 413-acre parcel, was acquired by George B. Eustis and William V. Jubb soon after the flood, likely on speculation. Eustis was the sole owner by 1915. He subdivided the large parcel into 8 lots by 1926 and two of those were then subdivided into 8 additional lots (DePue 1879; Proctor 1915, 1926). This property was in place by 1905 and as part of the larger parcel; however, the original owner is unknown. After subdivision it remained on a 20-acre parcel.

While the core of the house is visible, two additions and window replacements have altered the appearance of a Folk Victorian and compromised the overall integrity. As a result of the loss on integrity, this property no longer retains adequate integrity to qualify for inclusion in the National Register of Historic Places or the California Register of Historic Resources under any criteria.

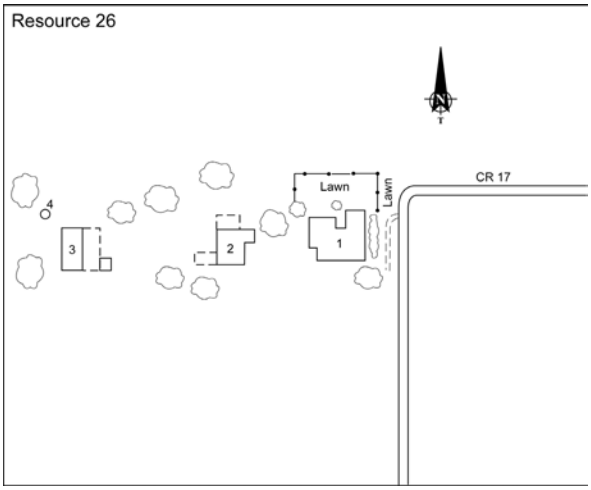
B11. Additional Resource Attributes: none
*** B12. References:**
Ashley. W.
1900 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento.

B13. Remarks:
None

*** B14. Evaluator:** Mary L,. Maniery

*** Date of Evaluation:** 6/21/2007

(This space reserved for official comments.)



*Required Information

P3. Description:

Fenestration is symmetrical on the main structure. The front entry is on the south façade and is centrally located, accessed by two concrete risers, and flanked by large aluminum slider windows with wood shutters. The entry is protected by a gable-roofed portico supported on 2" x 4" posts. The upper story has two aluminum sliding windows on the south façade and three original double hung wood frame windows over two aluminum slider replacements are on the east side. A boarded-over window opening is visible on the upper story of the north façade but the addition resulted in the replacement of the other original windows on this and the west façade.

The two additions to the house each accommodate an extra room. The gable roof addition has one aluminum slider with shutters on the east side and exposed rafter tails. The wrap-around addition has a small double-hung window on the east side an entry on the north. It also has exposed rafter tails.

The house is surrounded by palms, oak, conifer, and other trees, hedges and lawn. A white picket fence separates the property from the road and fields on the north and east.
A barn (structure 2) is located west of the house. It is a one-story wood-frame rectangular structure with a gable roof. A shed-roof addition extends off the south façade and open-sided covered work areas/car ports are on the north and west sides. A small (8-10 foot square) gable roof addition with a pedestrian door is on the east side. The roof and some façades are covered with corrugated metal sheets. The west façade and the gable ends have vertical board or plywood siding. Two windows are on the south façade and three pedestrian doors are on the east.

A second barn (#3) is west of Structure #2. It is a wood-frame, gable-roof structure covered with vertical board siding. In several places corrugated metal sheets cover the wood siding. The roof is covered with the metal sheets. A small one-story shed-roof

P3. Description:

room extends off the east façade. All doors and windows are missing although barn doors appear to have been present on the south façade. A circular water tank (#4) is located northwest of Barn #3. It is galvanized metal and is covered with a flat metal sheet.

B6. Construction History:

also had alterations, changes in exterior fabric, removal of windows and other modifications.

B12. References:

DePue and Co.
1879 Illustrated History of Yolo County. DePue & Co., San Francisco. On file, California History Room, California State Library, Sacramento.

Proctor
1915 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento.

1926 Official Map of Yolo County. On file, California History Room, California State Library, Sacramento

House and addition, view southwest of main house and addition, May 7, 2007, 914.jpg

Barn #2, view northeast, May 7, 2007, 922.jpg

***Recorded By:** Mary L. Maniery ***Date:** 6/21/2007 ☐ Continuation ☐ Update

Barn #3 and water tank (#4), view northeast, May 7, 2007

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

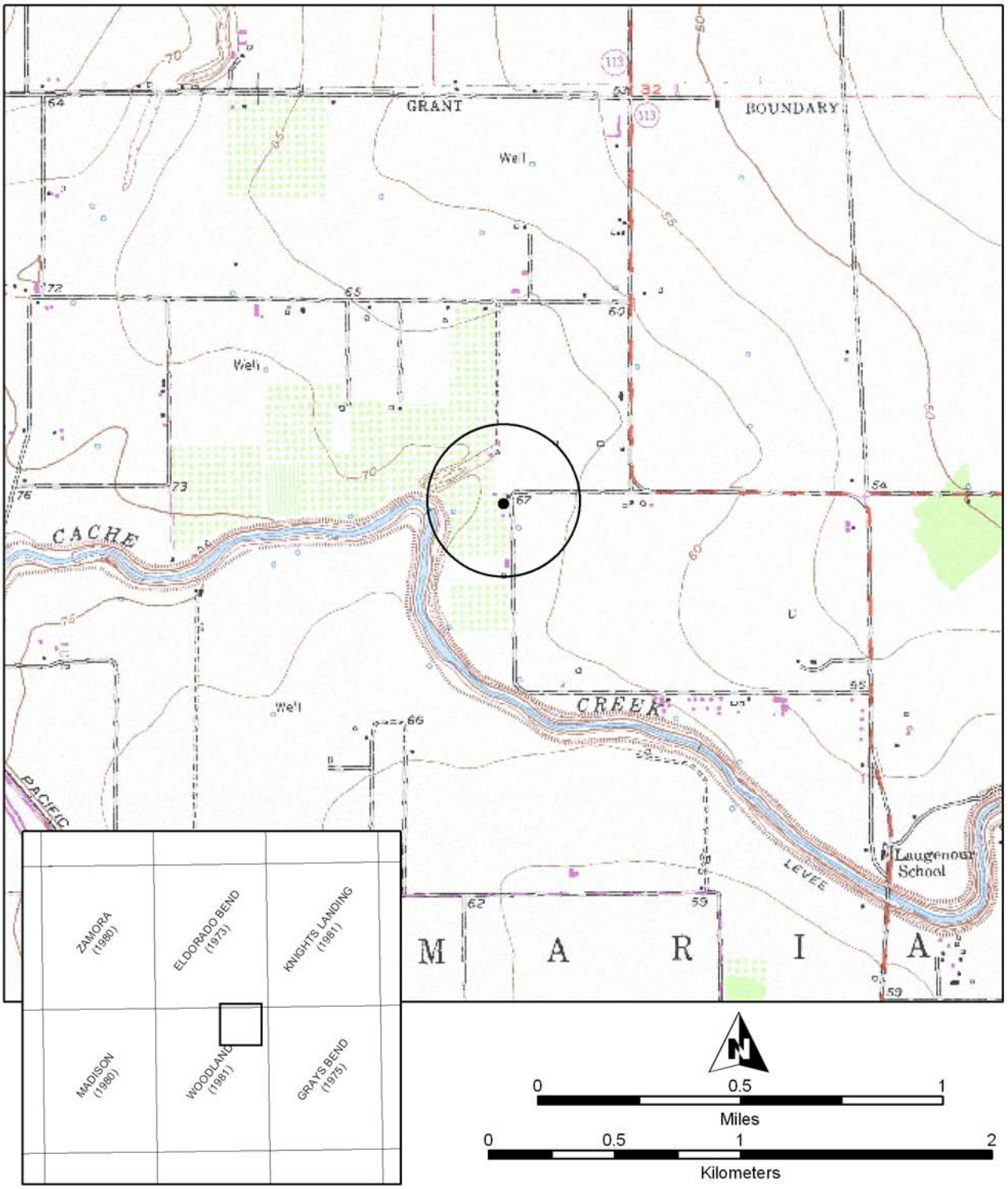
LOCATION MAP

Primary # _____
HRI # _____
Trinomial _____

***Resource Name or #:** Site 26

***Map Name:**

***Year:**



Key to USGS 7.5' quads depicted

SCALE 1:24,000

***Required Information**

F-6: Cultural Resources Survey for the Four Alternative Routes

Cultural Resources Survey for Four Alternative Routes for the Center Joint Unified School District Location, PG&E Line 407 Project, Placer County, California

By:
Eric Wohlgemuth

January 2009

Submitted to:
Mark Cassady
TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Prepared for:
Pacific Gas and Electric Company
2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833

FAR WESTERN ANTHROPOLOGICAL RESEARCH GROUP, INC.
2727 Del Rio Place, Suite A, Davis, California, 95618
http://www.farwestern.com 530-756-3941

Cultural Resources Survey for Four Alternative Routes for the Center Joint Unified School District Location, PG&E Line 407 Project, Placer County, California

By:
Eric Wohlgemuth

January 2009

Submitted to:
Mark Cassady
TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Prepared for:
Pacific Gas and Electric Company
2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833

MANAGEMENT SUMMARY

This document is an addendum to a cultural resources study of Line 407, an approximately 25.5-mile-long gas distribution pipeline that Pacific Gas and Electric Company (PG&E) plans to construct to connect existing lines near the town of Yolo and Fiddyment Road at the western edge of the city of Roseville. The proposed pipeline would pass through portions of Yolo, Sacramento, Sutter, and Placer counties.

Due to plans by the Center Joint Unified School District to construct a school in southwestern Placer County, PG&E is now considering alternative pipeline routes to provide a buffer around the prospective school site, or to deeply bury it along the originally proposed route to mitigate potential hazards. In this document, Far Western assesses cultural resources of four pipeline route alternatives in Township 11N, Range 5E, Section 32, north of Base Line Road, east of Brewer Road, and west of Country Acres Road.

The Line 407 project is subject to provisions of the California Environmental Quality Act (CEQA; Public Resources Code, Section 21000 et seq., revised 2005). Line 407 would cross a number of watercourses and may require a Section 404 permit, qualifying it as a federal undertaking. If so, it would also be subject to the provisions of Section 106 of the National Historic Preservation Act (36 CFR 800), which requires that proponents of federal undertakings address potential effects to historic properties.

To meet the requirements of both CEQA and Section 106, TRC contracted with Far Western Anthropological Research Group, Inc. Our study included an archival records search, field inventory, Native American consultation, and assessment of the potential for buried archaeological deposits. The methods and results of the study are documented in this report and summarized here for management purposes. A small area west of Brewer Road could not be surveyed due to lack of landowner permission to access.

The records search and field survey identified five cultural resources within the project Area of Potential Effects (APE). A bridge (P-31-002683) was previously determined not eligible to the National Register. One historic-age structure (P-31-002684) was previously recommended not eligible to the National Register or California Register. These require no further management consideration. Two rural roads (P-31-003306 and -003308) and the mapped location of the Eagle Hotel (P-31-003307) have not been evaluated for their National or California Register eligibility. Impacts to the three unevaluated cultural resources should be avoided wherever possible. Where avoidance of unevaluated resources is not feasible, these resources will need to be evaluated for their National or California Register eligibility.

If project plans are unable to avoid the small area which could not be surveyed due to lack of access, then this area must be surveyed prior to project construction. If project impacts are excluded from this area, then no additional survey there will be necessary. Additional survey may be required if the project plans change to include other areas not already inventoried.

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INTRODUCTION

Pacific Gas and Electric Company (PG&E) is planning to construct the Line 407 Pipeline Project, a 30-inch gas pipeline across the Central Valley in Yolo, Sutter, Sacramento, and Placer counties. Far Western completed the cultural resources inventory for the pipeline in 2007 (Wohlgemuth 2008). Due to plans by the Center Joint Unified School District to construct a school in southwestern Placer County, PG&E is now considering alternative pipeline routes to provide a buffer around the prospective school site, or to deeply bury it along the originally proposed route to mitigate potential hazards. In this document, Far Western assesses cultural resources of four pipeline route alternatives in Township 11N, Range 5E, Sections 31-33, north of Base Line Road, east of Brewer Road, and west of Country Acres Road (Figure 1).

As part of the larger pipeline project, the current project is subject to provisions of the California Environmental Quality Act (CEQA; Public Resources Code, Section 21000 et seq., revised 2005), which requires the project proponents to consider potential effects to important cultural resources from installation of the natural gas pipeline. Important cultural resources under CEQA are those eligible or potentially eligible to the California Register of Historical Resources, as outlined in Section 5024.1 of the California Public Resources Code.

The larger project will cross the Sacramento River and a matrix of streams, canals, and irrigation ditches, and may need an Army Corps of Engineers (Corps) Nationwide Permit to comply with Section 404 of the Clean Water Act. The possible need for a federal permit may bring the proposed project under the purview of the National Environmental Protection Act (NEPA) and the National Historic Preservation Act (NHPA). Section 106 of the NHPA has similar requirements to CEQA, with significant cultural resources defined as those eligible or potentially eligible to the National Register of Historic Places. This document has been prepared to meet both CEQA and Section 106 standards.

To meet these requirements, TRC contracted with Far Western Anthropological Research Group, Inc., for a cultural resources study, which includes a records search, field inventory, Native American consultation, and assessment of the potential for buried archaeological deposits. A prior document described the methods and results of a cultural resources inventory for the Line 407 portion of the project, which extends from near the town of Yolo in Yolo County, east to Fiddyment Road near the western boundary of the city of Roseville in Placer County (Wohlgemuth 2008).

PROJECT DESCRIPTION

Four alternative pipeline routes in Sections 31-33 are considered for the current project (Figure 2). Alternative I follows the originally planned route along the north side of Base Line Road, and is being considered for use via Horizontal Directional Drilling, which would bury the pipe deep enough to mitigate any hazards related to pipeline construction or operation. Alternative J runs east-west, parallel to and north of Base Line Road. It runs on the north side of property lines along the backyards of a series of residences on the east end. Alternative K also runs east-west and parallel to Base Line Road, 750 feet north of Alternative J. Alternative L follows existing field edges and roads north of Alternative K. Additional corridors run north-south along Brewer and Country Acres roads. In all, the corridors total approximately five linear miles.

Project effects are similar to those of the larger Line 406/407 project. The extent of vertical impact will typically be to a depth of eight feet (2.4 meters), but may range up to 11 feet (3.4 meters) in a trench four feet (1.2 meters) wide. Thus the project's vertical Area of Potential Effects (APE) is 11 feet below surface. Alternative I, the directional drilling alternative, would be substantially deeper (exact depth of impact is not presently known).

Construction of the 30-inch pipeline segments will require a 100-foot- (30.5-meter-) wide construction right-of-way. A 50-foot (15.2-meter) permanent easement is required for operation and maintenance of the pipeline. In order to encompass all potential right-of-way adjustments and extra work spaces, a horizontal APE of 150 feet (46 meters) for cultural resources was established, with 75 feet (23 meters) on either side of centerline along the project pipeline alternatives, and 150 feet along each side of both Brewer and Country Acres roads.

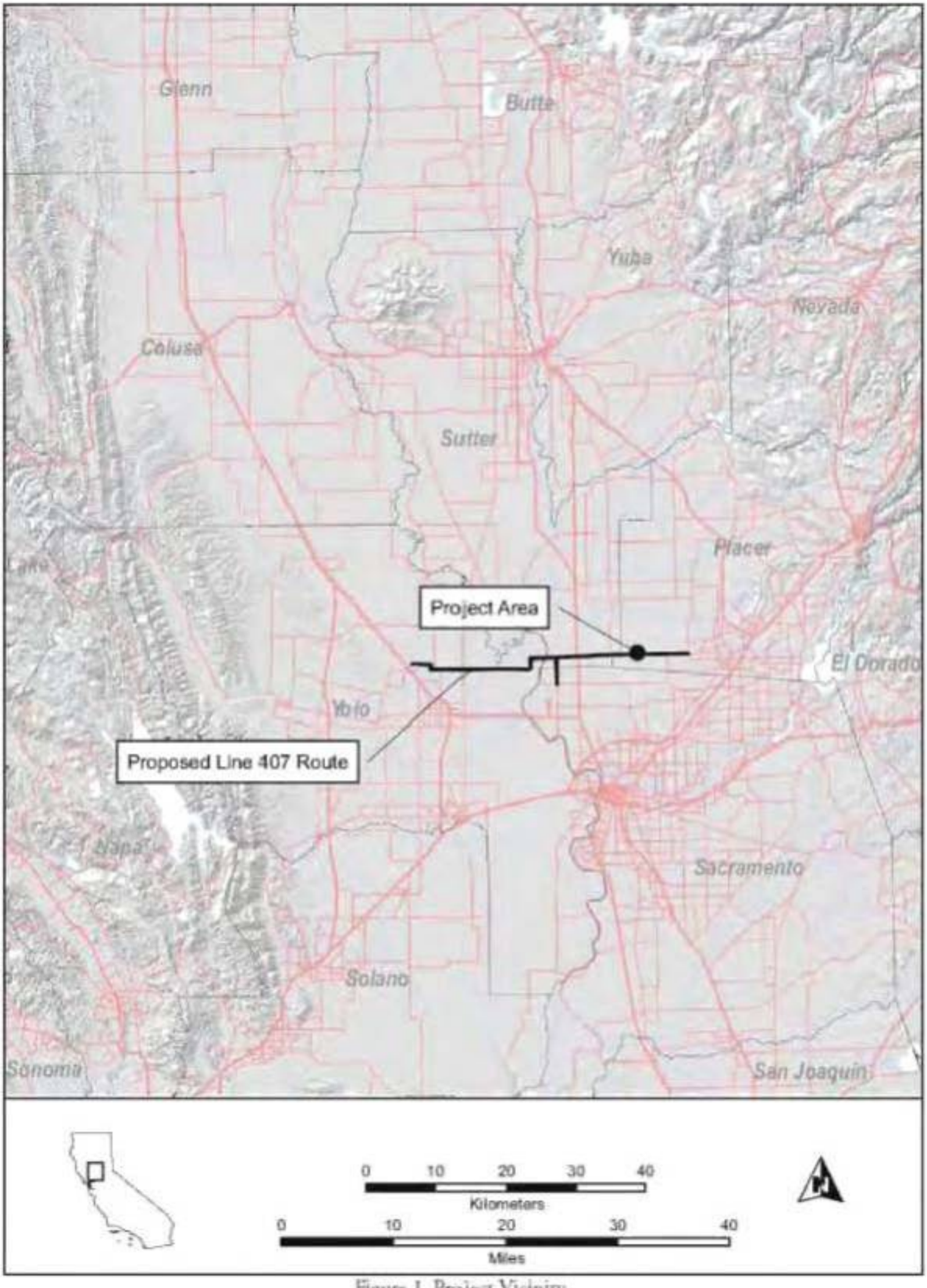


Figure 1. Project Vicinity.

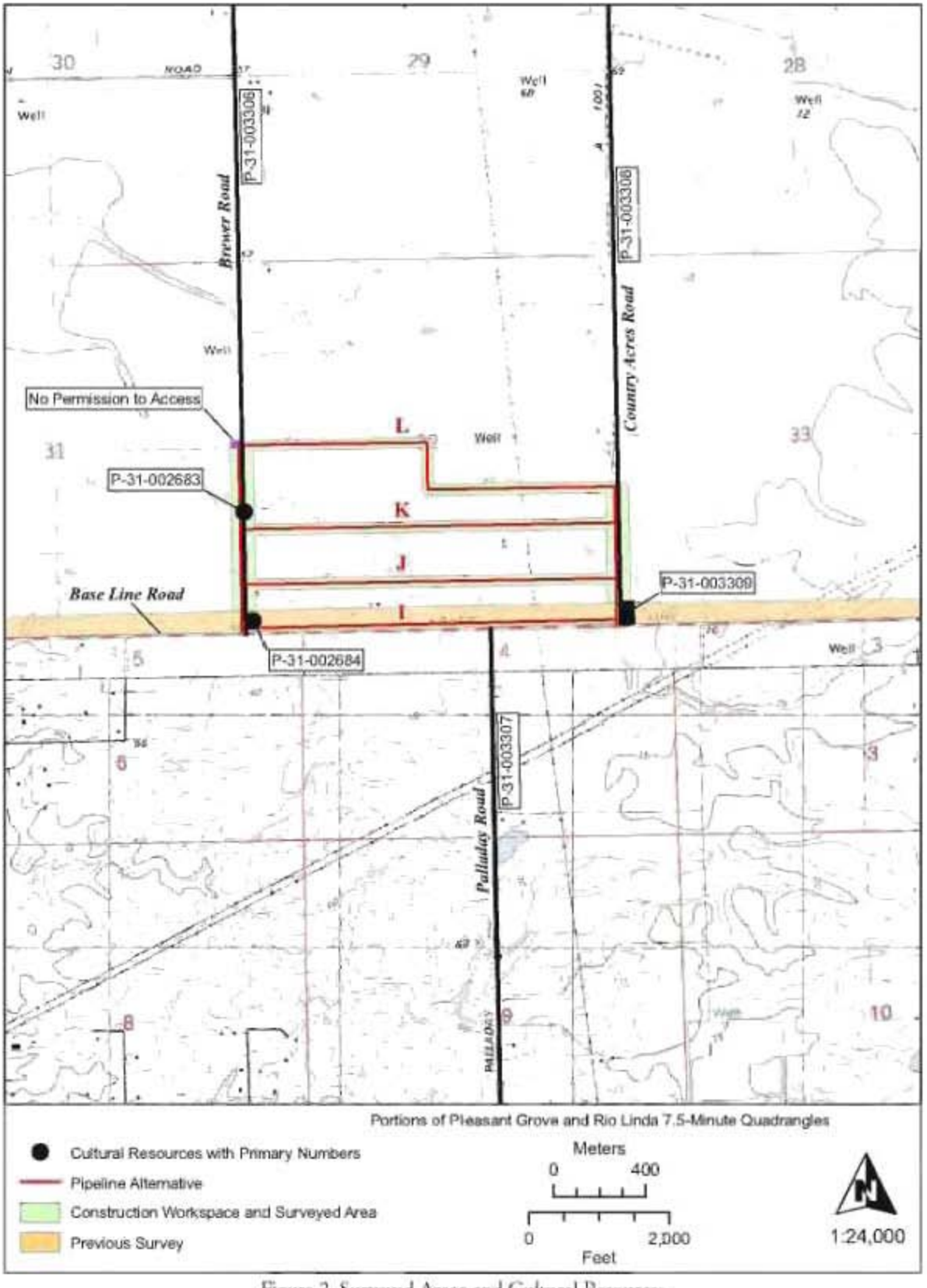


Figure 2. Surveyed Areas and Cultural Resources.

PROJECT ENVIRONMENT AND POTENTIAL FOR BURIED SITES

The current project area is located in nearly level plains that rim the outer edge of the Sacramento Valley. Elevation ranges from 55-70 feet (17-21 meters) above sea level. Vegetation is annual grasses and forbs, now mostly introduced Eurasian weeds. Trees are limited to rare cottonwoods or willows along the single, very small creek in the western part of the project area. Few plant and animal resources formerly used by Native Americans are present, and it is a poor place for hunter-gatherers to live. The area lacks key resources such as acorns, pine or bay nuts, berries, and fish, offering only dispersed large and small game, as well as some potential for edible roots and small seeds. Historic use of the area was largely for grazing, and as a transportation corridor. More than half of the project area has recently been converted to rice fields, with the rest used for dispersed grazing and housing.

Soils in this vicinity are old, Pleistocene-age loams and sandy loams (Wohlgemuth 2008:6, 9). These include the Cometa, Cometa-Ramona, Alamo Fiddyment, and San Joaquin-Cometa soil series. All are very shallow and have well-developed B-horizons, and all share a very low potential for buried soils where archaeological sites might be present. The small creek in the project area carries a very light sediment load, and has not produced any adjacent younger alluvial terraces which could contain buried soils. The absence of such terraces, coupled with the poor resources of the area, suggests there is virtually no potential for buried prehistoric archaeological sites in the project area.

METHODS AND RESULTS

The cultural resources study entailed archival research to determine whether any portion of the proposed project corridor had already been surveyed for cultural resources, and whether any such resources had been recorded. It also included consultation with the local Native American community, plus field survey and the preparation of this report.

RECORDS SEARCH

The North Central Information Center, California State University, Sacramento, provided an in-house records search on January 12, 2009. The records search addressed an area within one-quarter mile of the project area. Appendix A contains a list of maps and sources consulted.

The records search showed only one prior survey within the boundaries of the current project area (Appendix A). This survey was conducted for the larger Line 407 project corridor (Wohlgemuth 2008). It met the Secretary of the Interior's Standards and Guidelines for intensive cultural resources inventory, and extended 300 feet (90 meters) north of Base Line Road. This portion of the project area along Base Line Road, which includes Alternative I, was not resurveyed for this addendum study.

The records search also identified six previously documented cultural resources within the one-quarter-mile buffer, all of them identified as historic-period sites and features. One, Palladay Road, lies south of Base Line Road and falls outside the current project APE. Of the five resources within the APE (see Figure 2), a small bridge on Brewer Road (P-31-002683) has been determined ineligible to the National Register of Historic Places (Caltrans 2008). A structure at the northeast corner of Base Line and Brewer roads (P-31-002684) has been recommended by historic archaeologist Mary Maniery as not eligible to the National Register (Wohlgemuth 2008:43), though no formal determination has been made. Two rural roads (Brewer and Country Acres; P-31-003306 and -003308, respectively) and an historic-period hotel site at the northeast corner of Base Line and Country Acres roads (the Eagle Hotel, P-31-003309) have not been evaluated for their eligibility to the National Register (Wohlgemuth 2008:43). The Eagle Hotel also has the potential for buried archaeological features dating to the mid-nineteenth century, and remains a sensitive location.

NATIVE AMERICAN CONSULTATION

In July 2006, Far Western contacted the Native American Heritage Commission to request a check of their Sacred Lands files for any resources within the Line 407 project area east of the Sacramento River, and a list of individuals with ties to the project area (Appendix C). A response was received from the Heritage Commission October 11, 2006, stating that no sacred lands were located within this area, and providing a list of individuals to contact. The current project description and map, and a letter eliciting concerns and issues, were mailed to the suggested contacts for Placer County on January 16, 2009. Far Western made follow-up phone calls January 23, 2009. No comments were received. A summary of consultation history and responses can be found in Appendix B.

SURVEY METHODS

Fieldwork was carried out January 13, 2009 by Eric Wohlgemuth, Ph.D., assisted by Laura Brink, B.A. A second visit was made January 14, 2009 to assess the age of three built features (see Survey Findings, below). The survey corridor was 75 feet (23 meters) on each side of centerline for each alternative route, and 150 feet (46 meters) either side of potential pipeline routes along Brewer and Country Acres roads. Personnel carried small-scale aerial photographs annotated with the survey corridor, and had available records and maps of all previously recorded resources, plus all necessary recording equipment. The crew walked transects 20 meters (66 feet) apart. In areas with poor visibility surveyors made spot-checks approximately every 25 meters (82 feet), by clearing vegetation in a small area to expose soil, and by carefully inspecting rodent back dirt. The survey crew kept notes of survey conditions and resources encountered.

Locations of previously recorded or potential resources within the survey corridor were re-visited to determine whether cultural remains were still present. In all cases, either existing documentation was adequate or the resource had been previously evaluated, so no resource records were updated.

A small area could not be surveyed west of Brewer Road at the western end of Alternative L due to lack of landowner permission to access (see Figure 2).

SURVEY FINDINGS

Far Western found no previously undocumented cultural resources in the survey area. An apparently historic barn and tack room constructed on 80 acres east of Brewer Road was actually built in the 1970s and 1980s by owner John Piches (personal communication 2009). Detailed photographs of a concrete cattle hoof dip trough and a corral complex, at separate locations along Alternative J, were shown to historic archaeologist Mary Maniery, M.A., who determined they are recent rather than historic. None of the three built features is old enough to be considered an historic resource.

RECOMMENDATIONS

The three previously recorded historic-period cultural resources in the APE should be avoided during all phases of project construction. These are Brewer and Country Acres roads, and the location of the Eagle Hotel at the northeast corner of Base Line and Country Acres roads. If avoidance is not feasible, these resources will need to be evaluated for their National or California register eligibility by a qualified historical archaeologist, historian, or architectural historian. For the mapped location of P-31-003309 (the Eagle Hotel), we recommend test excavations by an historical archaeologist for the presence of buried historic-period features; alternatively, project trenching should be monitored by an historical archaeologist.

No further management is recommended for the bridge (P-31-002683) or structure (P-31-002684), determined or recommended not eligible to the National Register, respectively. There is virtually no potential for buried prehistoric archaeological sites not visible from the surface. No other testing or project trench monitoring for buried resources is recommended.

If project plans are unable to avoid the small area which could not be surveyed due to lack of access, then this area must be surveyed prior to project construction. If project impacts are excluded from this area, then no

additional survey there is necessary. Additional survey may be required if project plans change to include other areas not already inventoried.

REFERENCES CITED

California Department of Transportation (Caltrans)

2008 *Structure Maintenance and Investigations: Historical Significance-Local Agency Bridges.* Caltrans Home Page. http://www.dot.ca.gov/hq/structur/strmaint/hs_local.pdf. Updated April 2008. Accessed January 2009.

Wohlgemuth, Eric

2008 *Cultural Resources Survey for the PG&E Line 407 Project, Placer, Sacramento, Sutter, and Yolo Counties, California.* On file, California Historical Resource Information System, North Central Information Center, California State University, Sacramento.

APPENDIX A

RECORDS SEARCH RESULTS

NORTH CENTRAL INFORMATION CENTER

916-278-6217 ncic@csus.edu FAX 916-278-5162

CSU-SACRAMENTO - 6000 J STREET, ADAMS BLDG, SUITE #208 - SACRAMENTO, CA 95819-6100

Amador, El Dorado, Nevada, Placer, Sacramento, and Yuba Counties

Records Search Results Summary

January 12, 2009 **NCIC File No.: PLA-09-02**

Eric Wohlgemuth
FarWestern Anthropological Research Group, Inc.
2727 Del Rio Place, Suite A
Davis, CA 95618

Researcher: Ellen Bowden

Re: PG&E Line 408 School Survey
T11N/R5E, Section 32
USGS 7.5' Pleasant Grove & Rio Linda quads, Placer County

- **Sites Within ¼ mile search radius and Project Area:**

  P-31-2683
  P-31-2684
  P-31-3306
  P-31-3307
  P-31-3308
  P-31-3309

  Bold Primary Numbers indicate site records generated by client company, plotted only

- **NCIC Reports Within ¼ mile search radius and Project Area:**

  #355
  #388
  #396
  #2484
  #6571
  #7130
  #8967
  #9188

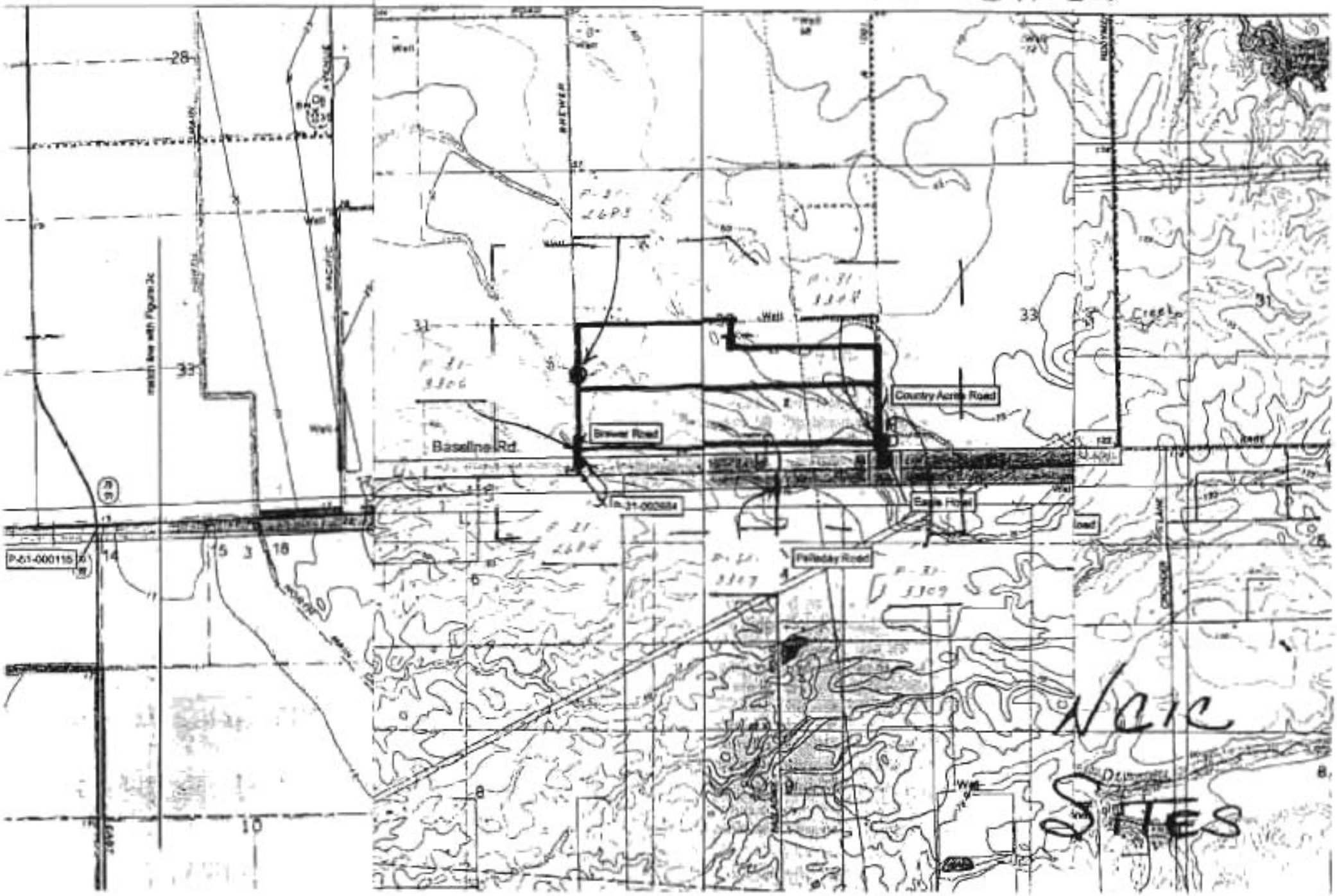
- **OHP Historic Property Data File (2008):** Nothing listed

- **Determination of Eligibility (2008)**: Placer County listing included
- **California Inventory of Historic Resources (1976)**: Nothing listed
- **California State Historical Landmarks (1996)**: Nothing listed
- **Points of Historic Interest (1992)**: Nothing listed
- **CalTrans Historic Bridge Inventory (1987, 2000, 2006)**: Nothing listed
- **GLO/Historic Maps**:

  1855 GLO Plat:
  for T 11N/R 5E
  USGS Sheets/Quadrangles:
  1901 Fair Oaks quadrangle
  US ARMY Corps of Engineers Sheets:
  1953 Pleasant Grove

Thank you for using our services. An invoice/confidentiality agreement is enclosed; please sign and return with your payment.

PLEASANT GROVE + RIO LINDA



North Central Information Center Resource Detail Record: P-31-002683

Identifying Information

Primary No.: P-31-002683
HRI No.:
Trinomial:
Name:
Other IDs: Other: REF-33-H
Other: Bridge 19C0104

Attributes

Resource Type: ☐ Building ☑ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other
Age: ☐ Prehistoric ☐ Protohistoric ☐ Historic ☐ Unknown
Information Base: ☐ Surface survey ☐ Surface collection ☐ Testing ☐ Excavation ☐ Analysis ☐ Other ☐ Unknown
Collections: No
Disclosure: Not for publication
Attribute Codes: HP19 Bridge
Cross-refs:

Recording Events

Date	*Recorder(s)*	*Affiliation*	*Notes*
4/8/2002	Amanda Blosser & Andy Walters	JRP Historical Consulting Services	

Associated Documents

S-number	*Year*	*Title*
S-007130	2002	Roseville Energy Facility Cultural Resources

Notes

Location Info

County: Placer
USGS 7.5' Quads: PLEASANT GROVE
PLSS:
Address:

Address	*City*	*Assessor's parcel no.*
Brewer Road		

UTMs:

Management status

Database Record Metadata

	Date	*User*
Entered:	11/13/2006	jay
Last Modified:	4/10/2007	sally

IC Actions:

Date	*User*	*Action taken*
11/13/2006		Added additional primary numbers listed in old Library database

North Central Information Center Resource Detail Record: P-31-002684

Identifying Information

Primary No.: P-31-002684
HRI No.:
Trinomial:
Name:
Other IDs: Other: REF-32-H
Other: 9110 Baseline Road

Attributes

Resource Type: ☑ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other
Age: ☐ Prehistoric ☐ Protohistoric ☐ Historic ☐ Unknown
Information Base: ☐ Surface survey ☐ Surface collection ☐ Testing ☐ Excavation ☐ Analysis ☐ Other ☐ Unknown
Collections: No
Disclosure: Not for publication
Attribute Codes: HP02 Single family property
Cross-refs:

Recording Events

Date	*Recorder(s)*	*Affiliation*	*Notes*
4/8/2002	Amanda Blosser & And7 Walters	JRP Historical Consulting Services	
6/21/2007	Maniery	PAR	update

Associated Documents

S-number	*Year*	*Title*
S-007130	2002	Roseville Energy Facility Cultural Resources

Notes

Location Info

County: Placer
USGS 7.5' Quads: PLEASANT GROVE
PLSS:
Address:

Address	*City*	*Assessor's parcel no.*
9110 Baseline Road		

UTMs:

Management status

Database Record Metadata

	Date	*User*
Entered:	11/13/2006	jay
Last Modified:	2/6/2008	wilson

IC Actions:

Date	*User*	*Action taken*
11/13/2006		Added additional primary numbers listed in old Library database

North Central Information Center Resource Detail Record: P-31-003306

Identifying Information

Primary No.: P-31-003306
HRI No.:
Trinomial:
Name: Brewer Road
Other IDs:

Attributes

Resource Type: ☐ Building ☑ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other
Age: ☐ Prehistoric ☐ Protohistoric ☑ Historic ☐ Unknown
Information Base: ☐ Surface survey ☐ Surface collection ☐ Testing ☐ Excavation ☐ Analysis ☐ Other ☐ Unknown
Collections:
Disclosure: Unrestricted
Attribute Codes: HP37 Highway/trail
Cross-refs:

Recording Events

Date	*Recorder(s)*	*Affiliation*	*Notes*
9/8/2006	Laura Leach-Palm	Far Western	

Associated Documents

Notes

Location Info

County: Placer
USGS 7.5' Quads: PLEASANT GROVE
PLSS:

Township/range		*Section*		*BL/M*	*or Land Grant*
T 11 N	R 5 E	SE¼ of SE¼ of Sec.	31	MDBM	
T 10 N	R 5 E	NE¼ of NE¼ of Sec.	5	MDBM	

Address:
UTMs:

Datum	*Zone*	*Easting*	*Northing*	*At point*
NAD27	10	634600	4290350	

Management status

Database Record Metadata

	Date	*User*
Entered:	2/6/2008	wilson
Last Modified:	2/6/2008	wilson
IC Actions:		

North Central Information Center Resource Detail Record: P-31-003307

Identifying Information

Primary No.: P-31-003307
HRI No.:
Trinomial:
Name: Palladay Road
Other IDs:

Attributes

Resource Type: ☐ Building ☑ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other
Age: ☐ Prehistoric ☐ Protohistoric ☑ Historic ☐ Unknown
Information Base: ☐ Surface survey ☐ Surface collection ☐ Testing ☐ Excavation ☐ Analysis ☐ Other ☐ Unknown
Collections:
Disclosure: Unrestricted
Attribute Codes: HP37 Highway/trail
Cross-refs:

Recording Events

Date	*Recorder(s)*	*Affiliation*	*Notes*
9/8/2006	Laura Leach-Palm	Far Western	

Associated Documents

Notes

Location Info

County: Placer
USGS 7.5' Quads: PLEASANT GROVE
PLSS:

Township/range				*Section*				*B/L/M*	*or Land Grant*
T 11 N	R	5 E	SW	of SE¼	of Sec.	32	MDBM		
T 10 N	R	5 E		of	of Sec.	4	MDBM		

Address:
UTMs:

Datum	*Zone*	*Easting*	*Northing*	*At point*
NAD27	10	635640	4290180	

Management status

Database Record Metadata

	Date	*User*
Entered:	2/6/2008	wilson
Last Modified:	2/6/2008	wilson

IC Actions:

North Central Information Center Resource Detail Record: P-31-003308

Identifying Information

Primary No.: P-31-003308
HRI No.:
Trinomial:
Name: Country Acres Road
Other IDs:

Attributes

Resource Type: ☐ Building ☑ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other
Age: ☐ Prehistoric ☐ Protohistoric ☑ Historic ☐ Unknown
Information Base: ☐ Surface survey ☐ Surface collection ☐ Testing ☐ Excavation ☐ Analysis ☐ Other ☐ Unknown
Collections:
Disclosure: Unrestricted
Attribute Codes: HP37 Highway/trail
Cross-refs:

Recording Events

Date	*Recorder(s)*	*Affiliation*	*Notes*
9/8/2006	Laura Leach-Palm	Far Western	

Associated Documents

Notes

Location Info

County: Placer
USGS 7.5' Quads: PLEASANT GROVE
PLSS:

Township/range		*Section*		*BL/M*	*or Land Grant*
T 10 N	R 5 E	NE¼ of NE¼ of Sec.	4	MDBM	
T 11 N	R 5 E	SE¼ of SE¼ of Sec.	32	MDBM	

Address:
UTMs:

Datum	*Zone*	*Easting*	*Northing*	*At point*
NAD27	10	636200	4290390	

Management status

Database Record Metadata

	Date	*User*
Entered:	2/6/2008	wilson
Last Modified:	2/6/2008	wilson

IC Actions:

North Central Information Center Resource Detail Record: P-31-003309

Identifying Information

Primary No.: P-31-003309
HRI No.:
Trinomial:
Name: Eagle Hotel
Other IDs:

Attributes

Resource Type: ☐ Building ☑ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other
Age: ☐ Prehistoric ☐ Protohistoric ☑ Historic ☐ Unknown
Information Base: ☐ Surface survey ☐ Surface collection ☐ Testing ☐ Excavation ☐ Analysis ☐ Other ☐ Unknown
Collections:
Disclosure: Not for publication
Attribute Codes: AH02 Foundations/structure pads
AH03 Landscaping/orchard
Cross-refs:

Recording Events

Date	Recorder(s)	Affiliation	Notes
6/21/2007	Eric Wohlgemuth	Far Western	

Associated Documents

Notes

Location Info

County: Placer
USGS 7.5' Quads: PLEASANT GROVE
PLSS: *Township/range* ——— *Section* ——— *BLM* *or Land Grant*
T 11 N R 5 E SW of SW of Sec. 33 MDBM
Address:
UTMs:

Datum	Zone	Easting	Northing	At point
NAD27	10	636232	4290442	

Management status

Database Record Metadata

	Date	User
Entered:	2/6/2008	wilson
Last Modified:	2/6/2008	wilson
IC Actions:		

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-31-2683
HRI #
Trinomial
NRHP Status Code 6Z
Other Listings
Review Code Reviewer Date

*Resource Name or # (Assigned by recorder) REF 33-H

P1. Other Identifier: Bridge 19C0104

*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County Placer
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
*b. USGS 7.5' Quad Pleasant Grove Date 1953 T___; R ___; ___ ¼ of Sec ___; _____ B.M.
c. Address Brewer Road City _____ Zip _____
d. UTM: (give more than one for large and/or linear resources) Zone ____; _____ mE/ _____ mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
This bridge is located on Brewer Road approximately 2.2 miles north of Baseline Road.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Built in 1935, this small bridge is located in a largely agricultural area. Approximately 5.5 meters across, the bridge accommodates a two-lane road and is utilitarian in design. A concrete slab structure, the bridge has wing wall abutments with a parapet wall standing one foot above the road grade. Located adjacent to the bridge on the wide side is a stone culvert with a metal pipe. The culvert is constructed of stone. This bridge was surveyed and evaluated in the California Department of Transportation Historic Bridge Survey and determined ineligible for the National Register.

*P3b. Resource Attributes: (List attributes and codes) HP19 Bridge
*P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) Photograph # 1, camera facing northwest, April 8, 2002

*P6. Date Constructed/Age and Sources:
☒ Historic ☐ Prehistoric ☐ Both
1935, Caltrans Local Agency Bridge Log

*P7. Owner and Address:
Placer County, Public Works Dept
11444 B Avenue,
Auburn, CA 95602

*P8. Recorded by: (Name, affiliation, address)
Amanda Blosser and Andy Walters
JRP Historical Consulting Services,
1490 Drew Ave. Suite 110, Davis,
CA 95616

*P9. Date Recorded: April 8, 2002

*P10. Survey Type: (Describe)
Intensive

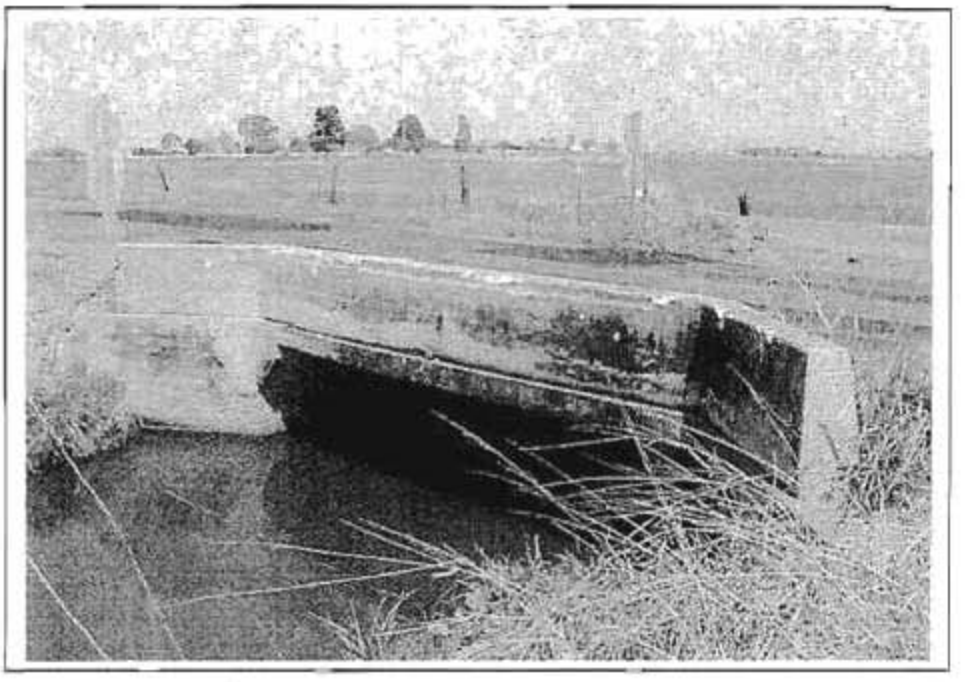
*P11. Report Citation: (Cite survey report and other sources, or enter "none.") JRP Historical Consulting Services, AFC Enron Roseville Energy Facility, Yolo, Sacramento, Placer and Sutter Counties, June 2002

*Attachments: NONE ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☐ Building, Structure, and Object Record ☐ Archaeological Record
☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record
☐ Other (list) _____

(9130)

*Required Information

Photographs



Photograph 2. Western wall of bridge, camera facing northeast. April 8, 2002

Photograph 3. Concrete culvert, camera facing southwest, April 8, 2002

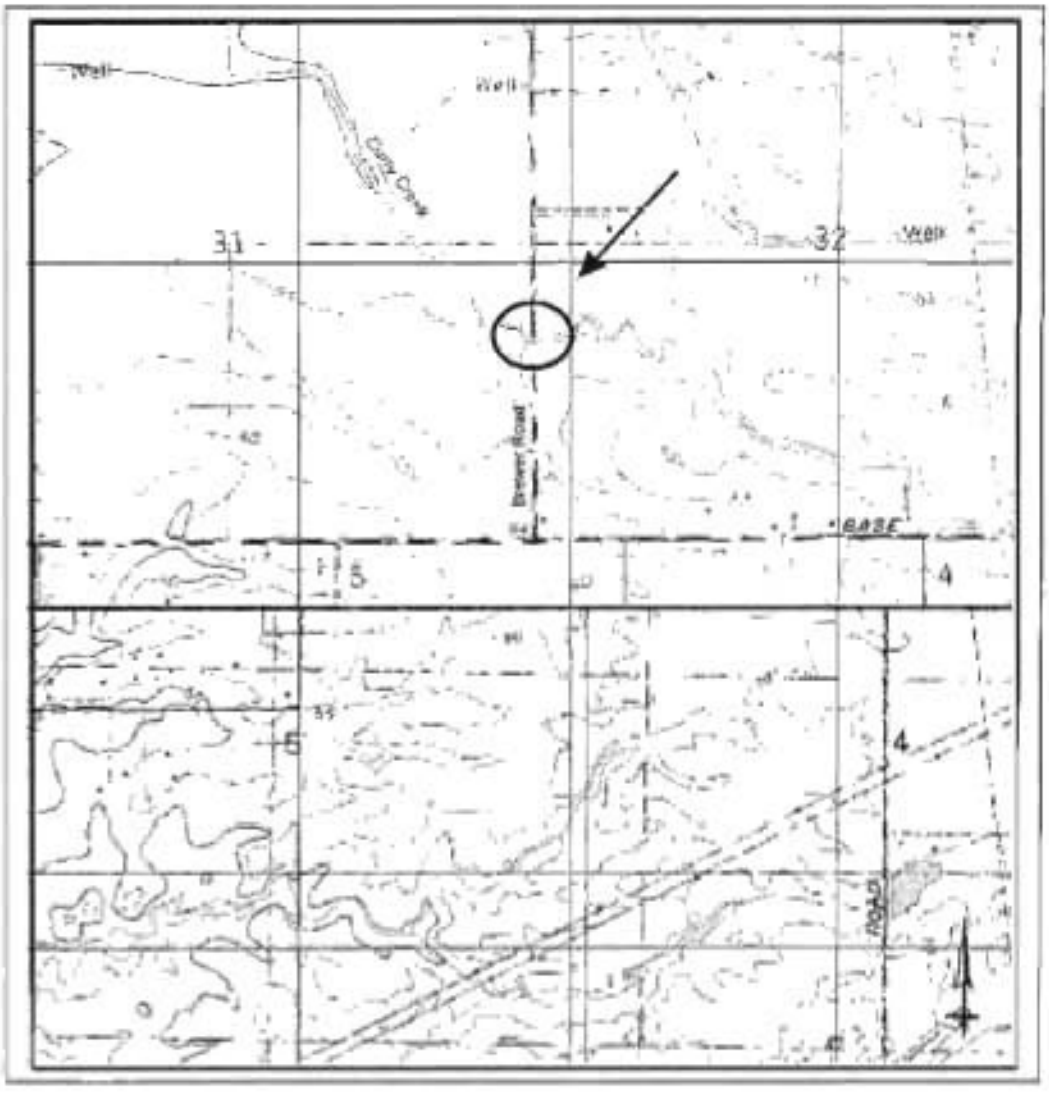
State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P-31-2683
HRI #
Trinomial

*Resource Name or # (Assigned by recorder) REF 33-H

*Recorded by Amanda Blosser and Andy Walters *Date April 8, 2002 ☒ Continuation ☐ Update

Location Map



*Required Information

Local Agency Bridge List

Placer County

BRIDGE NUMBER	DI	STRUCTURE NAME	FACILITY	CITY	BYP LEN	LANES ONUN	AADT	APPRD WIDTH	STR TYP	RDWAY WIDTH	YEAR BUILT	SD FO	STR LEN	SUFF RATE
19C0066	03	WISE CANAL	BELL ROAD	AUB	5	0200	2582	14.6	501	14.0	1975		13	99.4
19C0067	03	SIERRA BOULEVARD OH	SIERRA BLVD	RSV	6	0200	2966	22.9	112	6.6	1929	FO	111	48.4
19C0069	03	ROCK CREEK	FIDDYMENT RD		6	0200	200	9.1	201	9.5	1977		18	99.9
19C0071	03	N FK AMERICAN RIVER	SODA SPRINGS RD		121	0100	125	4.6	310	3.5	1900	FO	24	57.2
19C0072	03	SECRET RAVINE	ROCKLIN RD	ROC	5	0200	5700	6.1	201	23.2	1983	SD	14	93.6
19C0073	03	WOOLEY CREEK	PLACER HILL RD		11	0200	2178	7.3	101	8.6			9	66.2
19C0074	03	WISE CANAL	NEW AIRPORT RD		3	0200	457	6.4	302	7.5			11	67.4
19C0075	03	AUBURN RAVINE	PALM AVE	AUB	3	0300	8000	14.6	119	15.5	1980		13	96.9
19C0076	03	WISE CANAL	LUTHER RD		5	0200	3935	12.2	302	8.6			13	78.8
19C0077	03	CLOSED ROADWAY	PACIFIC AVE	AUB	2	0200	1663	12.2	502	12.2	1970		34	97.8
19C0078	03	RIOSA ROAD CANAL	RIOSA RD		11	0200	814	6.7	504	8.5			13	88.0
19C0079	03	NORTH RAVINE	MT VERNON RD		11	0200	608	6.4	101	7.8			7	89.7
19C0080	03	MARKHAM RAVINE	NICOLAUS RD		13	0200	457	5.6	101	5.6		FO	7	57.5
19C0082	03	MARKHAM RAV	NELSON LN		10	0200	96	6.1	302	6.2			13	72.9
19C0083	03	AUBURN RAV	NELSON LN		10	0200	96	8.1	302	6.2			25	91.7
19C0084	03	DRY CREEK	WATTCNTR JOINT AV		14	0200	1066	7.3	302	7.0		FO	52	61.4
19C0086	03	DRY CREEK	VERNON ST (RSVL)	RSV	3	0200	8130	12.2	201	12.2	1973		40	95.8
19C0087	03	DRY CREEK	FOLSOM RD (RSVL)	RSV	2	0200	3500	11.0	201	8.5	1970		35	79.6
19C0088	03	LINDA CREEK	SUNRISE BLVD	RSV	3	0400	29400	20.7	319	20.8	1970		13	93.9
19C0090	03	DOTY CREEK	WISE RD		5	0100	701	5.8	104	4.2	1923	FO	11	57.7
19C0093	03	MARKHAM RAVINE	CRITTER CR RD		199	0100	25	4.0	302	4.0	1930	SD	13	30.9
19C0094	03	YANKEE SLOUGH	DOWD RD		14	0200	305	4.9	101	5.5	1935	SD	9	47.9
19C0095	03	COON CREEK	DOWD RD		16	0200	283	5.5	201	5.4	1930	SD	42	43.4
19C0096	03	COON CREEK	BREWER RD		19	0100	91	4.3	302	4.5	1938		17	52.8
19C0100	03	SHIRT TAIL CREEK	SHIRT TAIL CYN RD		29	0100	25	3.7	302	3.7	1940	FO	19	63.1
19C0101	03	MCKINNEY CREEK	MCKINNEY CREEK RD		2	0200	250	7.0	702	7.1	1950		14	67.7
19C0102	03	MCKINNEY CREEK	CASCADE RD		2	0200	250	7.3	702	7.0	1950		14	66.2
19C0104	03	BRANCH OF CURRY CREEK	BREWER RD		29	0200	294	5.5	101	5.5	1935	FO	7	53.2
19C0105	03	CURRY CREEK	BREWER ROAD		11	0200	419	9.1	101	9.1	1992		8	96.8
19C0106	03	COON CREEK	GARDEN BAR RD		199	0100	119	3.4	104	5.4	1945	FO	24	49.3
19C0107	03	SHIRLAND CANAL	RATTLESNAKE RD		5	0200	210	5.8	101	8.2	1939		13	76.0
19C0108	03	SECRET RAVINE	ROCK SPRINGS RD		8	0200	650	7.9	302	9.0	1930	SD	9	48.8
19C0110	03	AUBURN RAVINE	MOORE RD		13	0100	388	5.5	302	6.2	1930	SD	28	51.2
19C0111	03	DOTY CREEK	CROSBY HAROLD RD		5	0100	376	3.7	302	5.3	1945	FO	12	69.4
19C0112	03	KINGS SLOUGH	BREWERS RD		11	0100	265	5.5	101	5.5	1935	FO	8	70.8
19C0114	03	COON CREEK	GLADDINGS RD		6	0100	656	7.3	302	5.3	1928	FO	14	62.2
19C0115	03	DOTY RAVINE	GOLD HILL ROAD		11	0200	1075	9.1	101	9.8	1993		13	98.4
19C0116	03	SUGAR PINE CREEK	FINNING MILL RD		23	0200	200	7.6	201	7.5	1973		13	92.8
19C0117	03	DRY CREEK	COOK RIOLO RD		6	0100	1462	7.0	310	5.9	1940	SD	61	41.7
19C0118	03	MARKHAM RAVINE	DOWD RD		13	0200	377	6.7	101	7.5	1940		7	70.2
19C0119	03	SOUTH FORK DRY CREEK	BELL RD		11	0100	546	5.2	104	4.2	1923	SD	12	32.8
19C0121	03	YANKEE SLOUGH	NADER RD		5	0200	100	3.0	302	5.6	1935		9	76.4
19C0122	03	COON CREEK	GLADDING RD		6	0100	656	5.3	302	5.3	1928	FO	13	67.2
19C0124	03	CURRY CREEK	LOCUST RD		8	0100	40	4.6	302	4.6	1940		10	83.7

P-31-2683

Data presented here is for information only. It should not be used to determine the official status of a bridge's eligibility for HBRR money.

*Recorded By: Mary Maniery *Date: 6/21/2007 ☑ Continuation ☐ Update

P1. Resource name/#: P-31-2684
P2. Location:
c. Address 9110 Baseline Road
d. APN

This property was recorded in 2002 by JRP Consulting, Inc. and revised by Mary L. Maniery in June of 2007.

Since 2002 the house has been vacated. The rear (north) side of the structure has an exterior central chimney and an overhang roof supported by poles. Fenestration of the southwest corner of the house consists of wrap-around casement windows, likely original to the structure. Casement windows are also present on the north side of the garage.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # P-31-002684 (UPDATE)
HRI #

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code:
*Resource Name or #: P-31-002684 (UPDATE)

B1. Historic Name: N/A
B2. Common Name: N/A
B3. Original Use: farmstead
B4. Present Use: farmstead
* B5. Architectural Style: minimal traditional
* B6. Construction History:
The house was built after World War II but before 1953, likely around 1950. Alterations include replacement of most original casement windows with modern windows, placement of a garden window on the rear, creation of a large garage addition to the west. Dates of alterations are unknown.

* B7. Moved? ☑ No ☐ Yes ☐ Unknown Date: Original Location:
* B8. Related Features:

B9a. Architect: unknown
B9b. Builder:
* B10. Significance: Theme: Residential
Area: Sacramento County
Period of Significance: N/A
Property Type: N/A
Applicable Criteria: N/A
This house was built during a time of great expansion in Sacramento County following World War II. It is simplistic in design with few architectural embellishments. The Minimal Traditional style was very popular in the area immediately following World War II and numerous examples exist in the county. This house is not architecturally exceptional or unique and has compromised integrity due to replacement of windows and a major addition. It does not appear eligible under National Register or California Register criterion C. It is not associated with an important event or person in Sacramento County and does not meet criteria A or B. As such it does not appear eligible for inclusion in the National Register of Historic Places and is not considered an historic resource for the purposes of the California Environmental Quality Act.

B11. Additional Resource Attributes: none
* B12. References:
United States Geological Survey

1953 Pleasant Grove Topographic Quadrangle Map, 7.5 minute series. United States Printing Office, Washington D.C.

B13. Remarks:
None

* B14. Evaluator: Mary L. Maniery

* Date of Evaluation: 6-21-2007

(This space reserved for official comments.)

View southwest of rear of house with porch, June 21, 2007 006.jpg

View west of east and north façade, garage addition, June 21, 2007, 007.jpg

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

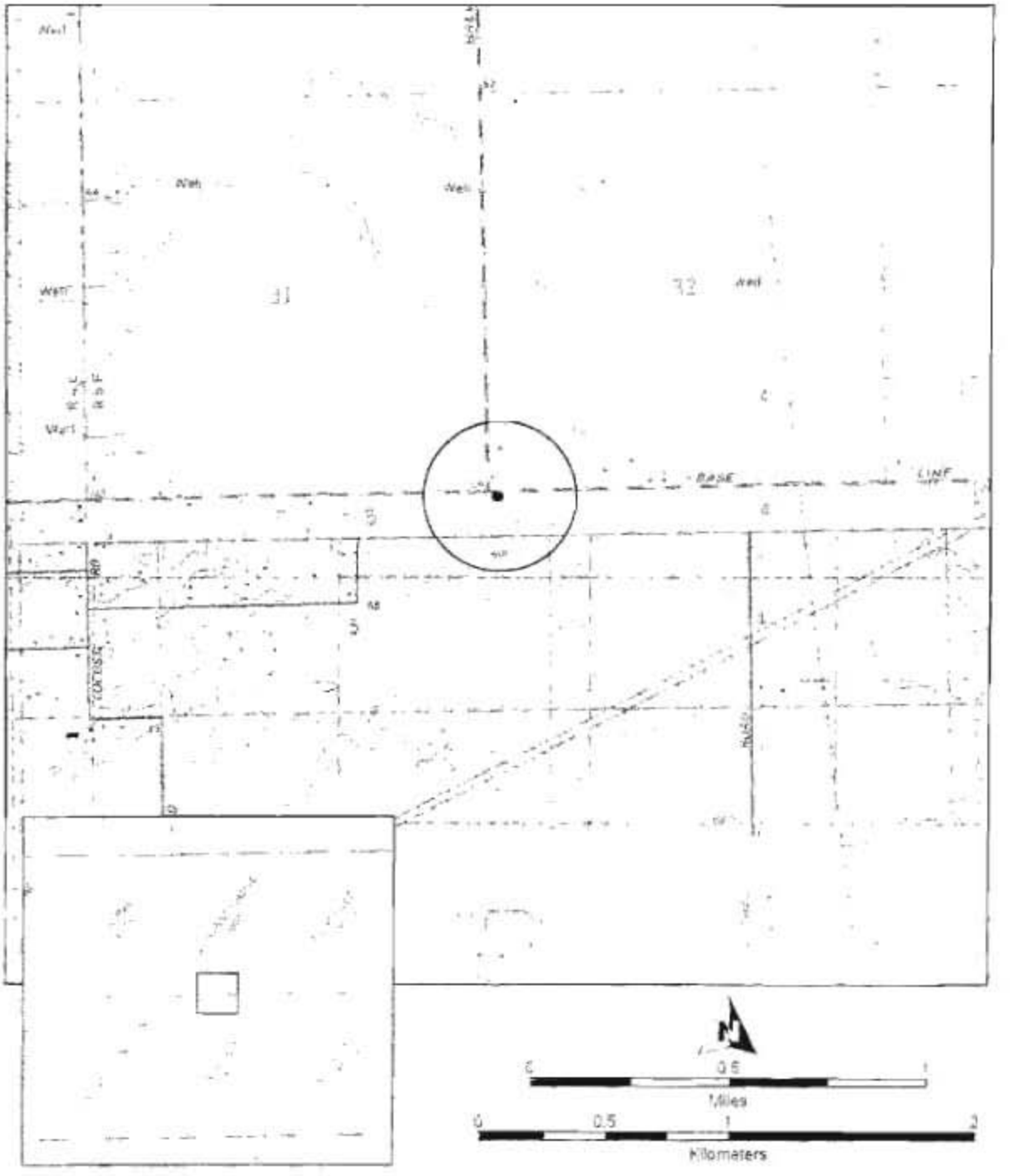
LOCATION MAP

Primary # P-31-002684 (UPDATE)
HRI #
Trinomial

*Resource Name or #: P-31-002684 (UPDATE)

*Map Name:

*Year:



Key to USGS 7.5' quads depicted

SCALE 1:24 000

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-31-2684
HRI #
Trinomial
NRHP Status Code 7
Other Listings
Review Code Reviewer Date

*Resource Name or # (Assigned by recorder) REF 32-H

P1. Other Identifier: 9110 Baseline Road

*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County Placer
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Pleasant Grove Date 1953 T___; R ___; __ ¼ of Sec ___; _____ B.M.

c. Address *9110 Baseline Road City_____ Zip _____

d. UTM: (give more than one for large and/or linear resources) Zone _____; _____mE/ _____mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
APN: 017-140-001

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This house is located at the northeast intersection of Brewer and Baseline Roads and sits on a 78 acre parcel. The Minimal Traditional house is one story in height and irregular in plan. It sits on a concrete foundation and is clad with wood board and batten siding and a brick skirt. Fenestration in the building consists of aluminum sliders and the main entry is a set of wood panel doors flanked by sidelites. The entry is covered by a roof overhang. The house is covered with a hip on hip roof sheathed in composition shingles with a central block chimney centrally located on the ridge. Located on the west side is an attached concrete block garage. It is covered with a hip composition shingle roof with a two aluminum garage doors.

*P3b. Resource Attributes: (List attributes and codes) HP2 Single family residence

*P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo. (View, date, accession #) Photograph # 1, camera facing northwest, April 8, 2002

*P6. Date Constructed/Age and Sources:
☒ Historic ☐ Prehistoric ☐ Both
circa 1950s, USGS quad map

*P7. Owner and Address:
Brewer Road Partners
3131 American River Dr
Sacramento, CA 95864

*P8. Recorded by: (Name, affiliation, address)
Amanda Blosser and Andy Walters
JRP Historical Consulting Services,
1490 Drew Ave, Suite 110, Davis,
CA 95616

*P9. Date Recorded: April 8, 2002

*P10. Survey Type: (Describe) Intensive

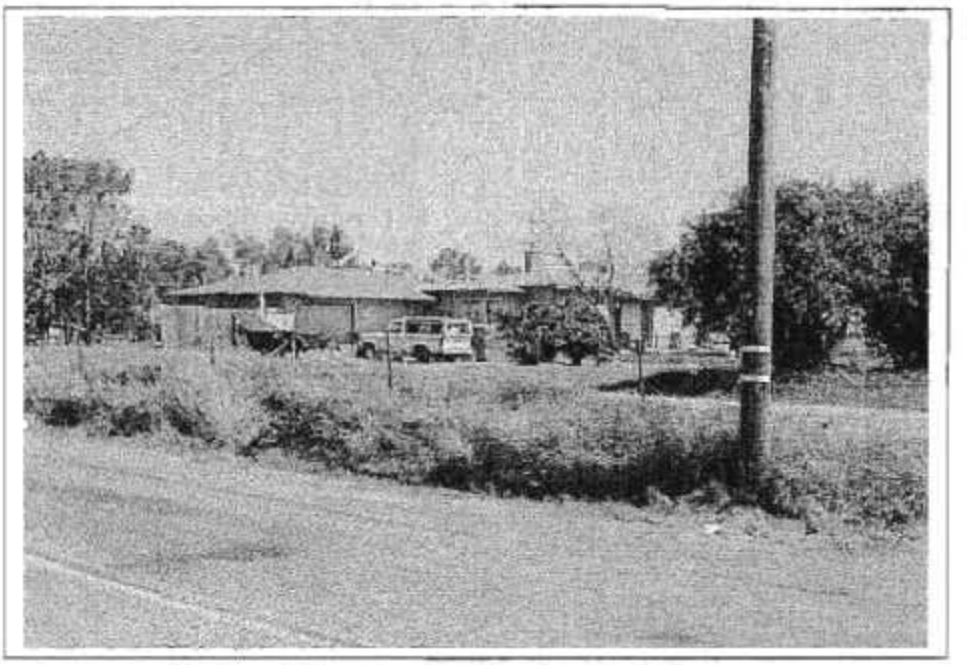
*P11. Report Citation: (Cite survey report and other sources, or enter "none.") JRP Historical Consulting Services, AFC Enron Roseville Energy Facility, Yolo, Sacramento, Placer and Sutter Counties, June 2002

*Attachments: NONE ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☐ Building, Structure, and Object Record ☐ Archaeological Record
☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record
☐ Other (list) _____

7130

*Required Information

Photographs



Photograph 2,.Side view showing attached garage, camera facing northeast, April 8, 2002

Location Map

North Central Information Center Report Detail Record: 7130

Citation Information

Authors: Hatoff, Brian
R. Egherman
Year: 2002
Title: Roseville Energy Facility Cultural Resources
Affiliation: URS
Client: California Energy Commission
No. Pages: 200
Report Type(s): Archaeological survey
Inventory Size: Linear
No.Sites: 23
No. Informat
Collections:
Disclosure: Not for publication

Associated Resources

Primary No.	HRI No.	Trinomial	Name
P-31-000816		CA-PLA-690H	Union Pacific Railroad
P-31-000964		CA-PLA-841H	Southern Pacific Railroad (now known as th
P-31-002679		CA-PLA-1883	
P-31-002682			
P-31-002683			
P-31-002684			
P-31-002685			
P-31-002686			
P-31-002687			
P-34-000440		CA-SAC-413/H	Baldwin Reservoir Main ditch, FAS-86-4
P-34-000455		CA-SAC-428	Sacramento Valley Railroad
P-34-000490		CA-SAC-463H	WAPA 11, 14
P-34-000491		CA-SAC-464H	Western Pacific Railroad
P-34-000507		CA-SAC-480	Southern Pacific Railroad (now known as th
P-34-000508		CA-SAC-481	American River Levee
P-34-000606		CA-SAC-506H	Central California Traction Railroad
P-34-000698		CA-SAC-543H	CRU-93-Sac-19H
P-34-000746		CA-SAC-571H	Sacramento Northern Railroad Embankmen
P-34-001550		CA-SAC-936	REF 1
P-34-001551			REF 2
P-34-001552			REF 19-H
P-34-001666			Elverta Switching Station

Notes

Location Info

County(ies): Placer
Sacramento
USGS 7.5' Quads: FOLSOM
PLEASANT GROVE
RIO LINDA
ROSEVILLE
SACRAMENTO EAST
TAYLOR MONUMENT
CITRUS HTS
CARMICHAEL
PLSS:
Address:

North Central Information Center Report Detail Record: 7130

Database Record Metadata

	Date	User	
Entered:	6/16/2006	Maya Benelli	
Last Modified:	10/31/2008	erin	
IC Actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database
	8/18/2008	Machiel	Survey plotted in GIS

North Central Information Center Report Detail Record: 8967

Citation Information

Authors: Sharon A. Waechter
Stephen Wee
Cynthia Tolfelmier

Year: 2007

Title: Cultural Resources Inventory for the Sacramento River Water Reliability Study, Sacramento and Placer Counties, California

Affiliation: Far Western Anthropological Research Group, Inc.

Client: U.S. Dept. of the Interior, Bureau of Reclamation

No. Pages:

Report Type(s): Archaeological survey
Historic survey

Inventory Size:

No Sites: 15

No. Informal:

Collections:

Disclosure:

Associated Resources

Primary No.	HRI No.	Trinomial	Name
P-31-000963		CA-PLA-840H	Caperton Canal
P-31-000964		CA-PLA-841H	Southern Pacific Railroad (now known as th
P-31-000967		CA-PLA-844/H	Antelope Canal
P-31-001136		CA-PLA-946H	Sacramento Northern Railroad
P-31-001240		CA-PLA-982H	Southern Pacific Railroad
P-31-001268		CA-PLA-1002H	Penryn Canal
P-31-001295		CA-PLA-1003H	Lincoln Highway; Victory Highway; Highway
P-31-003162			10240 Ophir Road
P-31-003276			JPL001, Lower Fiddler Green Canal/ Dutch
P-31-003277			Callison Road
P-34-000491		CA-SAC-464H	Western Pacific Railroad
P-34-000512		CA-SAC-485/H	AMR-5
P-34-000514		CA-SAC-487H	AMR-9
P-34-000515		CA-SAC-488H	AMR-10
P-34-000516		CA-SAC-489H	AMR-11

Notes

Location Info

County(ies): Placer
Sacramento

USGS 7.5' Quads: CITRUS HTS
GOLD HILL
PLEASANT GROVE
RIO LINDA
ROCKLIN
ROSEVILLE
TAYLOR MONUMENT

PLSS:

Address:

Database Record Metadata

	Date	User	
Entered:	11/5/2007	nathan	
Last Modified:	8/13/2008	Machiel	
IC Actions:	*Date*	*User*	*Action taken*
	8/13/2008	Machiel	Report previously plotted in GIS

North Central Information Center Report Detail Record: 9188

Citation Information

Authors: Wendy J. Nelson
Kimberley Carpenter
Year: 2002
Title: Cultural Resources Survey for Right-of-Way Maintenance Along the Western Area Power Administration Transmission Lines Volumes I, II, and II
Affiliation: Far Western Anthropological Group
Client: Tera Tech NUS, Inc
No. Pages:
Report Type(s): Archaeological survey
Inventory Size: apx 30 linear miles
No.Sites: 21
No. Informal: 0
Collections:
Disclosure: Not for publication

Associated Resources

Primary No.	HRI No.	Trinomial	Name
P-31-000816		CA-PLA-690H	Union Pacific Railroad
P-31-000964		CA-PLA-841H	Southern Pacific Railroad (now known as th
P-31-003280			WAPA Transmission Line
P-34-000066		CA-SAC-39	Woodlake Site
P-34-000121		CA-SAC-94	Allyn #3
P-34-000335		CA-SAC-308H	Folsom Mining District
P-34-000343		CA-SAC-316	
P-34-000441		CA-SAC-414	KC6
P-34-000445		CA-SAC-418H	NSL-S-2
P-34-000490		CA-SAC-463H	WAPA 11, 14
P-34-000491		CA-SAC-464H	Western Pacific Railroad
P-34-000505		CA-SAC-478H	LAR-13
P-34-000507		CA-SAC-480	Southern Pacific Railroad (now known as th
P-34-000508		CA-SAC-481	American River Levee
P-34-000606		CA-SAC-506H	Central California Traction Railroad
P-34-000625		CA-SAC-509	M 2
P-34-000746		CA-SAC-571H	Sacramento Northern Railroad Embankmen
P-34-000858		CA-SAC-657	WAPA-4
P-34-000860		CA-SAC-659H	WAPA-2
P-34-000861		CA-SAC-660	WAPA-1
P-34-000862		CA-SAC-661	WAPA-3

Notes

Location Info

County(ies): Other
Placer
Sacramento
USGS 7.5' Quads: CARMICHAEL
ELK GROVE
FOLSOM
GALT
LODI NORTH
PLEASANT GROVE
RIO LINDA
ROSEVILLE
SACRAMENTO EAST
ROCKLIN
PLSS:
Address:

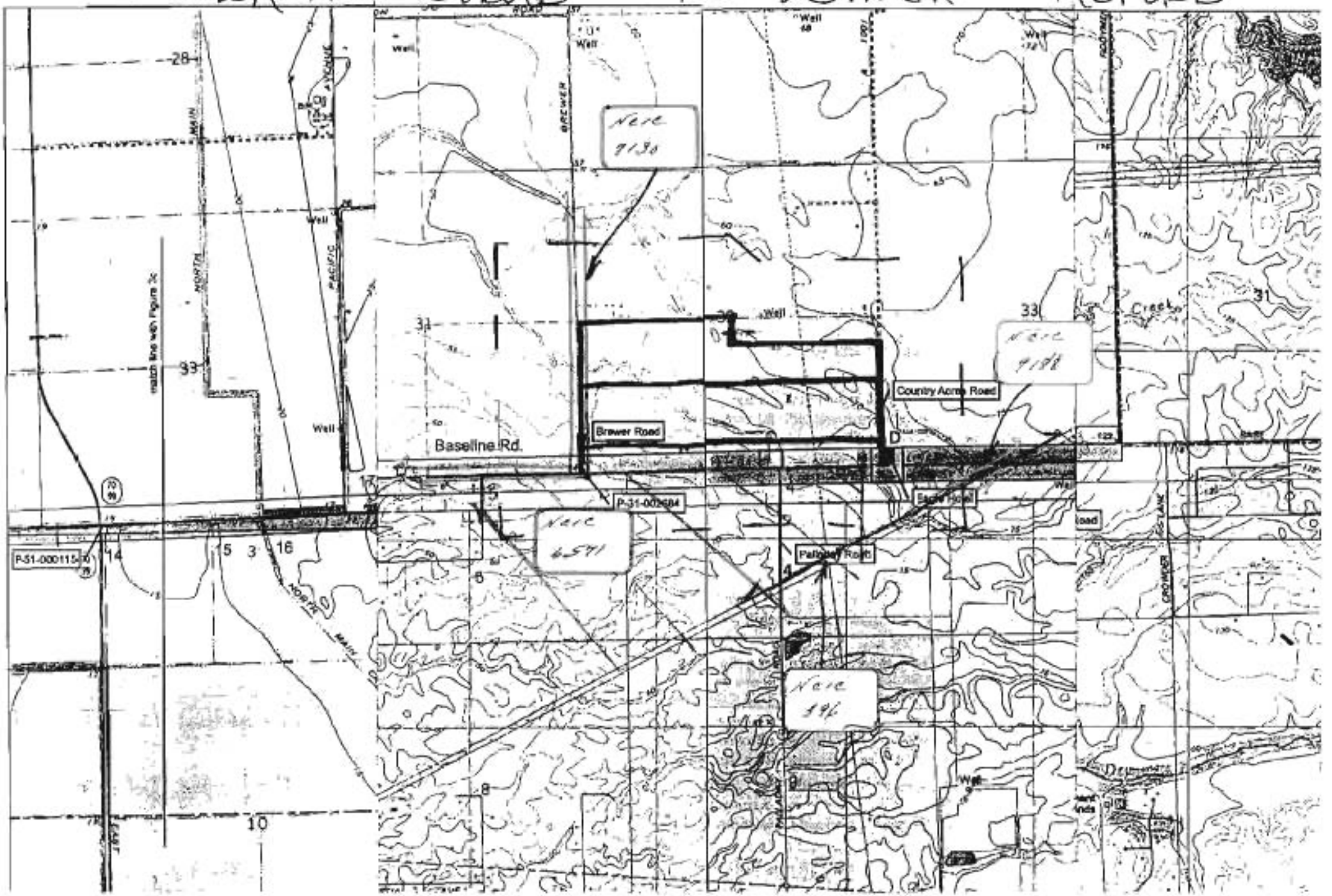
North Central Information Center Report Detail Record: 9188

Database Record Metadata

	Date	User	
Entered:	1/10/2008	erin	
Last Modified:	1/2/2009	kate	
IC Actions:	*Date*	*User*	*Action taken*
	8/20/2008	Machiel	Report previously plotted in GIS

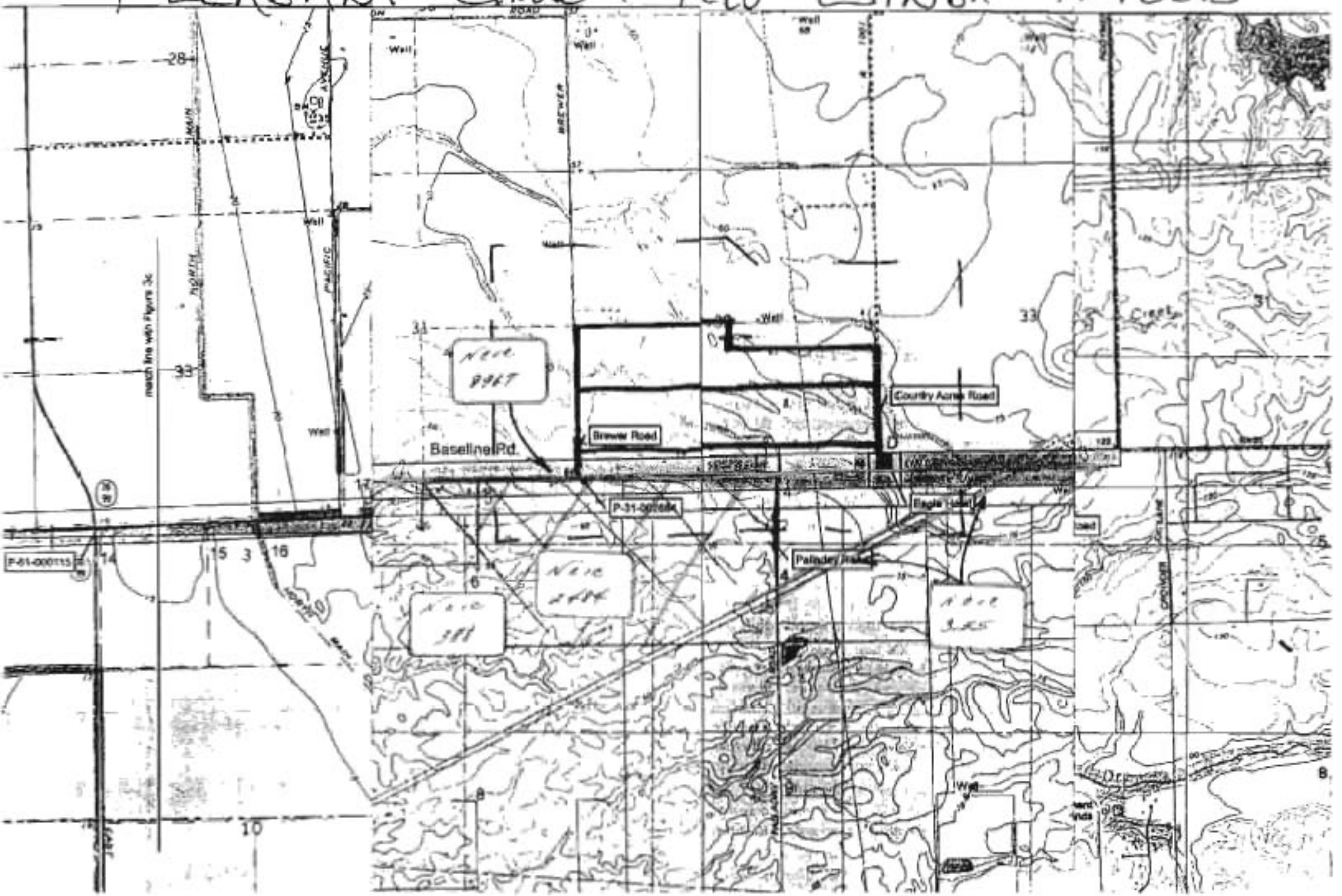
NCIC

PLEASANT GROVE + RIO LINDA REPORTS



NCIC

PLEASANT GROVE & RIO LINDA REPORTS



North Central Information Center Report Detail Record: 355

Citation Information

Authors: Mikkelsen, Pat

Year: 1986

Title: An Archeological Reconnaissance of a 14 Mile Long Transmission Line Corridor Between the Elverta Street Substation, Sacramento County, and the Berry Street Substation, Placer County, California.

Affiliation:

Client: U.S. Dept. of Energy, Western Area Power Administration, 1825 Bell Street, Suite 105, Sacramento, CA 95825.

No. Pages:

Report Type(s):

Inventory Size: 12 linear miles

No Sites:

No. Informal:

Collections:

Disclosure:

Associated Resources

Notes

Location Info

County(ies): Placer
Sacramento

USGS 7.5' Quads: PLEASANT GROVE
RIO LINDA
ROSEVILLE

PLSS: *Township/range*	*Sections*	*BL/M*	*or Land Grant*
T 10 N R 5 E	3	MDBM	
T 10 N R 5 E	3, 4, 7, 8, 9	MDBM	
T 11 N R 5 E	33-36	MDBM	
T 11 N R 5 E	36	MDBM	
T 11 N R 6 E	27, 28, 31-35	MDBM	

Address:

Database Record Metadata

	Date	*User*	
Entered:	8/22/2000	Erin Snyder	
Last Modified:			
IC Actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database

North Central Information Center Report Detail Record: 388

Citation Information

Authors: Foster, John W.
Daniel G. Foster
Year: 1988
Title: Archeological Survey and Assessment of the Willowbrook Ranch, Placer County, California.
Affiliation:
Client: R.C. Fuller Associates, 5908 Fair Oaks Blvd., Carmichael, CA 95608.
No. Pages:
Report Type(s):
Inventory Size: 815 acres
No.Sites:
No. Informal:
Collections:
Disclosure:

Associated Resources

Notes

Location Info

County(ies): Placer
USGS 7.5' Quads: PLEASANT GROVE
SACRAMENTO EAST

PLSS:	*Township/range*	*Sections*	*BL/M*	*or Land Grant*
	T 10 N R 5 E	4, 5	MDBM	
	T 10 N R 5 E	4, 5, 8, 9	MDBM	

Address:

Database Record Metadata

	Date	*User*	
Entered:	8/23/2000	Erin Snyder	
Last Modified:	10/17/2008	aisha	
IC Actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database

North Central Information Center Report Detail Record: 396

Citation Information

Authors: Peak, Ann S. and Associates, Inc.

Year: 1979

Title: Cultural Resource Assessment of Sacramento Municipal Utility District's Project C, Phase I, 230kV Tansmission Line, Tower No. 355, Placer County to Elverta Substation, Sacramento County, California.

Affiliation:

Client: Unknown

No. Pages:

Report Type(s):

Inventory Size: Linear, approx. 11.75 miles

No.Sites:

No. Informal:

Collections:

Disclosure:

Associated Resources

Notes

Location Info

County(ies): Placer
Sacramento

USGS 7.5' Quads: PLEASANT GROVE
RIO LINDA
ROSEVILLE

PLSS: *Township/range*	*Sections*	*BL/M*	*or Land Grant*
T 10 N R 5 E	3	MDBM	
T 10 N R 5 E	3, 4, 7, 8, 9	MDBM	
T 10 N R 5 E	7, 18	MDBM	
T 11 N R 5 E	33, 34, 35, 36	MDBM	
T 11 N R 5 E	36	MDBM	
T 11 N R 6 E	26, 27, 28, 31, 32, 33	MDBM	

Address:

Database Record Metadata

	Date	*User*	
Entered:	8/23/2000	Erin Snyder	
Last Modified:			
IC Actions:	*Date*	*User*	*Action taken*
	11/8/2006	jay	Added records from old Library database

North Central Information Center Report Detail Record: 2484

Citation Information

Authors: Windmiller, Ric
Dan Osanna
Donald Napoli

Year: 2000

Title: Phase I Inventory and Overview of Cultural Resources, Placer Vineyards Specific Plan, Placer County, California.

Affiliation:

Client: Quad Knopf, One Sierragate Plaza, Suite 270 C, Roseville, CA 95678.

No. Pages:

Report Type(s): Regional overview

Inventory Size: 5012 acres

No.Sites:

No. Informal:

Collections:

Disclosure:

Associated Resources

Primary No.	*HRI No.*	*Trinomial*	*Name*
P-31-001134		CA-PLA-944H	
P-31-001135		CA-PLA-945H	
P-31-001136		CA-PLA-946H	Sacramento Northern Railroad
P-31-001137			
P-31-001138		CA-PLA-947H	
P-31-001139		CA-PLA-948	

Notes

Overview

Location Info

County(ies): Placer

USGS 7.5' Quads: CITRUS HTS
PLEASANT GROVE
RIO LINDA

PLSS:

Township/range	*Sections*	*BL/M*	*or Land Grant*
T 10N R 4E	6	MDBM	
T 10N R 5E	1-12	MDBM	
T 10N R 6E	6, 7	MDBM	

Address:

Database Record Metadata

	Date	*User*
Entered:	1/17/2001	Erin Snyder
Last Modified:	11/12/2008	Monica

IC Actions:

Date	*User*	*Action taken*
11/8/2006	jay	Added records from old Library database

North Central Information Center Report Detail Record: 6571

Citation Information

Authors: Windmiller, Ric
Year: 2005
Title: Placer Vineyards Specific Plan: Updated Cultural resources Study Placer County, California (See report 2484 for initial report)
Affiliation:
Client: Quad Knopf Suite 270C One Sierragate Plaza Roseville, CA 95678
No. Pages:
Report Type(s):
Inventory Size: 5.012 acres
No Sites:
No. Informal:
Collections:
Disclosure:

Associated Resources

Primary No.	HRI No.	Trinomial	Name
P-31-002604			
P-31-002605			
P-31-002606			
P-31-002607			
P-31-002608		CA-PLA-1849H	
P-31-002609			
P-31-002610			

Notes

Location Info

County(ies): Placer
USGS 7.5' Quads: CITRUS HTS
PLEASANT GROVE
RIO LINDA
ROSEVILLE

PLSS: Township/range	Sections	BL/M	or Land Grant
T 10 N R 5 E	1, 12	MDBM	
T 10 N R 5 E	1, 2, 3, 4, 5	MDBM	
T 10 N R 5 E	1-12	MDBM	
T 10 N R 6 E	6	MDBM	
T 10 N R 6 E	6, 7	MDBM	

Address:

Database Record Metadata

	Date	User
Entered:	11/7/2005	Blythe Wilson
Last Modified:		

IC Actions: Date	User	Action taken
11/8/2006	jay	Added records from old Library database

#355

An Archaeological Reconnaissance of a 14 Mile Long Transmission Line Corridor between the Elverta Street Substation, Sacramento County, and the Berry Street Substation, Placer County, California

By

Pat Mikkelsen, M.A.
Far Western Anthropological Research Group

APR 19 1986
CALIFORNIA ARCHAEOLOGICAL SITES SURVEY

Prepared for
United States Department of Energy
Western Area Power Administration
1825 Bell Street, Suite 105
Sacramento, California 95825

Purchase Order No. 6-11-N1-54811

January 1986

#388

AN ARCHAEOLOGICAL SURVEY AND ASSESSMENT OF THE WILLOWBROOK RANCH PLACER COUNTY, CALIFORNIA

by

John W. Foster

and

Daniel G. Foster

of

Foothill Archaeological Services
8426 Hidden Valley Circle
Fair Oaks, California 95628
(916) 967-6607

for

R.C. Fuller Associates
5908 Fair Oaks Boulevard
Carmichael, California 95608

February 2, 1988

RECEIVED BY:
DATE MAR 22 1988
CENTER
CALIFORNIA ARCHAEOLOGICAL INVENTORY

#396

Cultural Resource Assessment of Sacramento Municipal Utility District's Project C, Phase I 230kV Transmission Line, Tower No. 355, Placer County to Elverta Substation, Sacramento County, California

Performed under
Contract No. 7150

By:

Ann S. Peak & Associates
Consulting Archeology
8167 A Belvedere Avenue
Sacramento, California 95826
(916) 452-4435

September 14, 1979

PLA-99-103

#24484

Phase I Inventory and Overview of Cultural Resources Placer Vineyards Specific Plan Placer County, California

Pleasant Grove and Roseville, Calif. 7.5' Quadrangles
Sections 1-14, T.10N, R.5E
Sections 6 & 7, T.10N, R.6E of the Mt. Diablo Meridian
5,012 Acres

Citrus Heights 7.5' T10N R5E Sec 1, 12 T10N R6E Sec 6, 7
Pleasant Grove 7.5' T10N R4E Sec 6 T10N R5E Sec 1-6
Rio Linda 7.5' T10N R5E Sec 1-12
Roseville 7.5' T10N R5E Sec 6 T10N R6E Sec 6

Ric Windmiller, M.A., R.P.A.
Dan Osanna, M.A.
Donald S. Napoli, Ph.D.

Ric Windmiller
Consulting Archaeologist
9145 Elk Grove Boulevard
Elk Grove, California 95624
(916) 685-9205
fax: (916) 685-2342

RECEIVED BY:

Prepared for:

Quad Knopf
One Sierragate Plaza, Suite 270C
Roseville, California 95678

November, 2000

6571

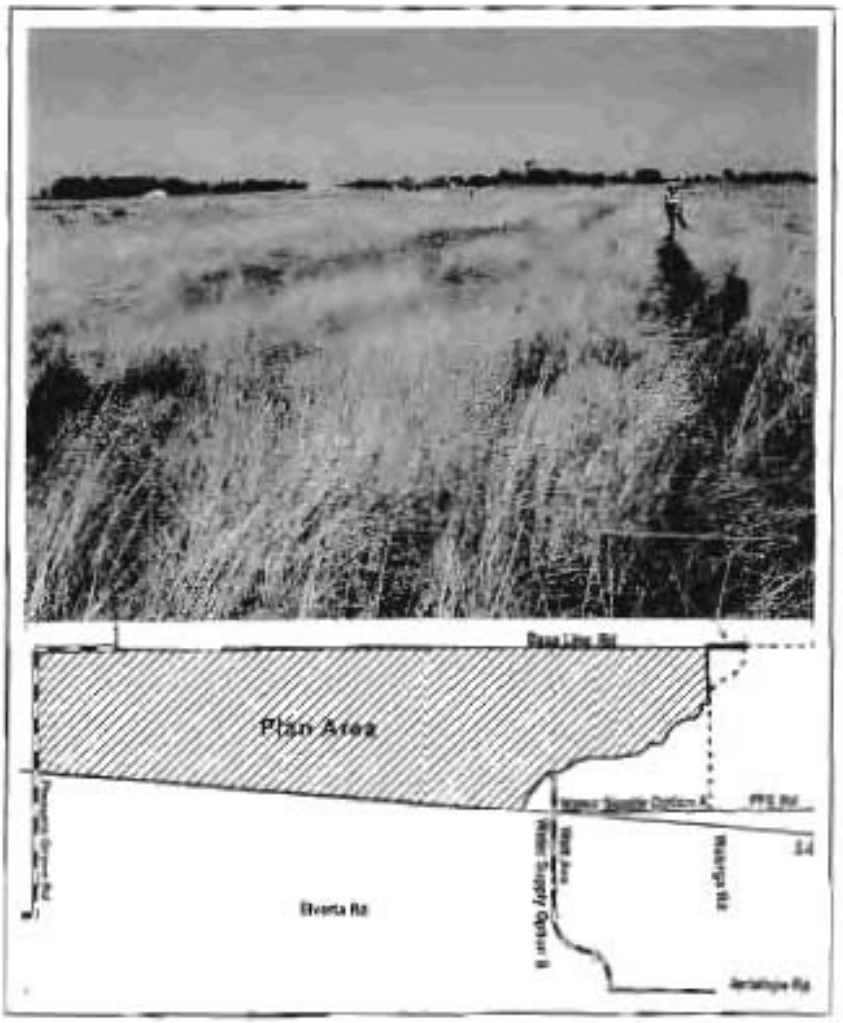
Pleasant Grove
Roseville
PLA-05-124

PLACER VINEYARDS SPECIFIC PLAN

Updated Cultural Resources Study

Placer County, California

Secs. 1-14, T.10N, R. 5E MDM
Secs. 6&7, R. 10N, R6E MDM
Pleasant Grove & Roseville 7.5' USGS Quadrangle
Approximately 5,012 Acres
Plus Off-Site Road Widening & Utilities Routes



Prepared By
Ric Windmiller, R.P.A.
Donald S. Napoli, Ph.D.
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Carol Roland, Ph.D.

Ric Windmiller
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9145 Elk Grove Boulevard
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Prepared For
Quad Knopf
Suite 270C
One Sierragate Plaza
Roseville, CA 95678

September, 2005

DEC 3 | 2005

TECHNICAL REP

#7130

PLEASANT GROVE -PLA
ROSEVILLE - PLA
PLEASANT GROVE -SAC
ROSEVILLE - SAC
FOLSOM -SAC
TAYLOR MONUMENT _ SAC
VERONA _ SAC
RIO LINDA - SAC
ELK GROVE _ SAC

ROSEVILLE ENERGY FACILITY

PLA-02-26
SAC-02-39

CULTURAL RESOURCES

APPENDIX J-1
OF APPLICATION FOR CERTIFICATION

CONFIDENTIAL: NOT FOR PUBLIC DISTRIBUTION

Prepared by

R. Egherman

B. Hatoff

Prepared for

California Energy Commission
Sacramento, California

June, 2002

7130

URS

500 12th Street, Suite 200
Oakland, CA 94607

SEP - 5 2002

66-00000089.01

#8967

Cultural Resources Inventory for the Sacramento River Water Reliability Study, Sacramento and Placer Counties, California

By:
Sharon A. Waechter
Far Western Anthropological Research Group, Inc.
and
Stephen Wee
Cynthia Toffelmier
JRP Historical Consulting

June 2007

Prepared for:

US Department of the Interior
Bureau of Reclamation
Sacramento, California

and

Placer County Water Agency
Auburn, California

Submitted to:

MWH Americas, Inc.
3321 Power Inn Road, Suite 300
Sacramento, CA 95826

FAR WESTERN ANTHROPOLOGICAL RESEARCH GROUP, INC.
2727 Del Rio Place, Suite A, Davis, California, 95618
http://www.farwestern.com 530-756-3941

OCT 3 0 2007

8967

#9188

Rancho Cordova
Pleasant Grove
Rio Linda
Sheldon
Nicholaus
Sutter County
Elk Grove
SPK East
Carmichael
Elk Grove
Grant
Lodi North
Rocklin

CULTURAL RESOURCES SURVEY FOR RIGHT-OF-WAY MAINTENANCE ALONG THE WESTERN AREA POWER ADMINISTRATION TRANSMISSION LINES IN SACRAMENTO, PLACER, AND SUTTER COUNTIES, CALIFORNIA

VOLUME I: ARCHAEOLOGICAL SURVEY REPORT

Prepared by

Wendy J. Nelson and Kimberley Carpenter

Far Western Anthropological Research Group, Inc.

Graphics by

Tammara Norton and Larry Chiea

Submitted by

Far Western Anthropological Research Group, Inc.
P.O. Box 413, Davis, California, 95617

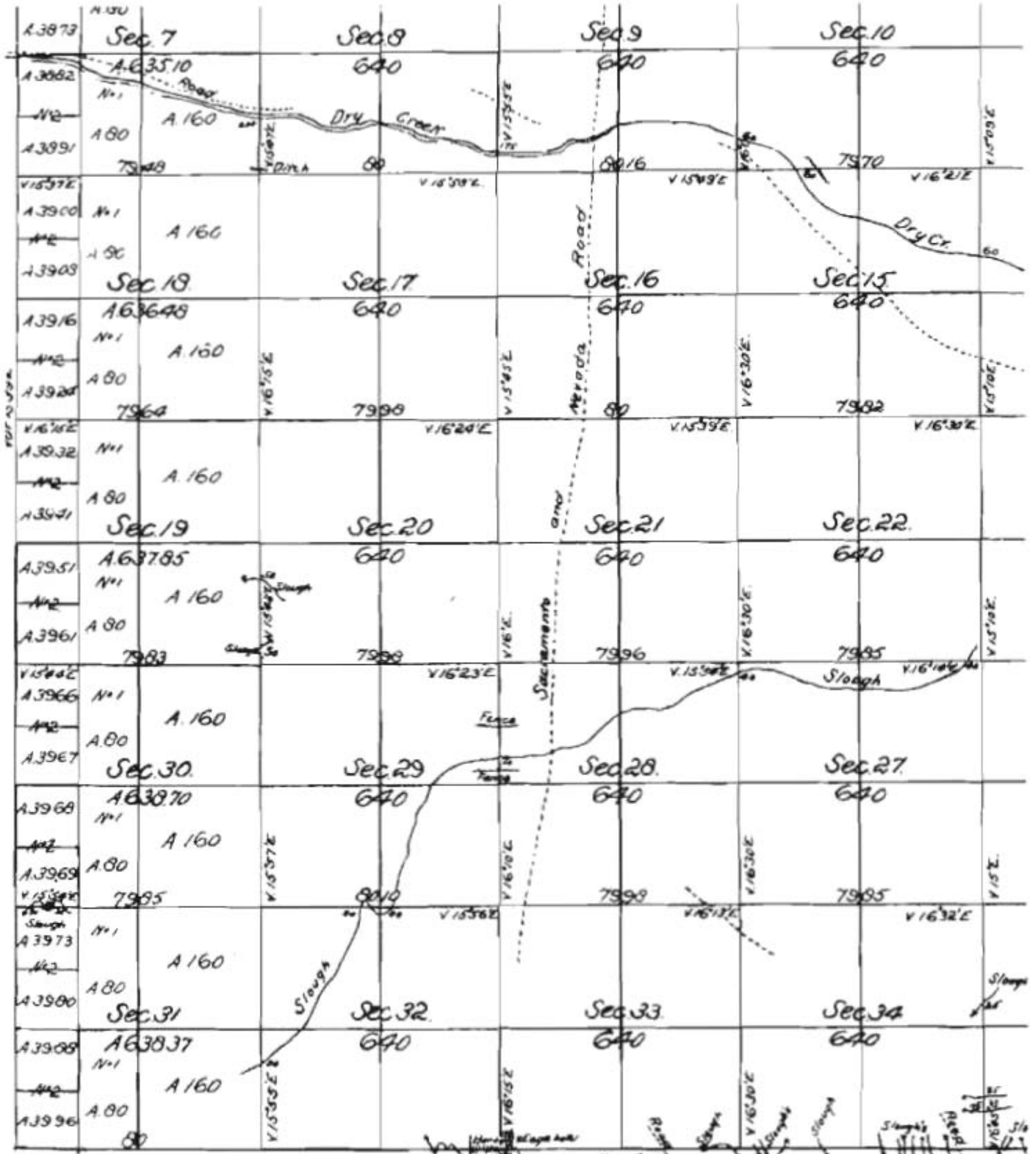
Prepared for

Tetra Tech NUS, Inc
Contract Number GCNH-01-77613-042

DRAFT FINAL
May 10, 2002

NOV 2 6 2006

9188



GLO 1855 PLAT

T 11 N R 4 E

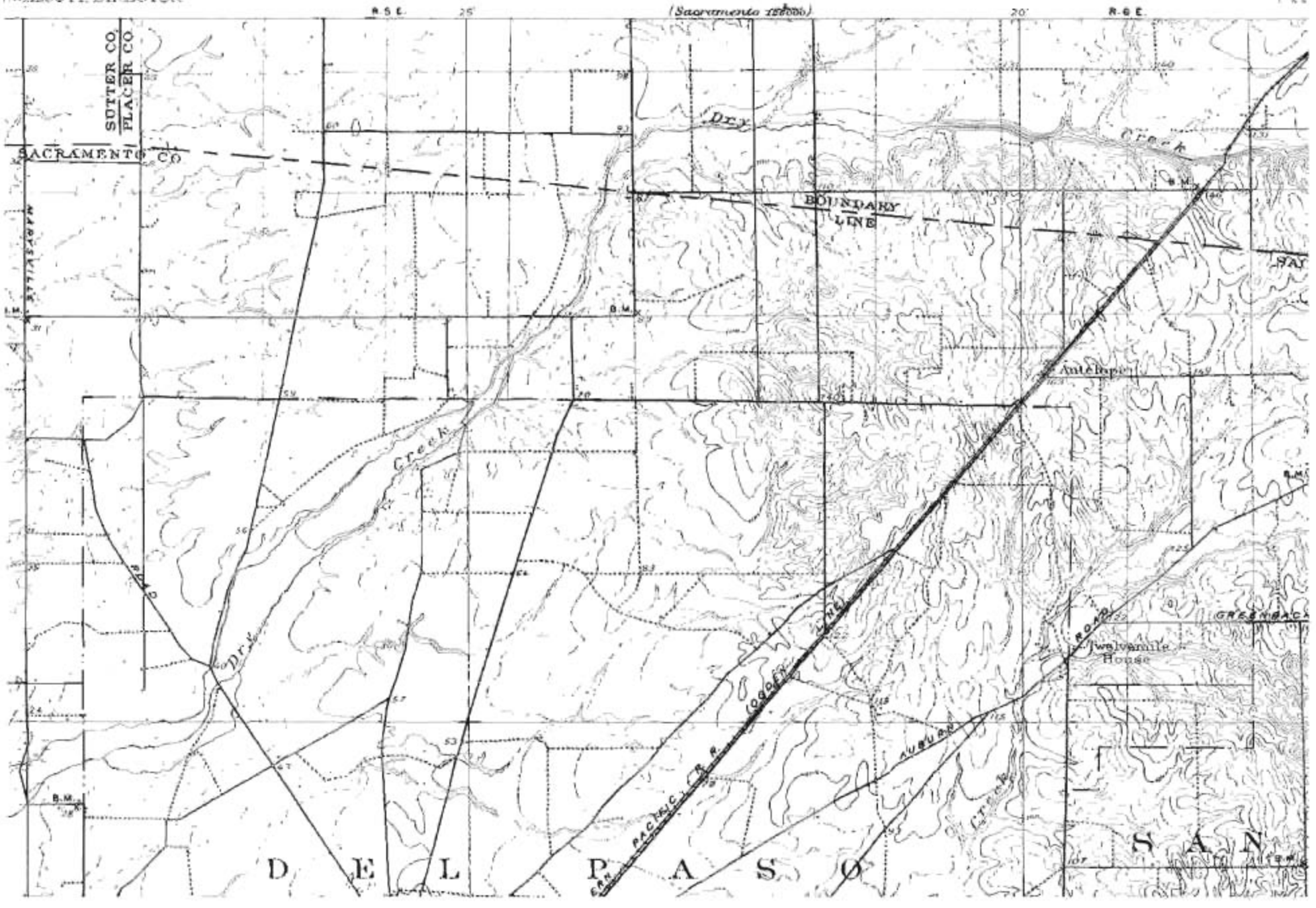
Surveys Designated	By Whom Surveyed	Date of Contract	Amount of Surveys Miles	Chs	Lks	When Surveyed
West boundary of Township South " " " resurveyed and not changed	R.C. Matthewson.	May 4th 1854	6	00	00	1854
	E.D. Richardson.	July 10th 1854	6	00	00	1855

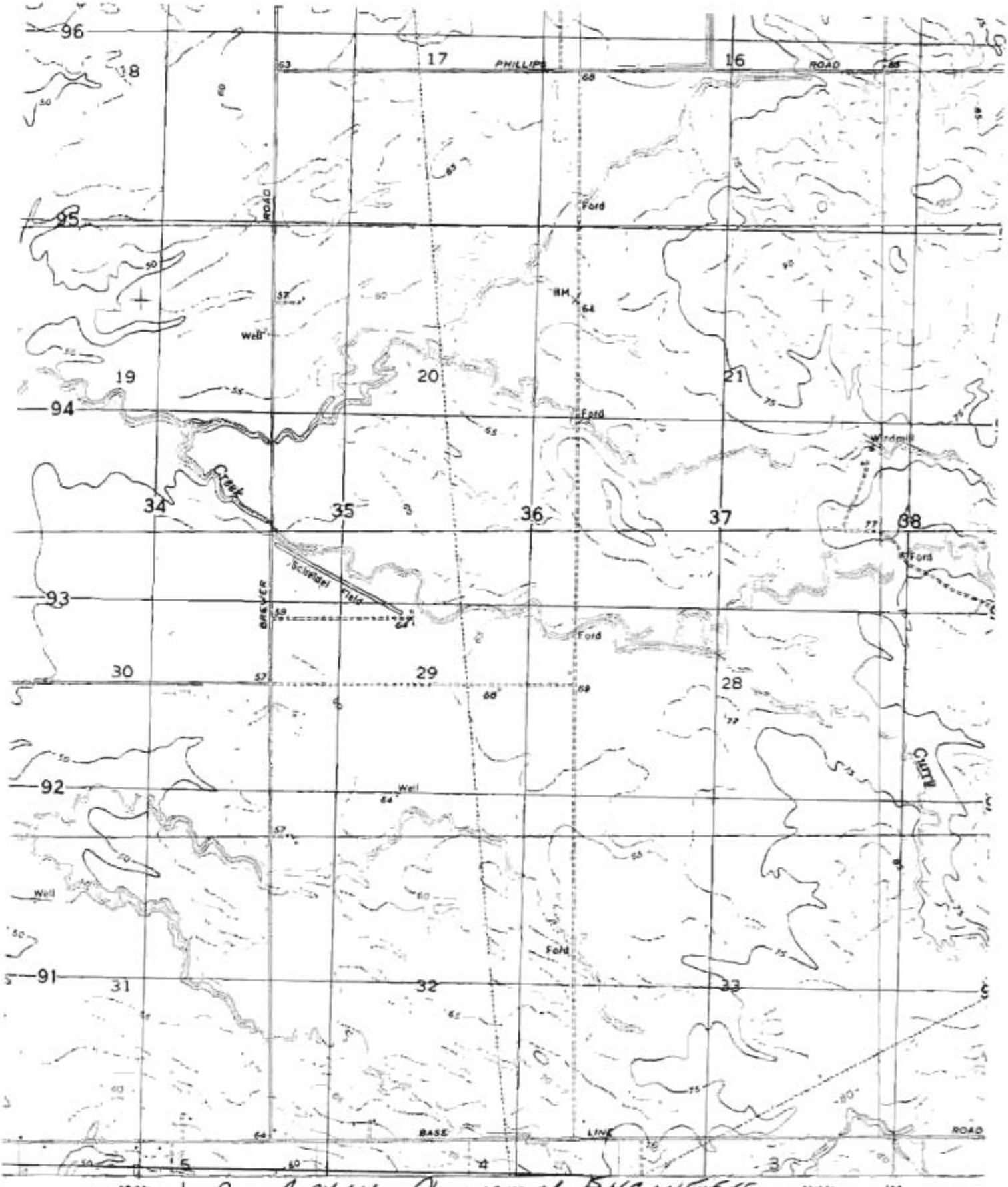
USGS 1901 FAIR OAKS QUAD

LOGICAL SURVEY
WALCOTT, DIRECTOR

TOPOGRAPHY

PA





US Army Corps of Engineers
Pleasant Grove Street

California Historical Resource Status Codes

1 Properties listed in the National Register (NR) or the California Register (CR)

1D Contributor to a district or multiple resource property listed in NR by the Keeper. Listed in the CR.
1S Individual property listed in NR by the Keeper. Listed in the CR.

1CD Listed in the CR as a contributor to a district or multiple resource property by the SHRC
1CS Listed in the CR as individual property by the SHRC.
1CL Automatically listed in the California Register – Includes State Historical Landmarks 770 and above and Points of Historical Interest nominated after December 1997 and recommended for listing by the SHRC.

2 Properties determined eligible for listing in the National Register (NR) or the California Register (CR)

2B Determined eligible for NR as an individual property and as a contributor to an eligible district in a federal regulatory process. Listed in the CR.
2D Contributor to a district determined eligible for NR by the Keeper. Listed in the CR.
2D2 Contributor to a district determined eligible for NR by consensus through Section 106 process. Listed in the CR.
2D3 Contributor to a district determined eligible for NR by Part I Tax Certification. Listed in the CR.
2D4 Contributor to a district determined eligible for NR pursuant to Section 106 without review by SHPO. Listed in the CR.
2S Individual property determined eligible for NR by the Keeper. Listed in the CR.
2S2 Individual property determined eligible for NR by a consensus through Section 106 process. Listed in the CR.
2S3 Individual property determined eligible for NR by Part I Tax Certification. Listed in the CR.
2S4 Individual property determined eligible for NR pursuant to Section 106 without review by SHPO. Listed in the CR.

2CB Determined eligible for CR as an individual property and as a contributor to an eligible district by the SHRC.
2CD Contributor to a district determined eligible for listing in the CR by the SHRC.
2CS Individual property determined eligible for listing in the CR by the SHRC.

3 Appears eligible for National Register (NR) or California Register (CR) through Survey Evaluation

3B Appears eligible for NR both individually and as a contributor to a NR eligible district through survey evaluation.
3D Appears eligible for NR as a contributor to a NR eligible district through survey evaluation.
3S Appears eligible for NR as an individual property through survey evaluation.

3CB Appears eligible for CR both individually and as a contributor to a CR eligible district through a survey evaluation.
3CD Appears eligible for CR as a contributor to a CR eligible district through a survey evaluation.
3CS Appears eligible for CR as an individual property through survey evaluation.

4 Appears eligible for National Register (NR) or California Register (CR) through other evaluation

4CM Master List - State Owned Properties – PRC §5024.

5 Properties Recognized as Historically Significant by Local Government

5D1 Contributor to a district that is listed or designated locally.
5D2 Contributor to a district that is eligible for local listing or designation.
5D3 Appears to be a contributor to a district that appears eligible for local listing or designation through survey evaluation.

5S1 Individual property that is listed or designated locally.
5S2 Individual property that is eligible for local listing or designation.
5S3 Appears to be individually eligible for local listing or designation through survey evaluation.

5B Locally significant both individually (listed, eligible, or appears eligible) and as a contributor to a district that is locally listed, designated, determined eligible or appears eligible through survey evaluation.

6 Not Eligible for Listing or Designation as specified

6C Determined ineligible for or removed from California Register by SHRC.
6J Landmarks or Points of Interest found ineligible for designation by SHRC.
6L Determined ineligible for local listing or designation through local government review process; may warrant special consideration in local planning.
6T Determined ineligible for NR through Part I Tax Certification process.
6U Determined ineligible for NR pursuant to Section 106 without review by SHPO.
6W Removed from NR by the Keeper.
6X Determined ineligible for the NR by SHRC or Keeper.
6Y Determined ineligible for NR by consensus through Section 106 process – Not evaluated for CR or Local Listing.
6Z Found ineligible for NR, CR or Local designation through survey evaluation.

7 Not Evaluated for National Register (NR) or California Register (CR) or Needs Revaluation

7J Received by OHP for evaluation or action but not yet evaluated.
7K Resubmitted to OHP for action but not reevaluated.
7L State Historical Landmarks 1-769 and Points of Historical Interest designated prior to January 1998 – Needs to be reevaluated using current standards.
7M Submitted to OHP but not evaluated - referred to NPS.
7N Needs to be reevaluated (Formerly NR Status Code 4)
7N1 Needs to be reevaluated (Formerly NR SC4) – may become eligible for NR w/restoration or when meets other specific conditions.
7R Identified in Reconnaissance Level Survey: Not evaluated.
7W Submitted to OHP for action – withdrawn.

SITE-NUMBER. PRIMARY-NUM	NRS	EVL-DATE	PROGRAM REF.....	EVAL	OTHER NAMES AND NUMBERS.....
PLA-000037/H	1S	01/08/73	73000420	KPNP	JOHNSON STRAP RAVINE NISENAN MAIDU INDIAN SITE TEMPORARY SITE 50 1975 SURVEY
PLA-000038/H	1S	01/08/73	73000420	KPNP	STRAP RAVINE NISENAN MAIDU INDIAN SITE TEMP.SITE 16 & 17, 1975 SURVEY
PLA-000079	6Y	07/20/88	FHWA880623A		31-157
PLA-000101H	6Y	05/03/99	ADOE-31-99-013-000	SGPR	31-101
	5Y	05/03/99	COE990415A	SGPR	
PLA-000139	6Y	10/15/96	COE960911B	GRPR	RVA-A-1
PLA-000142	6Y	10/10/00	ADOE-31-00-002-000	CCPR	
	6Y	10/10/00	FHWA000908C	CCPR	
PLA-000205	6Y	10/10/00	ADOE-31-00-001-00	CCPR	5121
	6Y	10/10/00	FHWA000908C	CCPR	
PLA-000222H	6Y	08/24/00	ADOE-31-00-004-000	JWPR	
	6Y	08/24/00	USFS000731E	JWPR	
	6Y	01/10/94	RTC931230A	HKPR	
PLA-000223H	6Y	01/10/94	RTC931230A	HKPR	
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PLA-000395	2S2	10/06/97	ADOE-31-97-033-00	SGPR	FS# 05-17-57-0154
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PLA-000510H	6Y	05/03/99	ADOE-31-99-010-000	SGPR	
	6Y	05/03/99	COE990415A	SGPR	
PLA-000515	6Y	10/25/96	COE961004A	SGPR	
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PLA-000593	6Y	04/26/95	COE940721C	GRPR	
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SITE-NUMBER	PRIMARY-NUM	NRS	EVL-DATE	PROGRAM REF.....	EVAL	OTHER NAMES AND NUMBERS.....
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PLA-000736		6Y	01/22/92	USFS911220A	DRPR	
PLA-000784		6Y	08/31/94	USFS940809A	NDPR	31-000910
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PLA-000809		6Y	02/13/96	COE960129A	SGPR	
PLA-000810/H		6Y	02/13/96	COE960129A	SGPR	
PLA-000813		6Y	12/16/96	COE960930A	SGPR	
PLA-000816		2S2	12/16/96	COE960930A	SGPR	
PLA-000818		6Y	01/26/00	ADOE-31-00-[illegible]-002	SGPR	TENPIPE SITE
		6Y	01/26/00	COE000118A	SGPR	
		6Y	04/15/99	ADOE-31-99-003-00	SGPR	
		6Y	04/15/99	COE960930A	SGPR	
PLA-000874H		6Y	04/15/99	ADOE-31-99-007-00	SGPR	SRGC-8
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PLA-000881		6Y2	10/28/05	COE050614A	WEPR	

SITE-NUMBER	PRIMARY-NUM	NRS EVL	DATE	PROGRAM REF.....	EVAL	OTHER NAMES AND NUMBERS.....
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PLA-000883H		6Y2	10/28/05	COE050614A	WEPR	
PL[illegible]-000884H		6Y2	10/28/05	COE050614A	WEPR	
P[illegible]-00890		6Y	04/08/02	ADOE-31-02-001-000	CCPR	BELL/ ORR-1. P-31-1108
		6Y	04/08/02	FFHWA010705C	CCPR	
PLA-001078H		6Y2	02/07/08	COE080122A	WEPR	SCP-1 TAKAMASHI FARM, 31-1391, 45-041-17 & 43-051-01
PLA-001189H		6Y2	10/28/05	COE050614A	WEPR	
PLA-001258		6Y2	06/09/08	FCC080579A	TTPR	ISOLATE 2. 31-001601
PLA-001420H		2S2	12/01/04	USFS040916A	BHPR	MISERY WHIP SITE. P-31-1833
PLA-001711		6Y2	05/23/06	USFS060512E	WEPR	MARY'S SITE
PLA-001901H		6Y2	02/07/08	COE080122A	WEPR	ZC-05-21
PLA-01337HH		6Y2	12/14/07	FAA071022A	NTPR	LINCOLN AIRPORT WORLD WAR II COMPOUND
PLA-02133HH		6Y2	06/09/08	BUR080520B	WEPR	DIKE 5-1
PLA-02134HH		6Y2	06/09/08	BUR080520B	WEPR	ROSE SPRING DITCH
PLA-074/84/H		6Y2	02/19/08	FHWA080207A	DDPR	
PLA-089-1HH		6Y	11/10/05	FHWA051026A	CTPR	
PLA-Z00001		2S	07/31/81			FS# 05-17-57-0209, USFS ARR 05-17-209
PLA-Z00002		3S	12/16/81			FS# 05-17-57-0069
PLA-Z00003		6Y	05/14/93	USFS930421A	NDPR	FS# 05-17-54-0273
PLA-Z00004		6Y	05/14/93	USFS930421A	NDPR	FS# 05-17-54-0271
PLA-Z00005		2S2	11/29/93	ADOE-31-93-001-00	NDPR	FS# 05-03-53-0065
		2S2	11/29/93	USFS931031A	NDPR	
PLA-Z00006		6Y	03/15/94	USFS940218A	NDPR	05-19-253
						GRIFF CREEK RESERVOIR
PLA-Z00007		2S	07/27/92	USFS920124A	GRPR	FS# 05-17-57-0430
PLA-Z00008		6Y	07/27/92	USFS920124A	GRPR	FS# 05-17-57-0452
PLA-Z00009		6Y	07/27/92	USFS920124A	GRPR	FS# 05-17-57-0453
PLA-Z00010		6Y	07/27/92	USFS920124A	GRPR	FS# 05-17-57-0454
PLA-Z00011		6Y	07/27/92	USFS920124A	GRPR	FS# 05-17-57-0456
PLA-Z00012		6Y	07/27/92	USFS920124A	GRPR	FS# 05-17-57-0458
PLA-Z00013		6Y	07/27/92	USFS920124A	GRPR	FS# 05-17-57-0459
PLA-Z00014		2S	07/27/92	USFS920124A	GRPR	FS# 05-17-57-0450
PLA-Z00015		6Y	11/13/92	USFS920929A	CCPR	ARR 05-19-254
PLA-Z00016H		6Y	08/06/92	ADOE-31-92-007-00	CCPR	FS# 05-19--0253, BROCKWAY RESERVOIR
		6Y	08/06/92	USFS920929A	CCPR	
PLA-Z00017		6Y	08/08/94	ADOE-31-94-001-00	NDPR	AF-31-10-H
		6Y	08/08/94	FHWA910903A	NDPR	
[illegible] 00018		6Y	08/08/94	ADOE-31-94-002-00	NDPR	AF-31-11-H
		6Y	08/08/94	FHWA910903A	NDPR	
PLA-Z00019		6Y	03/15/96	ADOE-31-96-0001-0	NDPR	FS-05-19-301
		6Y	03/15/96	USFS960205E	NDPR	
PLA-Z00020		6Y	05/28/96	USFS960416A	GRPR	FS 05-17-54-234
PLA-Z00021		6Y	05/28/96	USFS960416A	GRPR	FS 05-17-54-379
PLA-Z00022		6Y	05/28/96	USFS960416A	GRPR	FS 05-17-54-380
PLA-Z00023		6Y	05/28/96	USFS960416A	GRPR	FS 05-17-54-392
PLA-Z00024		6Y	05/28/96	USFS960416A	GRPR	FS 05-17-54-393
PLA-Z00025		2S2	05/28/96	USFS960416A	GRPR	FS 05-17-54-235
PLA-Z00026		6Y	10/25/96	COE961004A	SGPR	HIGHLANDS #1
PLA-Z00027		6Y	10/25/96	COE961004A	SGPR	AF-31-6611
PLA-Z00029H		6Y	08/18/97	ADOE-31-97-001-00	JWPR	PA-97-52
		6Y	08/18/97	BLM970612A	JWPR	
PLA-Z00030H		6Y	08/18/97	ADOE-31-97-002-00	JWPR	PA-97-53
		6Y	08/18/97	BLM970612A	JWPR	
PLA-Z00031H		6Y	08/18/97	ADOE-31-97-003-00	JWPR	PA-97-54
		6Y	08/18/97	BLM970612A	JWPR	
PLA-Z00032H		6Y	08/18/97	ADOE-31-97-0004-0	JWPR	PA-97-55
		6Y	08/18/97	BLM970612A	JWPR	
PLA-Z00033		6Y	08/27/97	ADOE-31-97-005-00	JWPR	PL1-10
		6Y	08/27/97	COE960718Z	JWPR	
PLA-Z00034		6Y	10/20/97	ADOE-31-97-019-00	SGPR	FS# 05-17-54-0395
		6Y	10/20/97	USFS971004A	SGPR	
PLA-Z00035H		6Y	09/15/97	ADOE-31-97-024-00	SGPR	FERRARI-1
		6Y	09/15/97	COE970818B	SGPR	
PLA-Z00036H		6Y	09/15/97	ADOE-31-97-025-00	SGPR	KEMPHILL DITCH
		6Y	09/15/97	COE970818B	SGPR	FERRARI-2
PLA-Z00037H		6Y	09/15/97	ADOE-31-97-026-00	SGPR	FERRARI-3
		6Y	09/15/97	COE970818B	SGPR	
PLA-Z00038H		6Y	09/15/97	ADOE-31-97-027-00	SGPR	FERRARI-4
		6Y	09/15/97	COE970818B	SGPR	
P[illegible] 00039H		6Y	09/15/97	ADOE-31-97-028-00	SGPR	LS-12 FERRARI-5
		6Y	09/15/97	COE970818B	SGPR	
PLA-Z00040H		6Y	09/15/97	ADOE-31-97-029-00	SGPR	BREMANN'S SLAUGHTER HOUSE
		6Y	09/15/97	COE970818B	SGPR	FERRARI-6
PLA-Z00041H		6Y	09/15/97	ADOE-31-97-030-00	SGPR	HUGHES RANCH SITE

SITE-NUMBER. PRIMARY-NUM	NRS	EVL-DATE	PROGRAM REF.....	EVAL	OTHER NAMES AND NUMBERS.....
	6Y	09/15/97	COE970818B	SGPR	FERRARI-7
P 000042	2S2	09/15/97	ADOE-31-97-031-00	SGPR	BA MU MA
	2S2	09/15/97	COE970818B	SGPR	SALT SPRING
PLA-Z00043	2D2	10/29/97	ADOE-31-97-034-00	JWPR	05-19-703 (SOUTH HALF)
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00044	2D2	10/29/97	ADOE-31-97-035-00	JWPR	05-19-706
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00045	2D2	10/29/97	ADOE-31-97-36-00	JWPR	05-19-707
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00046	2D2	10/29/97	ADOE-31-97-037-00	JWPR	05-19-710
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00047	2D2	10/29/97	ADOE-31-97-038-00	JWPR	05-19-711
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00048	2D2	10/29/97	ADOE-31-97-039-00	JWPR	05-19-712
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00049	2D2	10/29/97	ADOE-31-97-040-00	JWPR	05-19-713
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00050	2D2	10/29/97	ADOE-31-97-040-00	JWPR	05-19-714
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00051	2D2	10/29/97	ADOE-31-97-41-00	JWPR	05-19-715
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00052	2D2	10/29/97	ADOE-31-97-42-00	JWPR	05-19-717
	2D2	10/29/97	USFS971022A	JWPR	
PLA-Z00053	6Y	10/29/97	ADOE-31-97-043-00	JWPR	05-19-703 (NORTH HALF)
	6Y	10/29/97	USFS971022A	JWPR	
PLA-Z00054	6Y	10/29/97	ADOE-31-97-044-00	JWPR	05-19-704
	6Y	10/29/97	USFS971022A	JWPR	
PLA-Z00055	6Y	10/29/97	ADOE-31-97-045-00	JWPR	05-19-705
	6Y	10/29/97	USFS971022A	JWPR	
PLA-Z00056	6Y	10/29/97	ADOE-31-97-046-00	JWPR	05-19-708
	6Y	10/29/97	USFS971022A	JWPR	
PLA-Z00057	6Y	10/29/97	ADOE-31-97-047-00	JWPR	05-19-716
	6Y	10/29/97	USFS971022A	JWPR	
PLA-Z00058	6Y	10/29/97	ADOE-31-97-048-00	JWPR	05-19-718
	6Y	10/29/97	USFS971022A	JWPR	
00059	6Y	10/29/97	ADOE-31-97-049-00	JWPR	05-19-727
	6Y	10/29/97	USFS971022A	JWPR	
PLA-Z00060	6Y	10/29/97	ADOE-31-97-050-00	JWPR	05-19-728
	6Y	10/29/97	USFS971022A	JWPR	
PLA-Z00061H	6Y	11/13/92	ADOE-31-92-006-00	CCPR	FS# 05-19--0256, TWIN CRAGS HAUL ROAD
	6Y	11/13/92	USFS920929A	CCPR	
PLA-Z00063	6U	11/18/98	ADOE-31-98-001-00	GRPR	GN-2
	6U	11/18/98	COE960911A	GRPR	
PLA-Z00064/N	6U	10/08/98	ADOE-31-98-002-00	GRPR	FS# 05-17-97-0249, LAKE VIEW
	6U	10/08/98	USFS980505C	GRPR	TAHOE NATIONAL FOREST
PLA-Z00065	6U	10/08/98	ADOE-31-98-003-00	GRPR	FS# 05-17-97-0255, ESTUARY
	6U	10/08/98	USFS980505C	GRPR	TAHOE NATIONAL FOREST
PLA-Z00066H	6Y	04/14/99	ADOE-31-99-008-00	DDPR	TB-7
	6Y	04/14/99	COE990316A	DDPR	APN# 021-270-025
PLA-Z00067/N	6Y	04/14/99	ADOE-31-99-009-00	DDPR	TB-8
	6Y	04/14/99	COE990316A	DDPR	APN# 021-270-025
PLA-Z00068	6Y	05/03/99	ADOE-31-99-011-000	SGPR	FRS-1
	6Y	05/03/99	COE990415A	SGPR	
PLA-Z00069H	6Y	05/03/99	ADOE-31-99-012-000	SGPR	THE SOUTHERN PACIFIC RESERVOIR
	6Y	05/03/99	COE990415A	SGPR	ERP SITE #5
PLA-Z00070H	6Y	08/30/99	ADOE-31-99-014-000	SGPR	CRU-91-PLA-9
	6Y	08/30/99	COE990802B	SGPR	
PLA-Z00071H	6Y	06/16/99	ADOE-31-99-015-000	JWPR	CRU-19-PLA-5H
	6Y	06/16/99	COE990524B	JWPR	
PLA-Z00072H	6Y	06/16/99	ADOE-31-99-016-000	JWPR	CRU-91-PLA-6H
	6Y	06/16/99	COE990524B	JWPR	
PLA-Z00073H	6Y	06/16/99	ADOE-31-99-017-000	JWPR	CRU-91-PLA-3H
	6Y	06/16/99	COE990524B	JWPR	
PLA-Z00074H	6Y	06/16/99	ADOE-31-99-018-000	JWPR	CRU-91-PLA-4H
	6Y	06/16/99	COE990524B	JWPR	
PLA-Z00075H	6Y	06/16/99	ADOE-31-99-019-000	JWPR	CRU-91-PLA-8H
	6Y	06/16/99	COE990524B	JWPR	
PLA-Z00076	6Y	06/16/99	ADOE-31-99-020-000	JWPR	CRU-91-PLA-7
	6Y	06/16/99	COE990524B	JWPR	
00077	6Y	01/03/01	ADOE-31-01-001-000	WTPR	
	6Y	01/03/01	FCC001115A	WTPR	
PLA-Z00078	6Y	12/03/01	ADOE-31-01-002-000	CCPR	STEWART MINE HYDRAULIC CUT
	6Y	12/03/01	FWWA010920A	CCPR	

SITE-NUMBER	PRIMARY-NUM	NRS	EVL-DATE	PROGRAM REF.....	EVAL	OTHER NAMES AND NUMBERS..
PLA-Z00079	6Y		10/09/01	ADOE-31-01-003-000	AMPR	FS# 05-19--0125, LOST LAKE
	6Y		10/09/01	USFS0109203	AMPR	
PLA-Z00080	6Y		01/08/02	ADOE-31-02-003-000	AMPR	FS# 05-19--0993, THE QUICK SITE
	6Y		01/08/02	USFS011203A	AMPR	
PLA-Z00081	6Y		01/08/02	ADOE-31-02-003-000	AMPR	FS# 05-19--0992, LONELY GULCH CAN DUMP
	6Y		01/08/02	USFS011203B	AMPR	
PLA-Z00082	6Y		01/08/02	ADOE-31-02-004-000	AMPR	FS# 05-19--6130
	6Y		01/08/02	USFS011204A	AMPR	
PLA-Z00083	6Y		03/30/01	ADOE-31-01-004-000	JWPR	FS# 05-19--0948, ROAD 15N37/ BLACKWOOD CANYON AREA ROADS DECOMMISSIO N
	6Y		03/30/01	USFS010301A	JWPR	
PLA-Z00084	6Y		03/30/01	ADOE-31-01-005-000	JWPR	FS# 05-19--0948, ROAD 15N37.1/ BLACKWOOD CANYON AREA ROAD DECOMMISSI ON
	6Y		03/30/01	USFS010301A	JWPR	
PLA-Z00085	6Y		03/30/01	ADOE-31-01-006-000	JWPR	FS# 05-19--0314, ROAD 15N37.2/ BLACKWOOD CANYON ROAD DECOMMISSION
	6Y		03/30/01	USFS010301A	JWPR	
PLA-Z00086	6Y		11/06/01	ADOE-31-01-007-000	AMPR	FS# 05-19--0298
	6Y		11/06/01	USFS011017B	AMPR	
PLA-Z00087	6Y		04/16/02	ADOE-31-02-005-000	DSPR	FS# 05-19--0611, STANFORD ROCK RD
	6Y		04/16/02	USFS020213A	DSPR	
PLA-Z00088	6Y		04/16/02	ADOE-31-02-006-000	DSPR	FS# 05-19--0612, HARD CREEK RD
	5Y		04/16/02	USFS020213A	DSPR	
PLA-Z00089	5Y		01/26/00	ADOE-31-00-005-000	SGPR	PL-1
	6Y		01/26/02	COE000118A	SGPR	
PLA-Z00090	6Y		07/08/02	ADOE-31-02-007-000	MMPR	
	6Y		07/08/02	FHWA971020A	MMPR	
PLA-Z00091	6Y		07/08/02	ADOE-31-02-008-000	MMPR	
	6Y		07/08/02	FHWA971020A	MMPR	
PLA-Z00092	6Y		07/08/02	ADOE-31-02-009-000	MMPR	
	6Y		07/08/02	FHWA971020A	MMPR	
PLA-Z00093	6Y		07/08/02	ADOE-31-02-010-000	MMPR	ROCKLIN PASSENGER DEPOT, RM-3
	6Y		07/08/02	FHWA971020A	MMPR	
PLA-Z00094	6Y		09/04/02	ADOE-31-02-011-000	JDPR	QUAIL SPRING DITCH
	6Y		09/04/02	COE020805A	JDPR	
PLA-Z00095	6Y		09/04/02	ADOE-31-02-012-000	JDPR	QUAIL SPRINGS RANCH TRASH DUMP AND PRIVY PIT
	6Y		09/04/02	COE020805A	JDPR	
[illegible] 00096	6Y		06/12/02	ADOE-31-02-013-000	CCPR	MAIN CANAL, FOLSOM-AUBURN RD SEGMENT
	6Y		06/12/02	FHWA020425D	CCPR	
PLA-Z00097H	6Y		04/29/04	ADOE-31-04-001-000	AMPR	FS# 05-17-54-0447, ELDORADO MINE
	6Y		04/29/04	USFS040405D	AMPR	
PLA-Z00098H	6Y		12/04/03	ADOE-31-03-001-000	NTPR	TAHOE TREASURE MINE
	6Y		12/04/03	USFS031020A	NTPR	
PLA-Z00099H	6Y		07/21/04	ADOE-31-04-002-000	JHPR	FS# 05-19--0801, WINCHESTER SITE HISTORIC REFUSE SCATTER
	6Y		07/21/04	USFS040707A	JHPR	
PLA-Z00100/H	6Y		03/23/05	USFS050223C	BMPR	FS# 05-03-53-0090, FOREST SERVICE SITE 05-03-53-90
PLA-Z00102	7J		01/10/07	31-0034	SSRO	CLOVER VALLEY LAKES ARCHEOLOGICAL DISTRICT
	2E1		10/31/02	ADOE-31-02-014-999	JDPR	
	2E1		10/03/02	COE020726C	JDPR	
PLA-Z00103	2D2		10/03/02	ADOE-31-02-014-001	JDPR	PA-98-100
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00104	2D2		10/03/02	ADOE-31-02-014-002	JDPR	PA-98-101
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00105	2D2		10/03/02	ADOE-31-02-014-003	JDPR	PA-98-102
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00106	2D2		10/03/02	ADOE-31-02-014-004	JDPR	PA-98-103
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00107	2D2		10/03/02	ADOE-31-02-014-005	JDPR	PA-31-02-014-005
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00108	2D2		10/03/02	ADOE-31-02-014-006	JDPR	PA-98-006
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00109	2D2		10/03/02	ADOE-31-02-014-007	JDPR	PA-98-106
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00110	6Y		10/03/02	ADOE-31-02-014-008	JDPR	PA-98-107
	6Y		10/03/02	COE020726D	JDPR	
PLA-Z00111	2D2		10/03/02	ADOE-31-02-014-009	JDPR	PA-98-108
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00112	2D2		10/03/02	ADOE-31-02-014-010	JDPR	PA-98-109
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00113	2D2		10/03/02	ADOE-31-02-014-011	JDPR	PA-98-110
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00114	2D2		10/03/02	ADOE-31-02-014-012	JDPR	PA-98-111
	2D2		10/03/02	COE020726C	JDPR	
PLA-Z00115	2D2		10/03/02	ADOE-31-02-014-013	JDPR	PA-98-112
	2D2		10/03/02	COE020726C	JDPR	

SITE-NUMBER.	PRIMARY-NUM	NRE	EVL-DATE	PROGRAM REF	EVAL	OTHER NAMES AND NUMBERS
PLA-Z00116		2D2	10/03/02	ADOE-31-02-014-014	JDPR	PA-98-113
		2D2	10/03/02	CDE020726C	JDPR	
PL *00117		2D2	10/03/02	ADOE-31-02-014-015	JDPR	PA-98-015
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00118		2D2	10/03/02	ADOE-31-02-014-016	JDPR	PA-98-115
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00119		2D2	10/03/02	ADOE-31-02-014-017	JDPR	PA-98-116
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00120		2D2	10/03/02	ADOE-31-02-014-018	JDPR	PA-98-117
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00121		2D2	10/03/02	ADOE-31-02-014-019	JDPR	PA-98-118
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00122		2D2	10/03/02	ADOE-31-02-014-020	JDPR	PA-98-119
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00123		2D2	10/03/02	ADOE-31-02-014-021	JDPR	PA-98-120
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00124		2D2	10/03/02	ADOE-31-02-014-022	JDPR	PA-98-121
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00125		2D2	10/03/02	ADOE-31-02-014-023	JDPR	PA-98-122
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00126		2D2	10/03/02	ADOE-31-02-014-024	JDPR	PA-98-123
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00127		2D2	10/03/02	ADOE-31-02-014-025	JDPR	PA-98-124
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00128		2D2	10/03/02	ADOE-31-02-014-026	JDPR	CVL-2
		2D2	10/03/02	ADOE-31-02-014-026	JDPR	
PLA-Z00129		2D2	10/03/02	ADOE-31-02-014-027	JDPR	CVL-3
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00130		2D2	10/03/02	ADOE-31-02-014-028	JDPR	CVL-4
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00131		2D2	10/03/02	ADOE-31-02-014-029	JDPR	CVL-5
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00132		2D2	10/03/02	ADOE-31-02-014-030	JDPR	CVL-6A
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00133		2D2	10/03/02	ADOE-31-02-014-031	JDPR	CVL-6B
		2D2	10/03/02	CDE020726C	JDPR	
(00134		2D2	10/03/02	ADOE-31-02-014-032	JDPR	CVL-7
		2D	10/03/02	CDE020726C	JDPR	
PLA-Z00135		2D2	10/03/02	ADOE-31-02-014-033	JDPR	CVL-8
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00136		2D2	10/03/02	ADOE-31-02-014-034	JDPR	CVL-9
		2D2	10/03/02	CDE020726C	JDPR	
PLA-Z00137H		6Y	08/16/05	CDE050720A	AMPR	
PLA-Z00138H		6Y	08/16/05	CDE050720A	AMPR	LAIRD HYDRAULIC MINE SITE
PLA-Z00139H		6Y	08/31/05	CDE050720A	AMPR	
		6Y	08/31/05	CDE050720A	AMPR	
		6Y	08/31/05	CDE050720A	AMPR	
PLA-Z00140H		6Y	08/31/05	CDE050720A	AMPR	
PLA-Z00141H		6Y	08/31/05	CDE050720A	AMPR	
		6Y	08/31/05	CDE050720A	AMPR	
PLA-Z00142H		6Y	08/31/05	CDE050720A	AMPR	
PLA-Z00143H		6Y	02/10/04	USFS050920A	MHPR	FS# 05-19--1066, TRASH SCATTER
PLA-Z00144		6Y	09/20/04	CDE040621A	JHPR	CONCRETE FOUNDATION, P-31-001224
PLA-Z00145H		6Y	09/20/04	CDE040621A	JHPR	EC-04-08
PLA-Z00146H		6Y	09/20/04	CDE040621A	JHPR	EC-04-09
PLA-Z00147H		6Y	09/20/04	CDE040621A	JHPR	WELL, EC-04-10
PLA-Z00148/H		6Y2	02/27/04	FHWA040217C	MHPR	FS 05-19-81(ETHNOGRAPHIC WASHOE ENCAMPMENT:WASUMDADWO'THA)
PLA-Z00149/H		6Y2	02/27/04	FHWA040217C	MHPR	FS 05-19-656(MD5)
PLA-Z00150/H		6Y2	02/27/04	FHWA040217C	MHPR	FS 05-19-652(MD1)
PLA-Z00151/H		6Y2	02/27/04	FHWA040217C	MHPR	2A940G-1
PLA-Z00152H		6Y2	02/27/04	FHWA040217C	MHPR	FS 05-19-654
PLA-Z00153H		6Y2	02/27/04	FHWA040217C	MHPR	FS 05-19-655
PLA-Z00154H		6Y2	02/27/04	FHWA040217C	MHPR	FS 05-19-653
PLA-Z00155H		6Y2	02/27/04	FHWA040217C	MHPR	FS 05-19-658
PLA-Z00157H		2S2	03/15/07	USFS050125B	WEPR	FS# 05-03-53-0004, LONG CANYON SITE
PLA-Z00158H		2S2	06/29/07	USFS070504A	CFPR	FS# 05-19-53-0876, CHURCH CAMP / CASA LOMA RESTORATION RESIDENCE TRAC T
PLA-Z00159/H		6Y2	04/11/07	BIA070222A	SBPR	CPW-1
P *00160/H		2S2	04/11/07	BIA070222A	SBPR	CPW-2
P 00161		6Y2	04/11/07	BIA070222A	SBPR	CPW-3
PLA-Z00162		6Y2	04/11/07	BIA070222A	SBPR	CPW-4
PLA-Z00163/H		2S2	04/11/07	BIA070222A	SBPR	CPW-5
PLA-Z00164		6Y2	05/08/08	USFS080425D	WEPR	FS# 05-17-54-0441, BANDIT BILL'S BRM
PLA-Z00165H		6Y2	06/19/08	BLM080520B	WEPR	P-31-003312

SITE-NUMBER. PRIMARY-NUM NRS EVL-DATE PROGRAM REF. .... EVAL OTHER NAMES AND NUMBERS.. ... .

APPENDIX B

NATIVE AMERICAN CONSULTATION

Appendix B. Native American Consultation History

Affiliation	Name	Date	Contact	Response	Date	Contact	Response	Date	Contact	Response
Native American Heritage Commission	Karen Fowler	7/8/2008	Letter	10/12/2008 - The record search found no cultural resources in the immediate project area; provided a list of people who might have knowledge of the area (see below)						
Maidu, Washoe	Rose Enos	1/16/2009	introductory phone call, sending project map	Left message requesting comments on project, sending letter of introduction and map	1/16/2009	Letter of introduction	none	1/23/2009	follow-up phone call	attempted but unable to leave message
Shingle Springs Band of Miwok Indians	Nicholas Fonseca, Chairperson	1/16/2009	introductory phone call, sending project map	Left message requesting comments on project, sending letter of introduction and map	1/16/2009	Letter of introduction	none	1/23/2009	follow-up phone call	attempted but unable to leave message
Shingle Springs Band of Miwok Indians	Jeff Murray, Cultural Resources Manager	1/16/2009	introductory phone call, sending project map	Left message requesting comments on project, sending letter of introduction and map	1/16/2009	Letter of introduction	none	1/23/2009	follow-up phone call	attempted but unable to leave message
Todd Valley Miwok Maidu Cultural Foundation	Christopher Suehead, Cultural Representative	1/16/2009	introductory phone call, sending project map	Left message requesting comments on project, sending letter of introduction and map	1/16/2009	Letter of introduction	none	1/23/2009	follow-up phone call	phone disconnected
United Auburn Indian Community of the Auburn, Maidu and Miwok	Jessica Tavares, Chairperson	1/16/2009	introductory phone call, sending project map	Left message requesting comments on project, sending letter of introduction and map	1/16/2009	Letter of introduction	none	1/23/2009	follow-up phone call	left message

Appendix G: Geological Technical Study

GEOLOGICAL TECHNICAL STUDY, ENVIRONMENTAL IMPACT REPORT PACIFIC GAS AND ELECTRIC COMPANY LINE 406 AND LINE 407 PIPELINE PROJECT ESPARTO TO ROSEVILLE, CALIFORNIA

PREPARED FOR:

Michael Brandman Associates
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PREPARED BY:

Ninyo & Moore
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September 26, 2008
Project No. 106323001

September 26, 2008
Project No. 106323001

Ms. Chelsea Ayala
Michael Brandman Associates
Bishop Ranch 3
2633 Camino Ramon, Suite 460
San Ramon, California 94583

Subject: Geological Technical Study, Environmental Impact Report
Pacific Gas and Electric Company
Line 406 and Line 407 Pipeline Project
Esparto to Roseville, California

Dear Ms. Ayala:

In accordance with your authorization, we are pleased to present the results of our Geological Technical Study to assist in the preparation of the Pacific Gas and Electric Company proposed Line 406 and Line 407 Pipeline Project (the Project) Environmental Impact Report. This report provides a summary of our findings and conclusions regarding geologic and soils conditions relative to the Project.
We appreciate the opportunity to be of service.
Respectfully submitted,
NINYO & MOORE

Randal L. Irwin, C.E.G. 1521
Chief Engineering Geologist

Gregory T. Farrand, C.E.G. 1087
Principal Geologist

RI/GTF/gg

Distribution: (1) Addressee

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SECTION 1: INTRODUCTION

In accordance with your request, Ninyo & Moore has performed a Geological Technical Study for the Pacific Gas & Electric Company (PG&E) proposed Lines 406 and 407 Pipeline Project (the Project). The purpose of this study was to evaluate the geologic and soils conditions along the pipeline route using available data to assist with the preparation of the Environmental Impact Report (EIR) for the Project. Subsurface exploration and laboratory testing were not included in the scope of this reconnaissance-level evaluation.

SECTION 2: SCOPE OF SERVICES

Ninyo & Moore's scope of services for this evaluation included the following:

- Review of pertinent, available geologic technical literature including topographic and geologic maps and publications, aerial photographs, and reports. Documents pertaining to our evaluation of the study area are listed in the References section of this report.
- Performing a field reconnaissance of the pipeline route by a California certified Engineering Geologist from our firm.
- Compilation and analysis of data obtained, with particular emphasis on potential geologic considerations relative to the Project.
- Preparation of this report presenting our findings and conclusions pertaining to the existing geologic and soils conditions relative to the Project.

SECTION 3: PROJECT DESCRIPTION

PG&E is proposing to construct and operate multiple natural gas transmission pipelines that will cross California's Central Valley. The Project will traverse four counties within the lower Sacramento Valley from Yolo County, just west of Yolo County Road (CR) 85 near the town of Esparto, and extends approximately 37 miles east to the City of Roseville in Placer County. Figure 1 is a map of the study area. Project construction would involve a combination of conventional trenching, horizontal directional drilling (HDD), and hammer boring. The HDD technique is used to tunnel under vertically and/or horizontally large sensitive surface features such as watercourses, levees, and wetlands. There are ten HDD crossings that are planned, among those are for Interstate 5, Interstate 505, and the Sacramento River. Hammer boring is a non-steerable pipeline construction technique that drives pipe for short distances under surface features such as roads.

SECTION 4: GEOLOGY

The following sections present our findings relative to regional geology, site geology, and groundwater.

4.1 - Regional Geology

The Project area is located in the Great Valley province, a northwest-trending asymmetrical structural basin bounded by the Sierra Nevada province to the east and south, the Klamath Mountains to the north, the Cascade Range province to the northeast, and the Coast Ranges province to the west. The Great Valley (comprised of the Sacramento Valley in the north and the San Joaquin Valley in the south) is a nearly flat alluvial plain extending for about 450 miles from the Klamath Mountains south to the Tehachapi Mountains. The northerly portion of the Great Valley, the Sacramento Valley, is drained by the southerly flowing Sacramento River, whereas the San Joaquin

River flows to the north draining the San Joaquin Valley. Both rivers ultimately empty into the San Francisco Bay.

The Great Valley has been filled with a thick sequence of sedimentary rocks of Jurassic to Recent age (the Great Valley Sequence). The sedimentary trough has a long stable eastern shelf supported by the subsurface continuation of the granitic Sierran slope and a short western flank expressed by the upturned edges of the basin sediments (Bailey, 1966). Elevations of the alluvial plain are generally just a few hundred feet above sea level, with extremes ranging from a few feet below sea level to about 1,000 feet above. The only prominent topographic eminence within the central part of the valley is Marysville (Sutter) Buttes, a Pliocene volcanic plug which rises abruptly 2,000 feet above the surrounding valley floor. The study area is located in the southerly portion of the Sacramento Valley of the Great Valley.

4.2 - Study Area Geology

Based on our literature review, including published geologic maps and available geotechnical reports, the study area is underlain generally by artificial fill, and recent natural surficial deposits of alluvium and basin deposits. In addition, formational units are present along the alignment including the Pleistocene-age Modesto, Turlock Lake, and Red Bluff formations and the Piocene-age Tehama Formation. The following unit descriptions are based on our field observations, published data and the Geotechnical Investigation Report prepared for the Project (Kleinfelder, 2007).

4.2.1 - Artificial Fill

Areas of man-made artificial fill are present along the proposed alignment. These soils occur in areas of existing improvements such as roads, levees, and buried utilities. Also, agricultural fill occurs as plowed topsoil in the agricultural fields. In general, the fill soils are expected to be relatively thin and derived primarily or entirely from the on-site soils. However, thicker fill soils can be expected in the earthen levees present along water courses.

4.2.2 - Alluvium and Basin Deposits

Holocene (or Recent) age alluvium and basin deposits have been mapped as underlying central portions of the pipeline alignment. The alluvium is the result of deposition of the Sacramento River, Cache Creek, and other river systems and typically consists of unconsolidated sand and silt (Kleinfelder, 2007). The basin deposits were deposited in somewhat lower-energy depositional environments and, consequently, consist of silts and clays (i.e., finer-grained materials). The basin deposits are interbedded with alluvial deposits. Other alluvial deposits crossing the alignment have been documented as river bank and as buried stream channel deposits, which include relatively permeable sands and gravels encased in less permeable silts and clays.

4.2.3 - Modesto Formation

Materials of the late Pleistocene-age Modesto Formation are exposed in the western and eastern portions of the alignment (Kleinfelder, 2007). The Modesto Formation typically consists of brown, dark brown to reddish brown moderately cemented silt and clay.

4.2.4 - Riverbank Formation

Materials of the Pleistocene-age Riverbank Formation have been mapped (Wagner et al., 1981) as underlying areas of the easterly portion of the route, east of the Sacramento River. The Riverbank Formation consists of older alluvial deposits composed of gravel, sand, silt, and clay.

4.2.5 - Turlock Lake Formation

Materials of the Pleistocene-age Turlock Lake Formation are exposed on the eastern end of the proposed alignment. The Turlock Lake Formation typically consists of hard cemented

yellow brown silts and red brown sands with occasional gravel and clay beds (Kleinfelder, 2007).

4.2.6 - Red Bluff Formation

In the westerly portion of the alignment, the Red Bluff Formation occurs throughout the Dunnigan Hills mostly along ridge tops. The unit consists of distinct bright red to orange clayey gravels and cobbles in a silty or sandy matrix. The Red Bluff Formation overlies the Tehama Formation which is described below.

4.2.7 - Tehama Formation

The Tehama Formation occurs at the far west end of the alignment and throughout the Dunnigan Hills (Kleinfelder, 2007). The Tehama Formation is Pliocene in age and is composed predominantly of cemented sand and silt with varying amounts of gravel and minor clay.

SECTION 5: GROUNDWATER

Where the proposed pipeline alignment crosses rivers, creeks, or areas of standing water, shallow groundwater conditions are expected. In these areas the groundwater level should be at or slightly above (due to capillary action) the elevation of the surface water. Perched groundwater can occur virtually anywhere within the soil profile often occurring at a lower boundary layer of less permeable material (e.g., silt or clay). Perched groundwater is unconfined and separated from an underlying main body of groundwater (the water table) by an unsaturated zone. In agricultural areas, flood irrigation of fields can result in shallow perched groundwater levels that may result buoyant forces on the pipeline (Kleinfelder, 2007). Groundwater was encountered in many of the borings that were drilled for the geotechnical investigation for the Project (Kleinfelder, 2007). Groundwater was found to be shallowest in the central portions or lower valley parts of the alignment with the deeper groundwater levels occurring in the westerly and easterly reaches of the alignment. Groundwater levels may be expected to fluctuate due to seasonal variations, irrigation, and other factors.

SECTION 6: TOPOGRAPHY

As discussed, the proposed pipeline alignment traverses generally in an east-west direction across the lower Sacramento Valley. In general, the Project crosses a combination of flat to undulating and rolling hill topography with corresponding elevations ranging from approximately 15 to 255 feet above mean sea level (MSL). The lower, flatter topography is in the central portions of the Project with the higher, less subdued topography in the west and eastern portions of the Project. Primary drainages in the study area flow generally to the south.

SECTION 7: FAULTING AND SEISMICITY

Based on the tectonic setting and the historical record, the study area is in a region that is characterized by a relatively low to moderate seismicity. Historical earthquakes of magnitude 6.0 or greater with epicenters within approximately 62 miles (100 km) of the study area are shown in the following table.

Table 1 – Historical Earthquakes that Affected the Study Area

Date	Magnitude (M)
May 19, 1889	6.0
April 19, 1892	6.4
April 21, 1892	6.2
March 31, 1898	6.2

The 1889 and 1892 historical earthquakes can be attributed to the Great Valley fault system on fault segments, south of the west end of the study area (United States Geological Survey, 2008). The 1898 earthquake occurred in a northeastern part of the San Francisco Bay area,

The pipeline alignment crosses three documented faults; the Great Valley, Dunnigan Hills, and Willows faults. The three faults are thought to exist at depth and do not reach the surface where they cross the proposed alignment (Kleinfelder, 2007). The Great Valley fault is mapped near the westerly end of the alignment; the Dunnigan Hills fault is along the northeasterly side of the Dunnigan Hills, west of Interstate 5; and the Willows fault is in the easterly portion of the alignment between the Sacramento River and Roseville.

Surface expressions of the Willows fault are not apparent. The Willows fault is based largely on a linear differential of measured groundwater levels. Per Jennings (1994), the fault is designated as being pre-Quaternary in age and, accordingly, is not considered active or "potentially active." The fault is not considered a significant seismic source, nor is it considered capable of resulting in ground surface rupture.

The Dunnigan Hills fault shows evidence of Recent (or Holocene) surface rupture north of the proposed alignment, however, the fault becomes buried in the vicinity of the alignment (Kleinfelder, 2007). Per Hart et al. (1983) the fault is a zone of discontinuous tonal lineaments near the base of the northeast-facing escarpment of the Dunnigan Hills. The fault is not in a State of California designated Earthquake Fault (Alquist-Priolo) Zone. Historical ground surface rupture has not been attributed to the fault.

The Great Valley fault is actually an extensive system of northerly trending, westerly dipping (inclined) thrust faults along the westerly margin of the Sacramento and San Joaquin valleys of the Great Valley. The faults occur at depth and do not "daylight" or intercept the ground surface, accordingly, they have been referred to as "blind" thrust faults. Because the fault does not intercept the ground surface it is not considered to have the potential for ground surface rupture or, subsequently, pipeline rupture. The fault system is considered to be a seismic source that could result in strong ground motions. The pipeline alignment crosses segment 3 of the fault system which could generate an earthquake of magnitude 6.9 (United States Geological Survey/California Geological Survey [USGS/CGS], 2002).

Based on a probabilistic seismic hazard model for California (USGS/CGS, 2002) peak horizontal ground accelerations having a 10 percent probability of exceedance in 50 years can be estimated to be about 0.4g (40 percent of gravity) at the west end of the alignment and about 0.2g at the east end of the alignment. This can be compared to potential ground accelerations having the same probability of occurrence of in excess of 0.7g in the San Francisco Bay area. No portions of the pipeline alignment are in State of California designated Earthquake Fault Zones which are areas that have a relatively high potential ground surface rupture due to faults. The following table lists active faults within approximately 62 miles (100 kilometers) of the study area.

Table 2 – Principal Active Faults

Fault	Distance and Direction (miles)[1]	Maximum Moment Magnitude[2]
Great Valley Segment 3	0(crosses pipeline route)	6.9
Great Valley Segment 4	10 (south)	6.6
Foothills	13 (east)	6.5
Hunting Creek-Berryessa	18 (west)	7.1
Great Valley Segment 2	24 (north)	6.4
Bartlett Springs	26 (northwest)	7.6
Concord	30 (southwest)	6.7
West Napa	32 (southwest)	6.5
Callayomi	34 (northwest)	6.5

Table 2 – Principal Active Faults

Fault	Distance and Direction (miles)[1]	Maximum Moment Magnitude[2]
Great Valley Segment 5	35 (south)	6.5
Great Valley Segment 1	36 (north)	6.7
Maacama	38 (northwest)	7.5
Hayward	43 (southwest)	7.3

Notes:
[1] Blake (2001)
[2] The reported potential maximum magnitudes are Maximum Moment Magnitudes rather than Richter Scale Magnitudes, a scale that is generally no longer used.

Figure 3 is a fault location map for the region. Figure 4 shows potential ground accelerations in the region having a 10 percent probability of being exceeded in 50 years.

7.1 - Liquefaction and Seismically Induced Settlement

Liquefaction is the phenomenon in which loosely deposited, saturated granular soils (located below the water table) with clay contents (particles less than 0.005 mm) of less than 15 percent, liquid limit of less than 35 percent, and natural moisture content greater than 90 percent of the liquid limit undergo rapid loss of shear strength due to development of excess pore pressure during strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to rapid rise in pore water pressure, and it eventually causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below grade. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

Much of the pipeline alignment crosses earth units that are relatively young, poorly consolidated, with granular soil intervals similar to those described above. Where the pipeline is to be located below the water table and above a depth of 50 feet there is a potential that the pipeline may be constructed in liquefiable soils. Per Kleinfelder (2007) the area most susceptible to liquefaction appears to be the portion of the alignment across the Sacramento Valley between the Dunnigan Hills, on the west and the Natomas East Main Drainage Canal, east of the Sacramento River. Estimated potential settlements are generally on the order of 1 to 2 inches with isolated cases on the order 4 to 8 inches (Kleinfelder, 2007).

SECTION 8: LANDSLIDING

Based on our review of background information, aerial photographs, and geologic field reconnaissance, landslides are not indicated to underlie the pipeline route. Earthquake induced landsliding has the greatest potential in areas of high seismicity and where topography and geologic conditions result in unstable slopes. In general, these conditions do not exist along the pipeline alignment.

SECTION 9: EXPANSIVE SOILS AND COMPRESSIBLE SOILS

Expansive soils are soils that undergo volumetric change with change in water content. The soil will swell with increase in moisture content and will shrink with decrease in moisture content. Soils with high shrink-swell potential generally contain high percentages of certain clay minerals and can cause extensive damage to surface structures and improvements, especially concrete slabs and flatwork placed on soils at surface grade. Soils in the study area that have a relatively high clay content may be expansive.
Loose or compressible soils may be found in the study area, particularly, with respect to alluvial soils or poorly compacted fill. Compressible soils can be susceptible to settlement when additional loads are placed on them.

SECTION 10: AGRICULTURAL SOILS

From an agricultural perspective, based on Soil Survey information from the United States Department of Agriculture (2008), soils classified as a loam, sand loam or silt loam primarily underlie the pipeline route. A loam is a friable soil containing a relatively equal mixture of sand and silt and a somewhat smaller portion of clay. The term can be modified such as to a sand loam to indicate a predominate constituent. Alluvium is the primary parent material of the agricultural soils delineated in the study area.

SECTION 11: CONCLUSIONS

Based on the results of our study, it is our opinion that construction of the proposed pipeline Project is feasible from a geotechnical perspective. There are no adverse geologic or geotechnical conditions that cannot be mitigated through proper design and construction techniques. The following sections discuss site-specific geologic and geotechnical issues.

11.1 - Geologic and Geotechnical Issues

- The west end of the alignment crosses over Segment 3 of the Great Valley fault system. The fault is classified as a blind thrust fault and although capable of generating strongground motions is not considered to pose a hazard for ground surface rupture. Other portions of the alignment do not cross known active faults. State of California Earthquake faults zones have not been established on the pipeline route.
- There are several active faults in the region, particularly west of the west end of the Project. Accordingly, the study area is subject to ground shaking due to earthquakes. Historically, the study area has experienced a low to moderate seismicity.
- Based on our review of background information landslides have not been reported along the pipeline route. Further, evidence of deep-seated landslides was not observed in our review of aerial photographs or during our field reconnaissance.
- There is a potential for liquefaction to occur along portions of the pipeline alignment as a result of ground shaking during earthquakes. Liquefaction can cause settlement of soils and the structures on which they are built. Because liquefied soils behave as a liquid for a short time, there may also be a tendency for buoyant facilities to float. Liquefiable soils and its effects can be remedied by removal and recompaction, deep foundations extending into underlying competent materials, deep dynamic compaction, vibro-compaction, other soil modifications, and/or structural designs incorporated to withstand the potential effects of liquefied soil conditions. The geotechnical design report for the Project (Kleinfelder, 2007), has provided potential settlements in the case of a strong seismic event capable of causing liquefaction. The majority of the pipeline will be of 30-inch diameter welded steel pipe. Welded steel pipe has a degree of inherent flexibility in it allowing it to withstand some deformations of the adjacent ground. As long as the pipeline is designed and constructed to withstand the indicated

potential dynamic settlements and buoyant tendencies, there will be a less than significant impact due to liquefaction.

- Expansive soils may be present along the pipeline route. In general, expansive soils have little effect on buried pipelines of typical construction. Treatment of expansive soils if present at or near grade of surface improvements may be needed. Treatment of expansive soils might include removal and replacement with non-expansive soils, lime treatment, moisture conditioning, or utilization of special foundations.
- Compressible soils are present in areas along the pipeline route. Buried pipelines typically do not cause underlying soils to settle as they represent less load than the weight of the soil mass removed to place the pipe. Poorly compacted backfill over the newly placed pipe may constitute a compressible soil that may settle in time and/or with the introduction of water. Loads imposed by surface improvements may cause compressible soils to settle. Means to remedy compressible soils include removal and recompaction (to improve their density), surcharging, compaction grouting, deep soil compaction, deep foundations, or foundations specially designed to tolerate the anticipated settlement.
- The Project includes planned HDD crossings beneath several flood control levees. The possible degradation of the integrity and stability of the levees due to the crossings is a consideration. The geotechnical design report for the Project (Kleinfelder, 2007) has provisions to protect the levees, including settlement monitoring during construction and grouting (sealing) the pipeline/boring configuration to prevent water seepage along it. The HDD crossings will beneath the levees and adjoining channels and will have entry and exit points several hundred feet beyond the landsides of the levees. If the recommendations of the geotechnical reports and the requirements of the jurisdictional agencies are followed, the HDD crossings should not have a significant impact to the stability or performance of the flood control levees.
- The HDD technique involves the pumping of drilling fluids under high pressure to drive the drilling bit and circulate out the drill cuttings. The drilling operations may encounter subsurface conditions whereas the pressurized drilling fluids (or “mud”) can propagate fractures in the substrata allowing the drilling mud to migrate away from the borehole. If the drilling mud migrates to the ground surface it is referred to as an inadvertent release or a “frac out.” Inadvertent release of drilling fluids can pose a hazard to the environment. The Project Description indicates that drilling operations would be stopped immediately if a frac out was to occur. A frac out condition may be resolved by reducing the mud system pressure of increasing the mud viscosity. Contingency plans are included in the proposed Project Construction Procedures to clean up inadvertent releases.
- Similar geology and soils conditions exist for the optional pipeline routes that are being considered. Accordingly, the possible alternative alignments should not involve significantly different geology and soils impacts.
- In our opinion the Proponents Environmental Assessment relative to geology and soils issues is an adequate evaluation for the intended purpose. We consider the project feasible from a geotechnical perspective. We concur that there are no geology or soils conditions where mitigation measures are required.

SECTION 12: LIMITATIONS

The field evaluation and geotechnical analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No warranty, implied or expressed, is made regarding the conclu-

sions, recommendations, and professional opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be encountered. Our preliminary conclusions and recommendations area based on an analysis of the observed conditions and the referenced background information.

The purpose of this study was to evaluate geologic and geotechnical conditions within the project site and to provide a geotechnical reconnaissance report to assist in the preparation of environmental impact documents for the project. The report is not intended for design or construction purposes.

SECTION 13: REFERENCES

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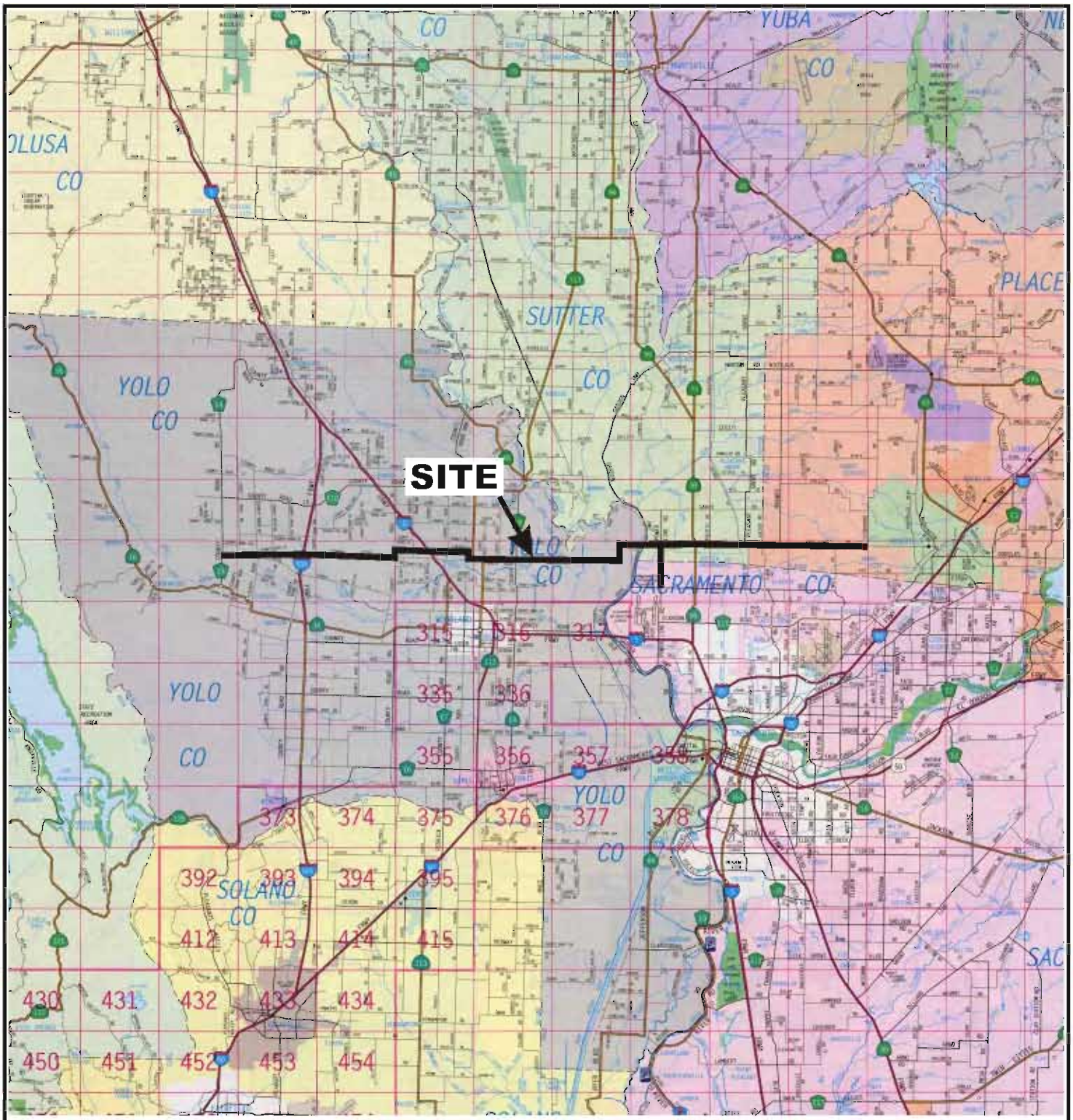

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0 8 16

APPROXIMATE SCALE IN MILES

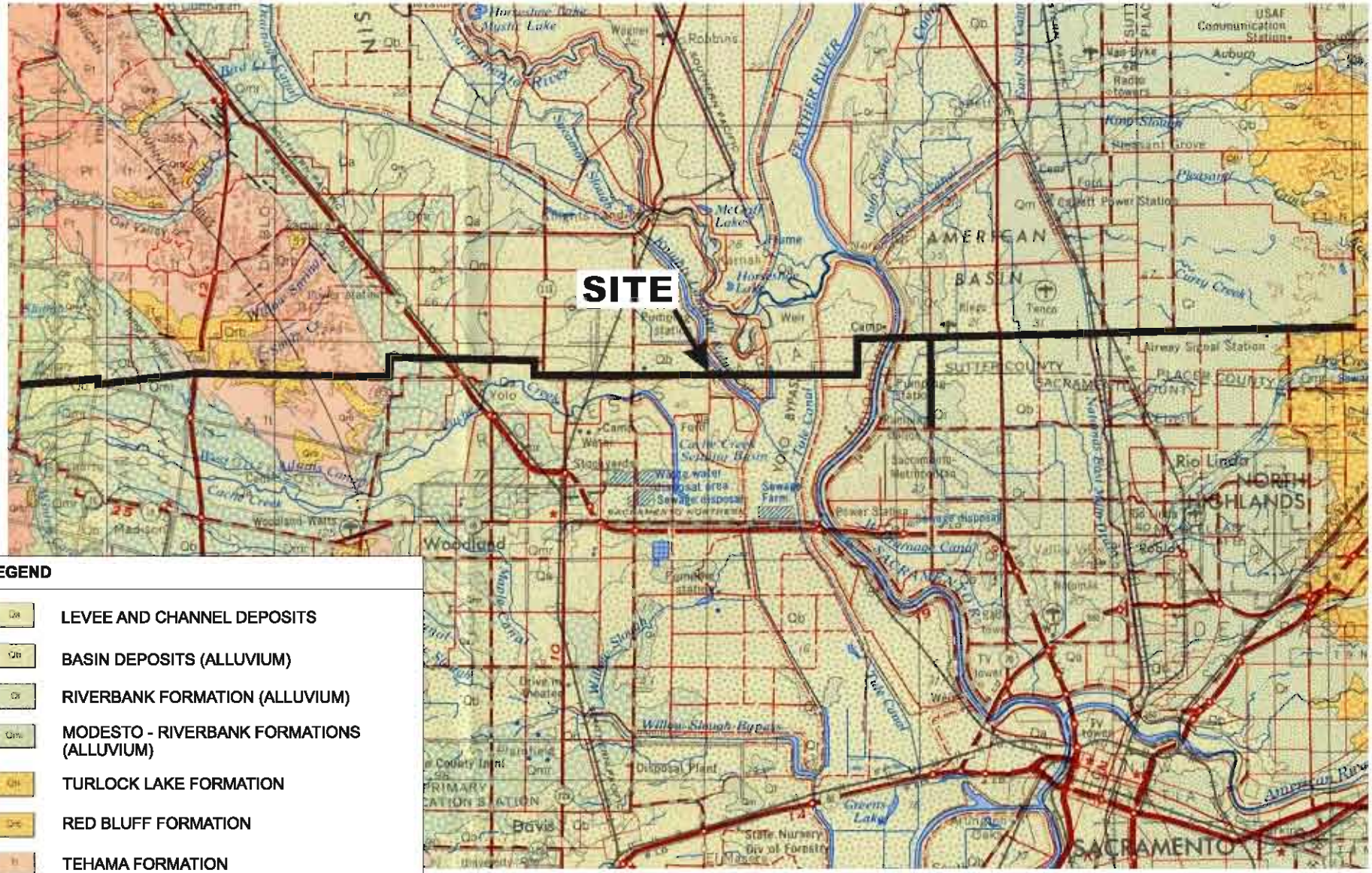
N

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Map © Rand McNally, R.L.07-S-129

fig 1 106323001 elm

Ninyo & Moore		STUDY AREA	FIGURE
PROJECT NO.	DATE	GEOLOGICAL TECHNICAL STUDY PG&E LINE 406 AND LINE 407 PIPELINE PROJECT	1
106323001	9/08		



LEGEND

- Qa — LEVEE AND CHANNEL DEPOSITS
- Qb — BASIN DEPOSITS (ALLUVIUM)
- Qr — RIVERBANK FORMATION (ALLUVIUM)
- Qmr — MODESTO - RIVERBANK FORMATIONS (ALLUVIUM)
- Qtl — TURLOCK LAKE FORMATION
- Qrb — RED BLUFF FORMATION
- Ti — TEHAMA FORMATION

N

APPROXIMATE SCALE

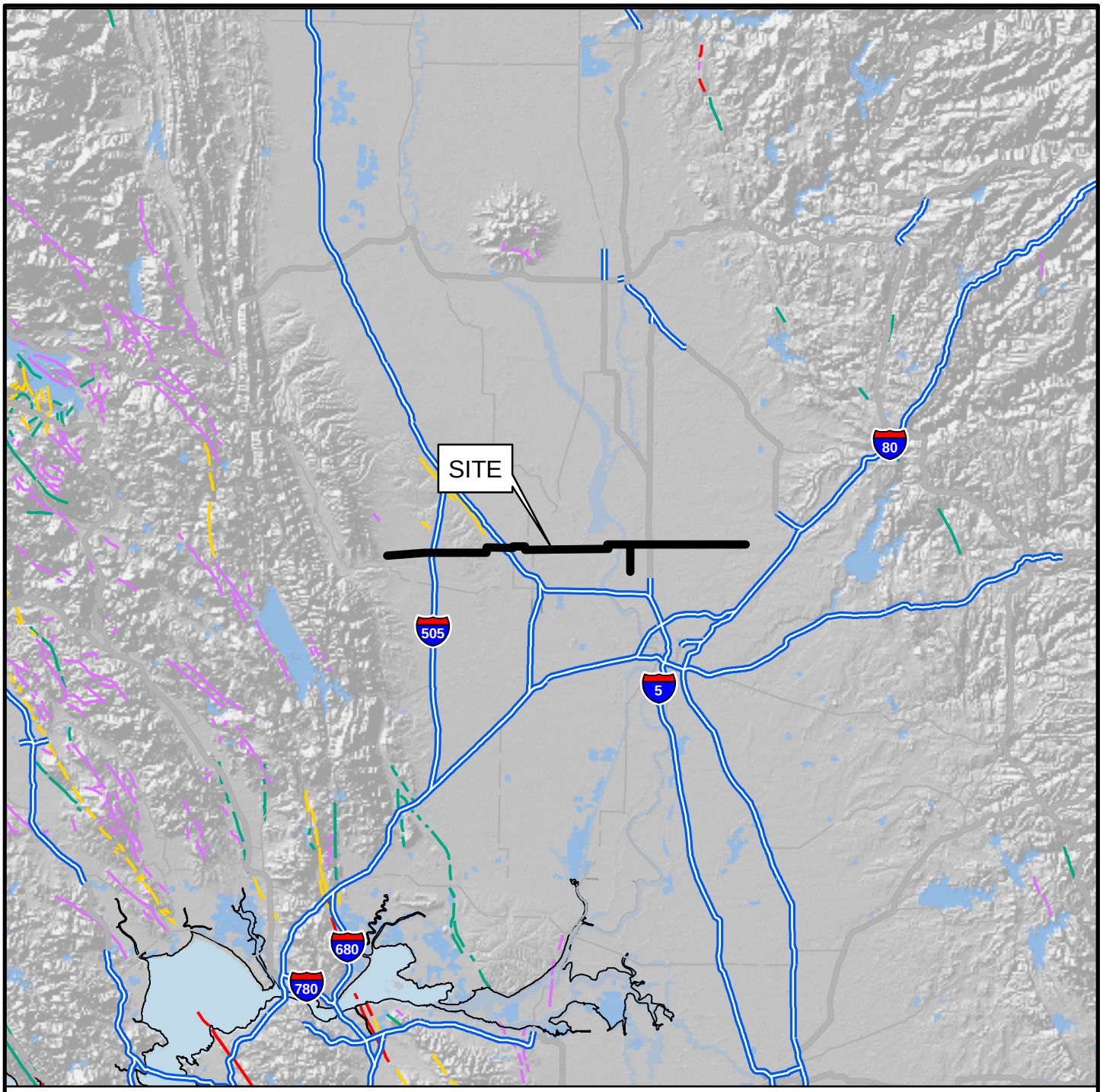
0 4 8 MILES

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

REFERENCES: WAGNER ET AL., 1981; AND WAGNER AND BORTUGNO, 1982.

Ninyo & Moore	GENERALIZED GEOLOGIC MAP	FIGURE
PROJECT NO. 106323001 / DATE 9/08	GEOLOGICAL TECHNICAL STUDY PG&E LINE 406 AND LINE 407 PIPELINE PROJECT	2

fig 2 106323001 geologic



GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
REFERENCE: JENNINGS, 1994, FAULT ACTIVITY MAP OF CALIFORNIA AND ADJACENT AREAS

LEGEND

FAULT ACTIVITY:

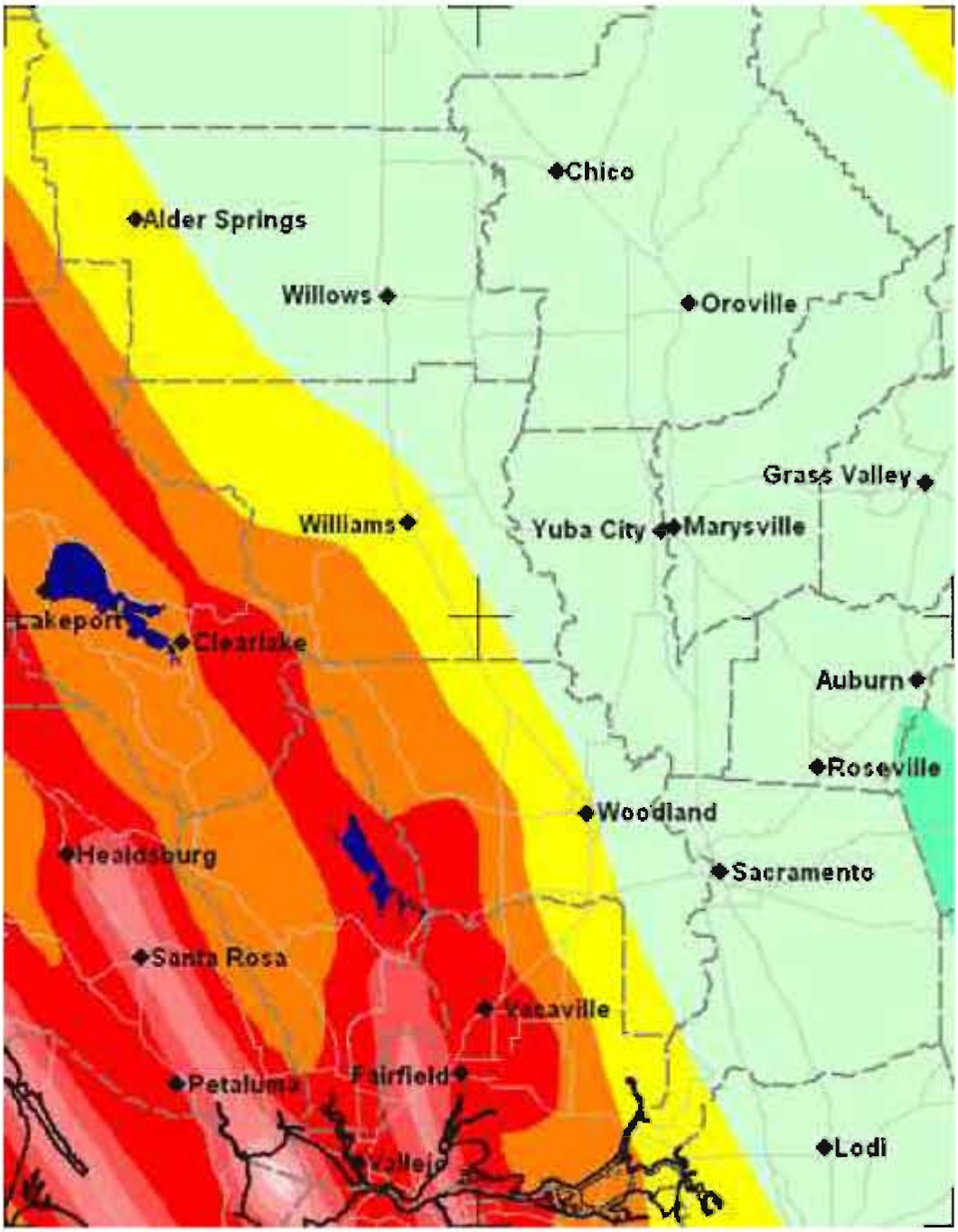
- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- LATE QUATERNARY (POTENTIALLY ACTIVE)
- QUATERNARY (POTENTIALLY ACTIVE)

N

APPROXIMATE SCALE

0 15 30 MILES

Ninyo & Moore	FAULT LOCATION MAP	FIGURE
PROJECT NO. / DATE	GEOLOGICAL TECHNICAL STUDY PG&E LINE 406 AND LINE 407 PIPELINE PROJECT	3
106323001 / 9/08		



Shaking (%g)
Pga (Peak Ground Acceleration)
Firm Rock

- < 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- > 80%

The unit "g" is acceleration of gravity.

N

NOT TO SCALE

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

SOURCE: CALIFORNIA GEOLOGICAL SURVEY, 2008.

Ninyo & Moore		PEAK GROUND ACCELERATION 10% OF BEING EXCEEDED IN 50 YEARS	FIGURE
PROJECT NO.	DATE	GEOLOGICAL TECHNICAL STUDY PG&E LINE 406 AND LINE 407 PIPELINE PROJECT	4
106323001	9/08		

fig 4 106323001 peak accel

Appendix H: Environmental Site and Risk Assessments

H-1: Environmental Site Assessment

SCREENING LEVEL
ENVIRONMENTAL SITE ASSESSMENT

California State Lands Commission, PG & E Line 406 & 407
40-mile Corridor from Esparta to Roseville
Yolo and Placer Counties

Project Number: MBA101-1P1

Prepared for:

Michael Brandman Associates (MBA)
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Prepared by:

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ENVIRONMENTAL SERVICES INC.

Hanover Environmental Services, Inc.
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10 June 2008

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1.0 Summary

Hanover Environmental Services, Inc. (Hanover) has performed a "screening level" Environmental Site Assessment in conformance with the scope and limitations of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and ASTM Standard Practice for Environmental Site Assessments E 1527-05 for the subject property described as a 500 ft. buffer along a 40-mile corridor from Esparta to Roseville in Yolo and Placer Counties, California (proposed project). Any exceptions to, or deletions from this practice are described in Section 2.4 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property.

While no environmental site assessment can fully eliminate the uncertainty regarding the potential for recognized environmental conditions, the ASTM standard does cite the balance between appropriate levels of inquiry and the cost of such exhaustive investigations. The information contained in this report would lead one to the opinion that the probability of recognized environmental conditions in association with the subject property *is not s*ignificant enough to warrant further investigation.

2.0 Introduction

2.1 Purpose

Hanover has created this "screening level" Environmental Site Assessment under the direction of a State of California Registered Environmental Assessor. This document serves to identify recognized environmental conditions that may create a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment in association with the construction of the proposed project within project corridor. The term recognized environmental conditions means the presence or the likely presence of any hazardous substances or petroleum products on a subject property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous material or petroleum product into structures on the subject property or into the ground, groundwater, or surface water of the subject property. The term includes hazardous substances or petroleum products even under conditions in compliance with existing laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. This report has been prepared in an objective and unbiased manner and in accordance with EPA AAI 40 CFR Part 312 and ASTM Practice E 1527-05 with the exception and limitations described in Section 2.4.

The proposed project is the installation of a Pacific Gas & Electric (PG&E) pipeline along a 40-mile corridor extending from Esparta in Yolo County to the City of Roseville in Placer County. For the purposes of this analysis, a 500-foot buffer was established along the pipeline route (hereafter referred to as the proposed project, project corridor, subject corridor or subject property). This document has been prepared to assist in the preparation of an Environmental Impact Report being prepared for the proposed project in accordance with the California Environmental Quality Act (CEQA) Guidelines and significance thresholds. This document is for the use of Michael Brandman Associates (MBA) and their assignees.

2.2 Detailed Scope-of-Services

This assessment has been conducted outside of the Environmental Protection Agency and the recommendations of American Society for Testing and Materials (ASTM) to assist in providing "all appropriate inquiry" into the previous uses of a property consistent with good commercial or customary practice scope. This assessment included a review and analysis of existing data and information concerning the project corridor, as well as an update, review and analysis of any current information and data concerning the corridor as contained in the FirstSearch database records addressing the project corridor. Additionally, a site reconnaissance of the subject corridor was performed to determine the existence or non-existence of recognized environmental conditions, now and in the past, and any contamination arising therefrom. This "screening level" assessment follows the outlines and limitations of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and ASTM Standard Practice for Environmental Site Assessments E 1527-05, with exceptions and limitations described in section 2.4.

2.3 Significant Assumptions

Hanover believes the results, specifications, conclusions and professional opinions to be accurate and relevant but cannot accept responsibility for the accuracy or completeness of public documentation or accuracy, completeness, or possible withholding of information by interviewees or other private parties. We make no other warranty, either expressed or implied.

2.4 Limitations, Exceptions, and Data Gaps

The scope of services performed to complete this "screening level" Environmental Site Assessment is limited in nature. Site conditions can change in time, and our assessment is not intended to predict future site conditions. Because of the limited scope and nature of this assessment, site history was developed based on information provided by the site reconnaissance along the project corridor and adjacent sites. This report is not a complete risk assessment and the scope of services does not include a complete determination of the extent of, nor the environmental or public health impact of, known or suspected hazardous materials or wastes.

This property assessment did not include air, soil or water sampling, or laboratory analysis. Therefore, the results of this investigation do not preclude the possibility of hazardous substances being present on the subject properties, currently or in the future. This report does not purport to address all safety problems, if any, associated with the subject property.

In addition, this assessment did not include a local government records research (including Title Reports and Historic Use Information obtained from, although not limited to, the following: Assessor's Office, Building Department, Environmental Health Department, Agricultural Department, Water Districts or Associations, Fire Department).

Interviews with property owners, occupants, local government officials, and others were not conducted.

The following are several non-scope considerations that persons may want to assess in connection with commercial real estate. No implication is intended as to the relative importance of inquiry into such non-scope considerations, and this list is not intended to be all-inclusive:

Asbestos
Radon
Lead-based paint
Lead in drinking water
Wetlands
Regulatory compliance
Cultural and historic resources
Health and safety
Ecological resources
Endangered species
Air quality
Water quality

The government database search included sites that are within the ASTM search range of the subject property. However, sites exist that are in the general vicinity of the subject property without enough information listed to map these "orphan" sites or determine if they are within the ASTM search range. The subject property does not appear to be included in the orphan summary.

The Hanover representative relied on information provided by the Client and/or property manager.

While the Hanover representative collected reasonably ascertainable historical information, gaps in evidence of property use exist. Based on information obtained during the interview process and general knowledge of the history of this vicinity of Yolo and Placer Counties, it is the opinion of the Hanover representative that the historical subject property uses have been adequately defined.

Despite these limitations it is the opinion of Will Bono, Registered Environmental Assessor #04233, that this property assessment provides an appropriate degree of inquiry to determine if recognized environmental conditions exist on the subject property.

2.5 Environmental Personnel

This assessment was conducted under the supervision of Will Bono, Registered Environmental Assessor #04233. The following Hanover Environmental Services, Inc. personnel contributed to the assessment:

- Will Bono, REA#04233, provided supervision, review, and opinions/conclusions.
- Kamie Loeser, Senior Planner, provided review, and opinions/conclusions.
- Mike Andres, GIS Analyst, performed site reconnaissance and prepared site maps.
- Luke Smith, Environmental Scientist, coordinated and reviewed database searches, performed site reconnaissance and prepared the report.

3.0 Site Description

The Hanover representative performed site inspections on April 24th, 25th and May 1st 2008.

3.1 Location and Legal Description

Physical Address:	500 ft. buffer along a 40-mile corridor from Esparta to Roseville (no physical address recorded)
Assessors Parcel Numbers:	refer to the site maps in Appendix A

3.2 Site and Vicinity Characteristics

The project corridor is located in the Sacramento Valley. The Sacramento Valley encompasses the northern one-third of the Central Valley of California, which extends approximately 400 miles from the Tehachapi Mountains in the south to the Klamath-Siskiyou Mountains in the north. The Sacramento Valley trough is strongly asymmetric with the deepest part of the trough west of the apparent surface axis of the valley. The valley is bordered to the east by the Sierra Nevada, to the north by the Cascade Range, and to the west by the Coast Ranges. The Sacramento River is the north-south drainage that extends from the northern portion of the Central Valley south to the Sacramento-San Joaquin Delta.

The project corridor varies in elevation. Topography of the corridor is relatively flat, sloping in a various directions. Regional topography in the vicinity slopes toward the Sacramento River, which the project corridor crosses over.

This analysis evaluates a 500 ft. buffer along a 40-mile corridor from Esparta in Yolo County to Roseville in Placer County. Land uses within the project corridor consist of agricultural uses and associated residences. At the time of the April 24th, 25th and May 1st 2008 site inspections, the subject corridor was primarily vacant and undeveloped land or in agricultural use. Portions of the project corridor are paved with asphalt with other portions being used as a utility right-of-way.

Environmental FirstSearch Network supplied information regarding the physical setting of the subject property. They reported that the dominant soil composition in the general area of the subject property as a clay loam with moderate infiltration rates.

3.3 Current Use of the Property

At the time of the April 24th, 25th and May 1st 2008 site inspections the project corridor was structurally undeveloped. The current uses within the corridor at the time of the inspection were agricultural, residential and commercial. The project corridor followed a linear pattern similar to other public utilities.

3.4 Descriptions of Structures, Roads, Other Improvements on the Site

The subject corridor follows a utility right of way that crosses agricultural fields, streets, highways and waterways. Portions of the corridor parallel roads and overhead power lines with pole-mounted transformers (refer to Site Map Sheets 1-7 and Appendix B for locations and photographs). Transformers were inspected for any visual signs of leaks by the Hanover representative during the site reconnaissance.

Transformers were located, mapped with a GPS and plotted on the Site Map in Appendix A. There were no structural developments located within the subject corridor at the time of inspection.

3.5 Current Uses of the Adjoining Properties

Adjoining properties are used for agricultural, residential and commercial purposes. The majority of the subject corridor was adjacent to vacant land used for agriculture and livestock grazing.

4.0 User Provided Information

4.1 Title Records

Preliminary Title Reports for the subject corridor were not provided nor reviewed as part of this screening level analysis.

4.2 Environmental Liens or Activity and Use Limitations

There were no reported environmental liens or activity and use limitations due to hazardous material issues on the subject property.

4.3 Specialized Knowledge

There was no specialized knowledge of any recognized environmental conditions recorded, reported or discussed on the subject or surrounding properties.

4.4 Commonly Known or Reasonably Ascertainable Information

There was no recorded, reported or discussed commonly known or reasonably ascertainable information on the subject property.

4.5 Valuation Reduction for Environmental Issues

The client/user indicated that there is no known valuation reduction for the subject property due to environmental issues.

4.6 Owner, Property Manager, and Occupant Information

Property Owners:	Not applicable
Property Occupant:	Not applicable
Key Site Manager:	Ms. Chelsea Ayala, Michael Brandman Associates (MBA), was identified as the CEQA Project Manager

4.7 Reason for Performing Screening Level Environmental Analysis

The purpose of this "screening level" Environmental Site Assessment is to assist in identifying any potential hazardous materials related risks that the proposed project may encounter during implementation and construction (per CEQA significance criteria). PG&E plans to install an underground pipeline from Esparta in Yolo County to Roseville in Placer County via lines identified as 406/407.

4.8 Other

Ms. Chelsea Ayala, MBA affiliate, supplied Hanover with supplemental information regarding the subject corridor. Background data was utilized to distinguish project boundaries and landscape details. No known recognized environmental conditions were reported or recorded by MBA or their affiliates.

5.0 Records Review

5.1 Standard Environmental Record Sources

Environmental FirstSearch Network provided information on standard environmental records. The standard environmental record sources and approximate minimum search distances were included per ASTM Practice E 1527-05 Section 8.2.1.

Standard Environmental Record Sources	Approximate Minimum Search Distance (mi)
Federal NPL Site List	1.0
Federal Delisted NPL Site List	0.5
Federal CERCLIS List	0.5
Federal CERCLIS NFRAP Site List	0.5
Standard Environmental Record Sources	**Approximate Minimum Search Distance (mi)**
Federal RCRA CORRACTS Facilities List	1.0
Federal RCRA Non-CORRACTS TSD Facilities List	0.5
Federal RCRA Generators List	Property/Adjoining Properties
Federal Institutional Control/Engineering Control Registries	Property Only
Federal ERNS List	Property Only
State- and Tribal-Equivalent NPL	1.0
State- and Tribal-Equivalent CERCLIS	0.5
State and Tribal Landfill and/or Solid Waste Disposal Site Lists	0.5
State and Tribal Leaking Storage Tank Lists	0.5
State and Tribal Registered Storage Tank Lists	Property/Adjoining Properties
State and Tribal Institutional Control/Engineering Control Registries	Property Only
State and Tribal Voluntary Cleanup Sites	0.5
State and Trial Brownfield Sites	0.5

Descriptions of the environmental records searched, original source of information, approximate search distance, date information was last updated by FirstSearch, and date information was last updated by original source are listed in Appendix C. Section 5.3 discusses the results of this review.

5.2 Additional Environmental Record Sources

Information on additional environmental records was provided by FirstSearch. Descriptions of the additional environmental records searched, original source of information, approximate search distance, date information was last updated by FirstSearch, and date information was last updated by original source are listed in Appendix C. Section 5.3 discusses the results of this review.

5.3 Standard and Additional Environmental Record Review Results

The database search summary, provided by FirstSearch, reported that the subject corridor was listed in four databases. These databases include RCRAInfo, State/Tribal Sites, State/Tribal UST AST and FINDS. The 500-foot corridor database search identified several potential sites or "hits" along the project corridor. These sites were the subject of site investigations. However, upon site visits, some of these sites were located outside the corridor. Provided below is a summary of the databases and the identified hits located within the databases searched for the project corridor.

RCRAInfo - RESOURCE CONSERVATION AND RECOVERY ACT INFORMATION SYSTEM:
RCRAInfo is the Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites, which generate, transport, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100kg and 1000 kg of hazardous waste per month.

Large quantity generators generate over 1000 kg of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

FINDS - FACILITY INDEX SYSTEM:
FINDS is an index of identification numbers associated with a property or facility which the EPA has investigated or has been made aware of in conjunction with various regulatory programs. Each record indicates the EPA office that may have files on the site or facility. A Facility Registry System site has an FRS in the status field.

State/Tribal UST/AST: CA EPA/COUNTY/CITY ABOVEGROUND STORAGE TANKS LISTING:
The Above Ground Petroleum Storage Act became State Law effective January 1, 1990. In general, the law requires owners or operators of Aboveground Storage Tanks (AST's) with petroleum products to file a storage statement and pay a fee by July 1, 1990 and every two years thereafter, take specific action to prevent spills and, in certain instances, implement a groundwater monitoring program. This law does not apply to that portion of a tank facility associated with the production oil and regulated by the State Division of Oil and Gas of the Dept. of Conservation.

- CONSOLIDATED DEALER SYSTEMS located at 2546 RIEGO RD, PLEASANT GROVE CA (Site Map Sheet 6 of 7, ID# CAD982445512). This site was identified in the RCRAInfo and FINDS databases and plotted within the property corridor. During the site inspection the Hanover representative did not identify any potential hazardous material related risks associated within the subject corridor.

- MEYER FOOD STORE, / REGIO MARKET & DELI, located at 8000 PLEASANT GROVE RD, ELVERTA CA 95626 (Site Map Sheet 6 of 7, ID# TISID-STATE34999 / ID# PLACERCO_PR000713, respectively). This site has active USTs. This site was located with in the search 500' linear corridor. The proposed pipeline location will not be located within the UST location. This site is not a recognized environmental condition in association with the subject property. This site is listed in multiple databases.

- ACTIVE UST - MCI TELECOMMUNICATIONS, 3387 RIEGO RD, PLEASANT GROVE CA 95668 (Site Map Sheet 6 of 7, ID# CAD982332868). The proposed pipeline will not be located within the UST location. This site is not a recognized environmental condition in association with the subject property.

- STATE - CORNELIUS AIRSTRIP, RIEGO RD and PACIFIC AVE, PLEASANT GROVE CA 95668 (Site Map Sheet 6 of 7, ID# CAL51070016). This site is not a recognized environmental condition in association with the subject corridor.

5.3.1 Federal Environmental Records

Multiple sites were identified within the search radius of the subject property in the Federal Regulatory records databases. A complete listing and description of databases that were searched are included in Appendix C.

All sites identified in the FirstSearch Databases listed as 0.0 miles from the subject corridor were visually inspected by the Hanover representatives. During the inspections the representatives reported that these sites were not actually located within the subject corridor; "hits" were identified based on the corresponding street address, which was within the corridor, however the potential sites were actually located outside of the project's 500-foot buffer.

Hanover representatives reported that there was no visual evidence of any recognized environmental conditions in association with the subject corridor.

5.3.2 State Environmental Records

Multiple sites were identified within the search radius of the subject property in the State Regulatory records databases. A complete listing and description of databases that were searched are included in Appendix C.

All sites identified in the FirstSearch Databases listed as 0.0 miles from the subject corridor were visually inspected by the Hanover representatives. During the inspections the representatives reported that these sites were not actually located within the subject corridor; "hits" were identified based on the corresponding street address, which was within the corridor, however the potential sites were actually located outside of the project's 500-foot buffer.

5.3.2.1 Non GeoCoded Sites:

The State government database search included sites that are within the ASTM search range of the subject corridor. However, potential sites exist that are in the general vicinity of the project corridor but there is not enough information provided to databases to map these "orphan" sites or determine if they are within the ASTM search range. The database summary indicates that there are one hundred and thirteen (113) orphan sites within the project corridor's search radius. Unmapped (Non GeoCoded) sites are not considered in the foregoing analysis.

5.3.2.2 State Water Resources Control Board GeoTracker Database

The Hanover representative reviewed the online State Water Resources Control Board GeoTracker Database. The subject corridor and surrounding properties were not identified.

5.4 Historical Use Information on the Property and Adjoining Properties Sources and Results

Hanover representative reviewed information from several historical use sources (Appendix D). A summary of the information concludes that the project corridor has been structurally undeveloped dating back to 1952. The following resources provide further historical information:

5.4.1 Aerial Photographs

Aerial Photographs were reviewed to determine past land use patterns of the project corridor and surrounding properties. The subject corridor was vacant in all aerial photographs supplied by FirstSearch. Aerial photographs from 1952, 1962, 1987 and 1998 were reviewed and are available upon request. The subject corridor follows roads in the majority of the aerial photographs reviewed. There were no structures observed within the subject corridor. Surrounding properties were vacant and agricultural in nature.

5.4.2 Fire Insurance Maps

Fire Insurance Maps were reviewed to determine past land use patterns of the subject and surrounding properties. Maps from 1894, 1897, 1907, 1921 and 1930 were reviewed by the Hanover representative. These maps were of Knights Landing and Zamora. The subject corridor is located south of these maps. There was no map coverage available for the subject corridor. Existing maps are attached in Appendix D.

5.4.3 Summary of Historical Use of the Subject Property

1952 – Present: The project corridor is primarily undeveloped. Historical uses of the subject corridor include public utilities with surrounding properties used for agriculture.

6.0 Site Reconnaissance

6.1 Methodology and Limiting Conditions

The Hanover representative performed site reconnaissances on April 24th, 25th and May 1st 2008 to obtain information indicating the likelihood of identifying recognized environmental conditions in association with the subject property.

The periphery of the corridor was visually and/or physically observed. Parcels within the corridor were viewed from all adjacent public thoroughfares. For general information about the subject property, Hanover relied on information provided by the MBA.

Local government records research (including Title Reports and Historic Use Information obtained from, although not limited to, the following: Assessor's Office, Building Department, Environmental Health Department, Agricultural Department, Water Districts or Associations, Fire Department) was not conducted by the Hanover representative; it was not included in the scope of work.

Interviews with property owners, occupants, local government officials, and others were not conducted; interviews were not part of the scope of work.

While the Hanover representative collected reasonably ascertainable historical information, gaps in evidence of individual property uses exist. Based on information obtained during the interview process and general knowledge of the history of this vicinity of the corridor, it is the opinion of the Hanover representative that the historical subject property uses have been adequately defined.

6.2 General Site Setting

Weather conditions during the April 24th, 25th and May 1st 2008 site inspections were dry and cloudy with temperatures in the 70°F range. The subject corridor is undeveloped. Adjoining properties were agricultural residential in nature.

6.3 Exterior Observations

The following information and observations were discovered during the site inspections, refer to Site Map Sheets 1-7:

- Approximately 55 pole mounted transformers
- An empty, rusted 55-gallon drum
- A refrigerator
- An underground gas valve
- A pile of concrete debris
- A 500-gallon AST containing diesel fuel
- A 250-gallon mobile AST containing diesel fuel
- 2 empty 5-gallon buckets of hydraulic fluid and motor oil
- A natural gas well
- Minor staining observed around AST(s)
- No odors associated with a spill, leak or release of hazardous materials

6.4 Interior Observations

- No interiors were observed at the time of the inspection.

7.0 Interviews

7.1 Interview with Property Owner Representative

Interviews were not conducted as a part of this "screening level" assessment.

7.2 Interviews with Local Government Officials

Interviews were not conducted as a part of this "screening level" assessment.

8.0 Findings, Opinions, and Conclusions

Hanover has performed a "screening level" Environmental Site Assessment in conformance with the scope and limitation of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and ASTM Standard Practice for Environmental Site Assessments E 1527-05 for the subject property described as a 500 ft. buffer along a 40-mile corridor from Esparta to Roseville in Yolo and Placer Counties, California. Any exceptions to, or deletions from this practice are described in Section 2.4 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property.

While no environmental site assessment can fully eliminate the uncertainty regarding the potential for recognized environmental conditions, the ASTM standard does cite the balance between appropriate levels of inquiry and the cost of such exhaustive investigations. The information contained in this report would lead one to the opinion that the probability of recognized environmental conditions in association with the project corridor *is not s*ignificant enough to warrant further investigation.

9.0 Qualification and Signature

Hanover Environmental Services, Inc. has performed this assessment under my supervision in accordance with generally accepted environmental practices and procedures, as of the date of this report. I declare that, to the best of my professional knowledge and belief, I meet the definition of environmental professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. I have employed the degree of care and skill ordinarily exercised under similar circumstances by reputable environmental professionals practicing in this area. The conclusions contained within this assessment are based upon site conditions readily observed or were reasonably ascertainable and present at the time of the site inspection.

The conclusions and recommendations stated in this report are based upon personal observations made by employees of Hanover Environmental Services, Inc. and upon information provided by others. I have no reason to suspect or believe that the information provided is inaccurate.

Signature of Senior Environmental Assessor - *Will Bono, REA #04233*

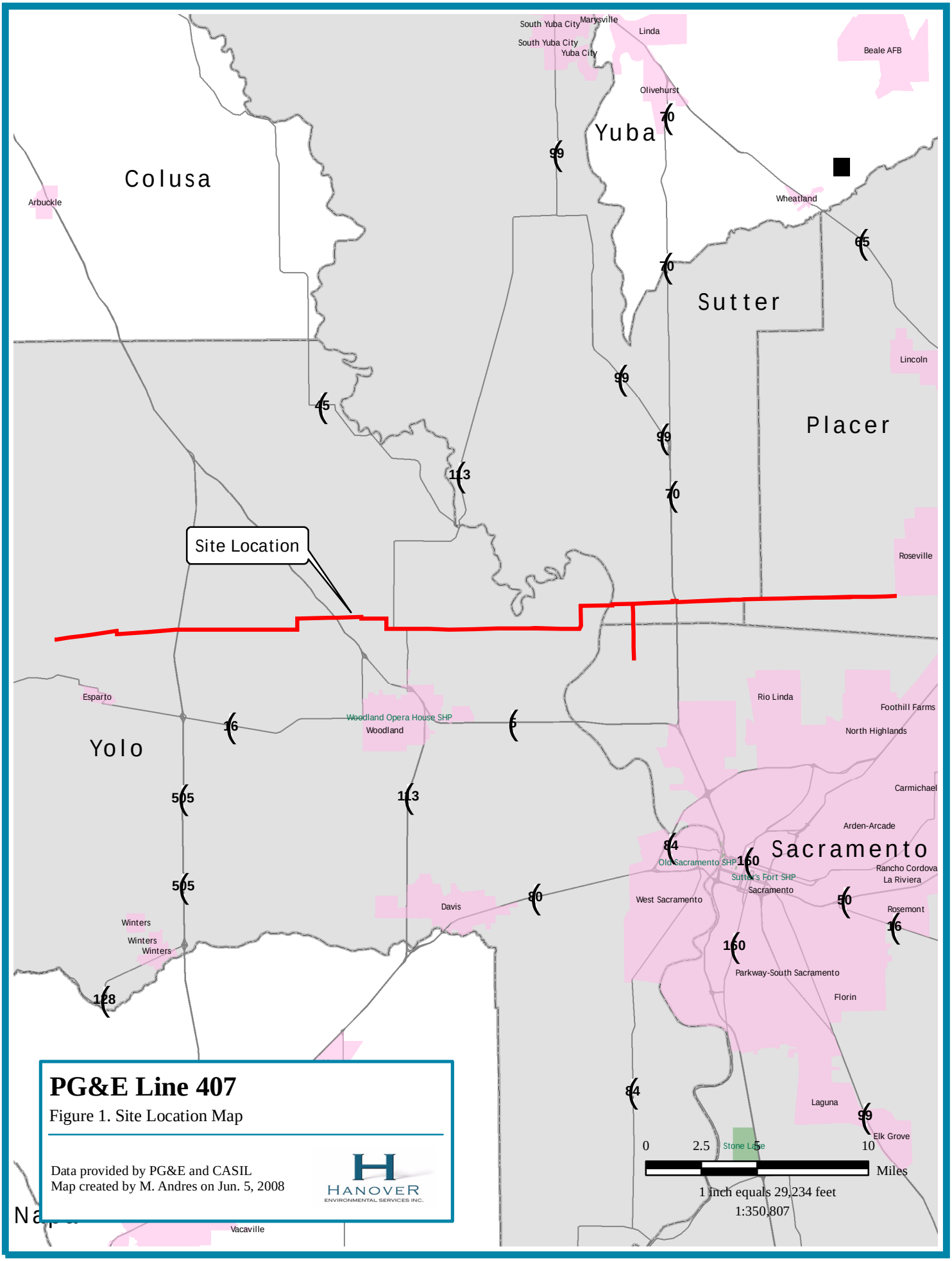
Signature/Seal of Senior Environmental Assessor

10 June 2008

Date

Appendix A: Subject Property Maps

Site Location Map



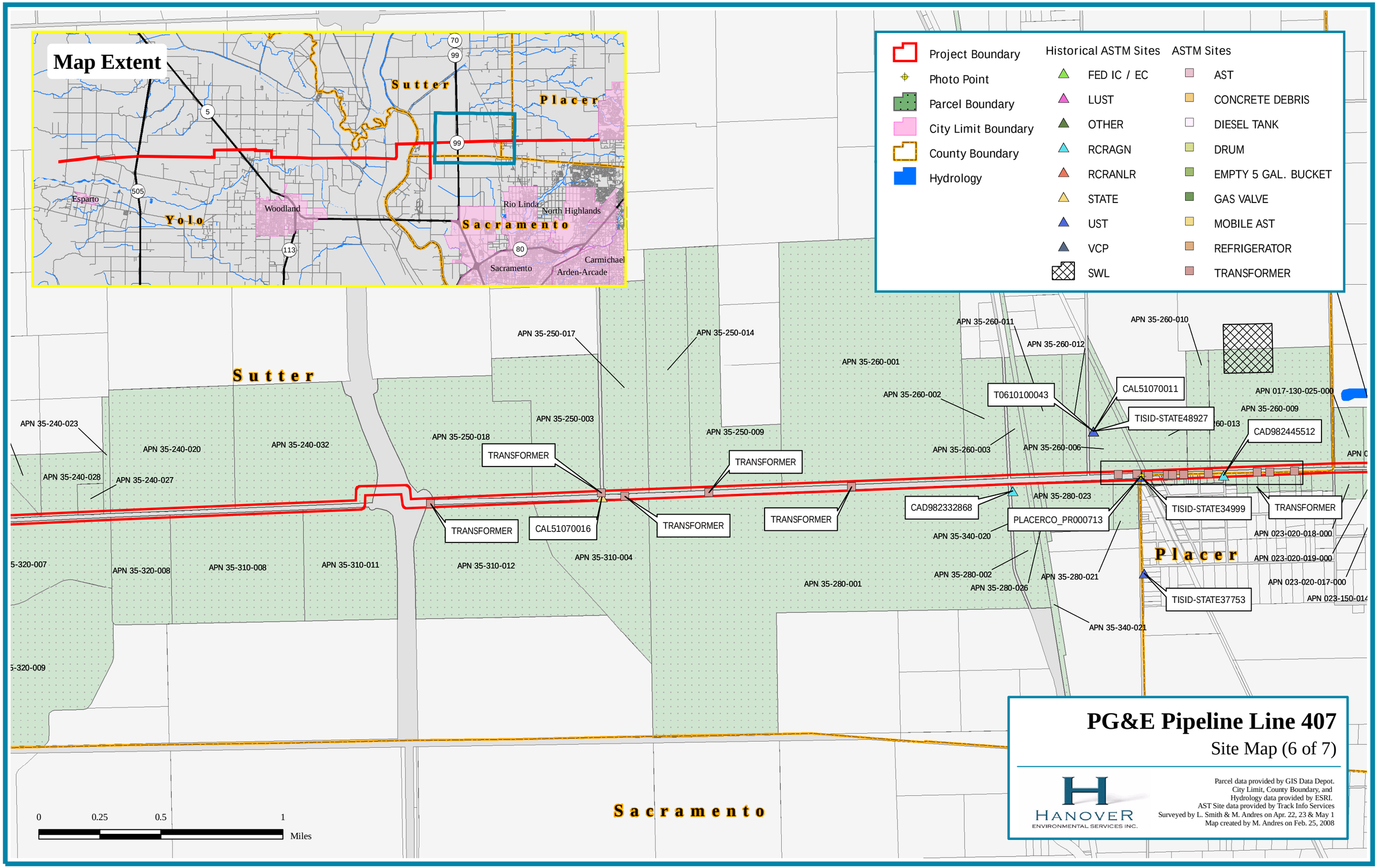
PG&E Line 407

Figure 1. Site Location Map

Data provided by PG&E and CASIL
Map created by M. Andres on Jun. 5, 2008

HANOVER
ENVIRONMENTAL SERVICES INC.

Site Map

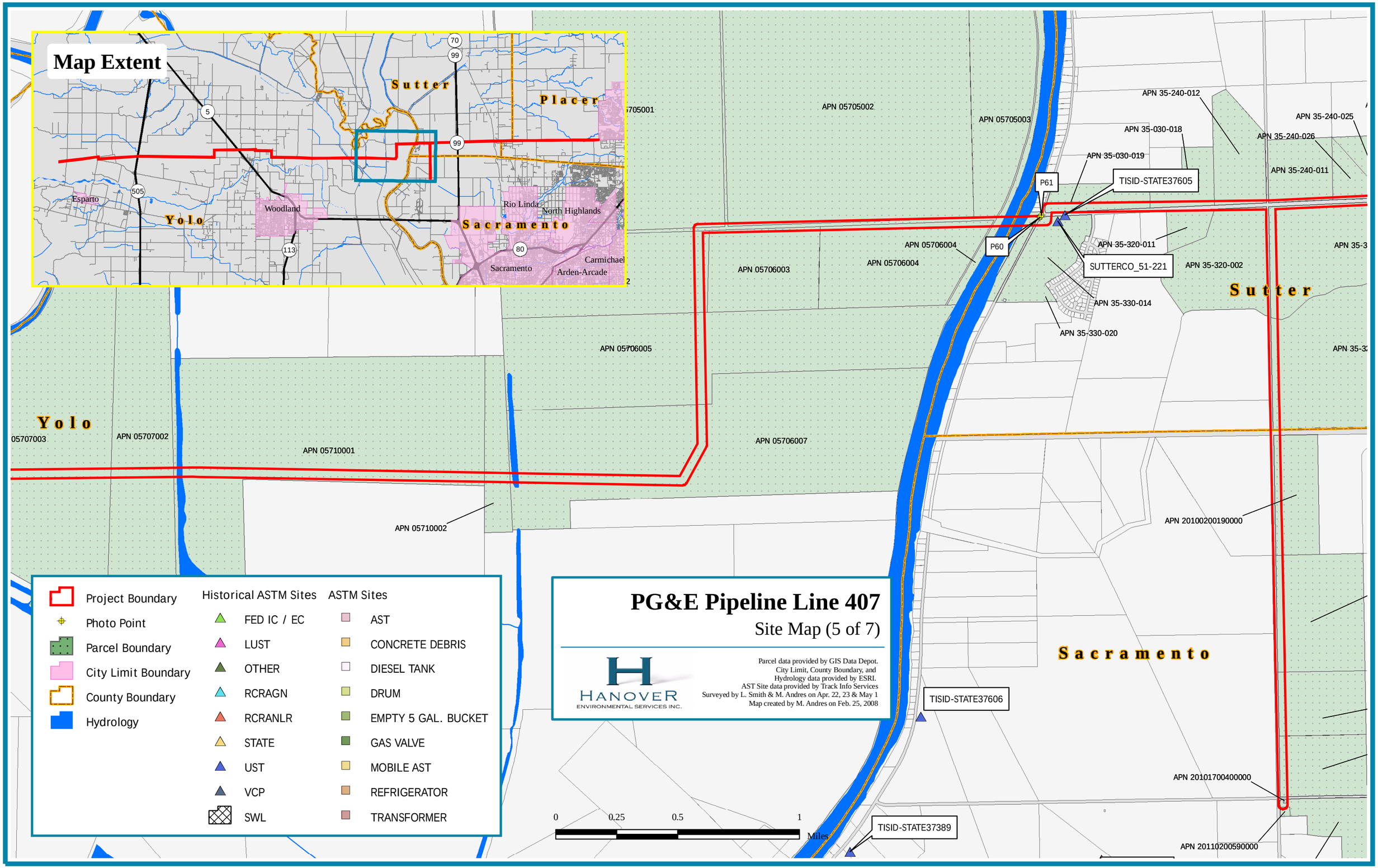


PG&E Pipeline Line 407

Site Map (6 of 7)

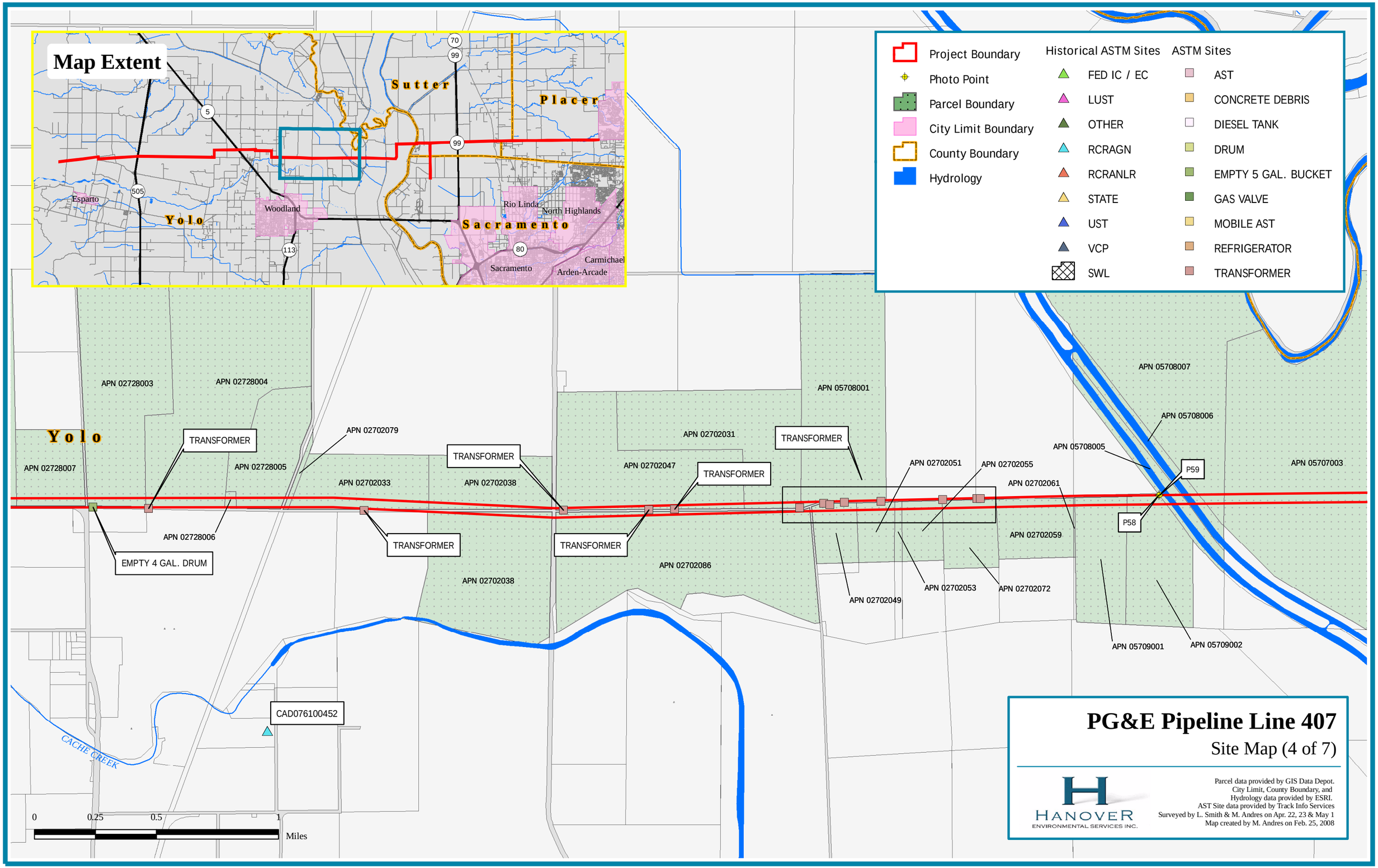
HANOVER
ENVIRONMENTAL SERVICES INC.

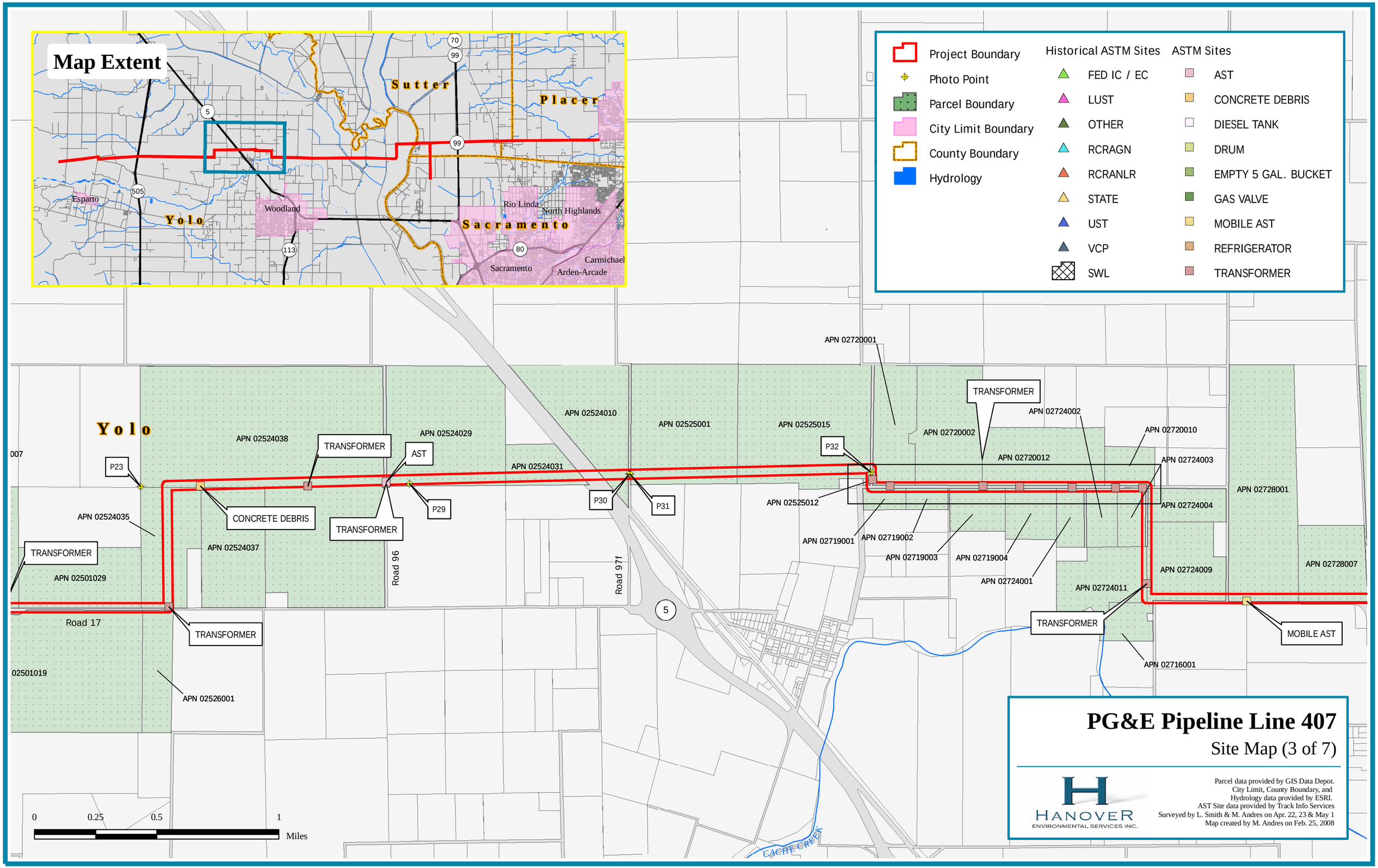
Parcel data provided by GIS Data Depot.
City Limit, County Boundary, and
Hydrology data provided by ESRI.
AST Site data provided by Track Info Services
Surveyed by L. Smith & M. Andres on Apr. 22, 23 & May 1
Map created by M. Andres on Feb. 25, 2008



PG&E Pipeline Line 407

Site Map (5 of 7)


Map Extent
Sutter
Placer
Yolo
Sacramento
Esparto
Woodland
Rio Linda
North Highlands
Sacramento
Carmichael
Arden-Arcade
5
505
113
80
99
70
Project Boundary
Photo Point
Parcel Boundary
City Limit Boundary
County Boundary
Hydrology
Historical ASTM Sites
FED IC / EC
LUST
OTHER
RCRAGN
RCRANLR
STATE
UST
VCP
SWL
ASTM Sites
AST
CONCRETE DEBRIS
DIESEL TANK
DRUM
EMPTY 5 GAL. BUCKET
GAS VALVE
MOBILE AST
REFRIGERATOR
TRANSFORMER
APN 02728003
APN 02728004
APN 02728007
APN 02728005
APN 02728006
APN 02702079
APN 02702033
APN 02702038
APN 02702031
APN 02702047
APN 05708001
APN 02702051
APN 02702055
APN 02702061
APN 05708007
APN 05708006
APN 05708005
APN 05707003
APN 02702059
APN 02702086
APN 02702049
APN 02702053
APN 02702072
APN 05709001
APN 05709002
TRANSFORMER
EMPTY 4 GAL. DRUM
P59
P58
CAD076100452
CACHE CREEK
0
0.25
0.5
1
Miles
PG&E Pipeline Line 407
Site Map (4 of 7)
HANOVER
ENVIRONMENTAL SERVICES INC.
Parcel data provided by GIS Data Depot.
City Limit, County Boundary, and
Hydrology data provided by ESRI.
AST Site data provided by Track Info Services
Surveyed by L. Smith & M. Andres on Apr. 22, 23 & May 1
Map created by M. Andres on Feb. 25, 2008


Map Extent
Sutter
Placer
Yolo
Sacramento
Esparto
Woodland
Rio Linda
North Highlands
Sacramento
Carmichael
Arden-Arcade
Project Boundary
Photo Point
Parcel Boundary
City Limit Boundary
County Boundary
Hydrology
Historical ASTM Sites
FED IC / EC
LUST
OTHER
RCRAGN
RCRANLR
STATE
UST
VCP
SWL
ASTM Sites
AST
CONCRETE DEBRIS
DIESEL TANK
DRUM
EMPTY 5 GAL. BUCKET
GAS VALVE
MOBILE AST
REFRIGERATOR
TRANSFORMER
APN 02720001
APN 02524010
APN 02525001
APN 02525015
APN 02720002
APN 02724002
APN 02720010
APN 02720012
APN 02724003
APN 02524038
APN 02524029
APN 02524031
APN 02525012
APN 02724004
APN 02728001
APN 02524035
APN 02524037
APN 02719001
APN 02719002
APN 02719003
APN 02719004
APN 02724001
APN 02724009
APN 02728007
APN 02501029
APN 02724011
APN 02716001
APN 02501019
APN 02526001
P23
P29
P30
P31
P32
AST
Road 96
Road 97f
Road 17
CACHE CREEK
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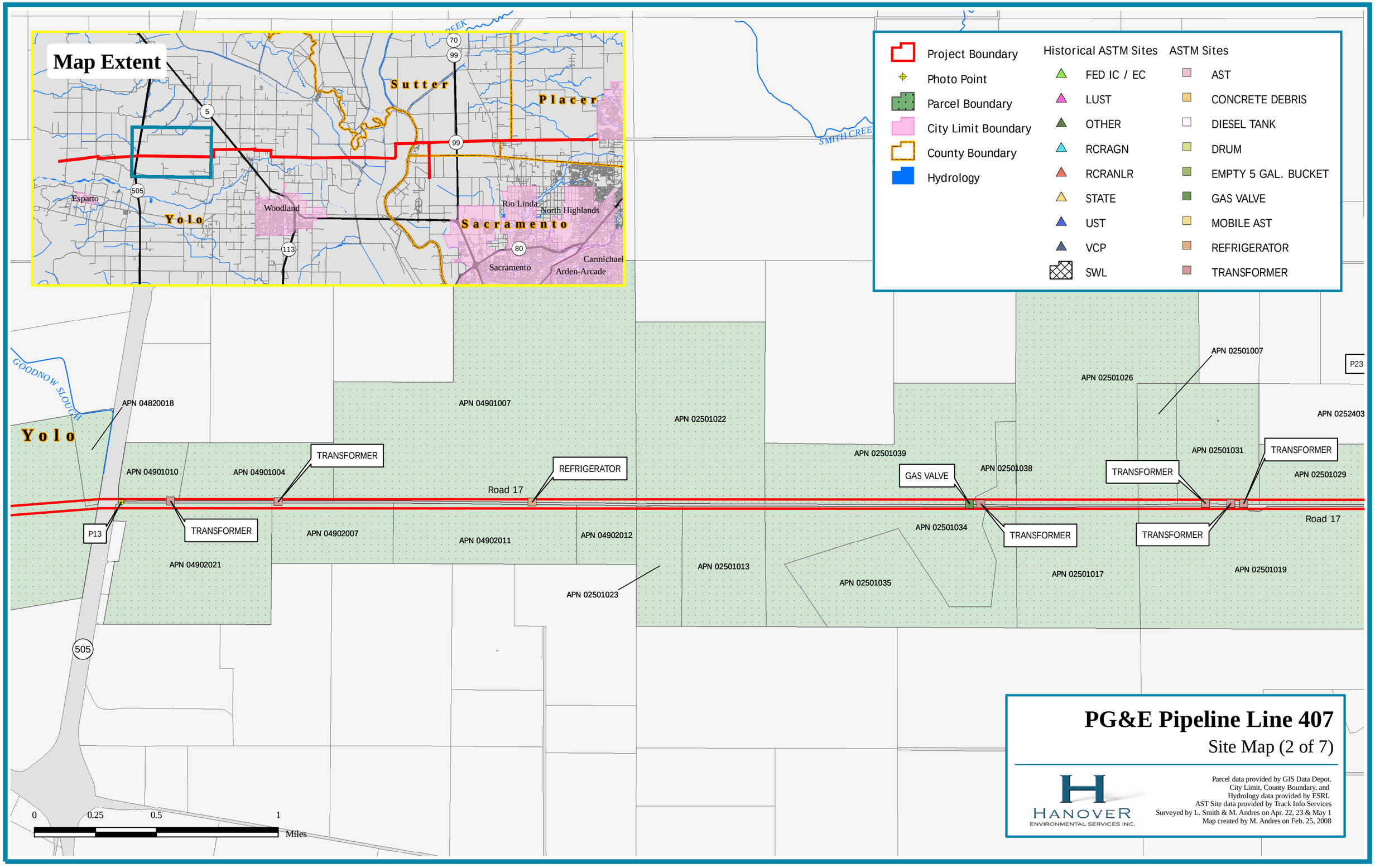
0.25
0.5
1
Miles
PG&E Pipeline Line 407
Site Map (3 of 7)
HANOVER
ENVIRONMENTAL SERVICES INC.
Parcel data provided by GIS Data Depot.
City Limit, County Boundary, and
Hydrology data provided by ESRI.
AST Site data provided by Track Info Services
Surveyed by L. Smith & M. Andres on Apr. 22, 23 & May 1
Map created by M. Andres on Feb. 25, 2008


Map Extent
Sutter
Placer
Yolo
Sacramento
Esparto
Woodland
Rio Linda
North Highlands
Sacramento
Carmichael
Arden-Arcade
SMITH CREEK
GOODNOW SLOUGH
Project Boundary
Photo Point
Parcel Boundary
City Limit Boundary
County Boundary
Hydrology
Historical ASTM Sites
FED IC / EC
LUST
OTHER
RCRAGN
RCRANLR
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UST
VCP
SWL
ASTM Sites
AST
CONCRETE DEBRIS
DIESEL TANK
DRUM
EMPTY 5 GAL. BUCKET
GAS VALVE
MOBILE AST
REFRIGERATOR
TRANSFORMER
APN 04820018
APN 04901007
APN 02501022
APN 02501026
APN 02501007
APN 0252403
APN 04901010
APN 04901004
APN 02501039
APN 02501038
APN 02501031
APN 02501029
Road 17
P13
P23
APN 04902007
APN 04902011
APN 04902012
APN 02501034
APN 04902021
APN 02501013
APN 02501035
APN 02501017
APN 02501019
APN 02501023
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0.25
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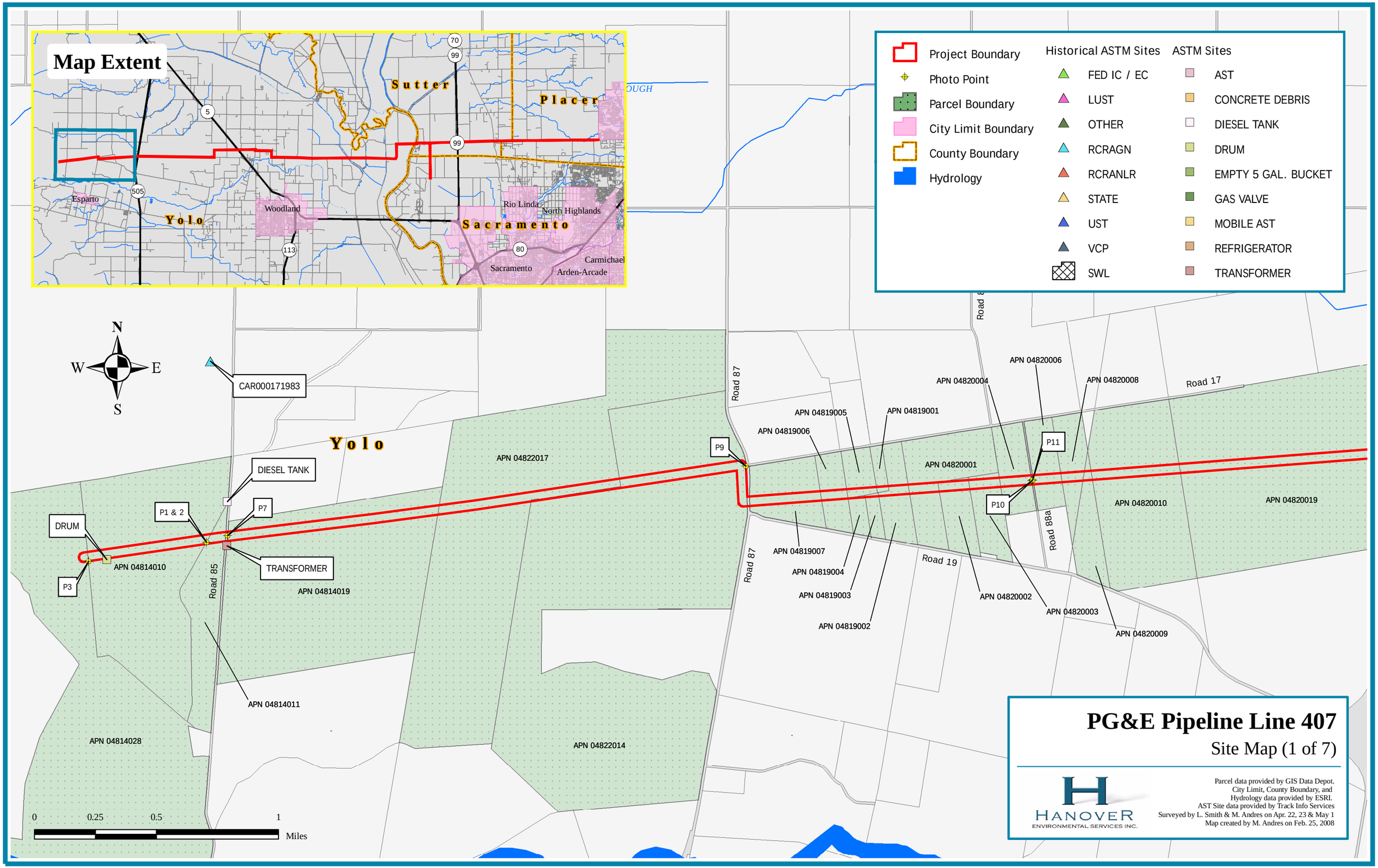
1
Miles
PG&E Pipeline Line 407
Site Map (2 of 7)
HANOVER
ENVIRONMENTAL SERVICES INC.
Parcel data provided by GIS Data Depot.
City Limit, County Boundary, and
Hydrology data provided by ESRI.
AST Site data provided by Track Info Services
Surveyed by L. Smith & M. Andres on Apr. 22, 23 & May 1
Map created by M. Andres on Feb. 25, 2008


Map Extent
Sutter
Placer
Yolo
Sacramento
Esparto
Woodland
Rio Linda
North Highlands
Sacramento
Carmichael
Arden-Arcade
Project Boundary
Photo Point
Parcel Boundary
City Limit Boundary
County Boundary
Hydrology
Historical ASTM Sites
FED IC / EC
LUST
OTHER
RCRAGN
RCRANLR
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UST
VCP
SWL
ASTM Sites
AST
CONCRETE DEBRIS
DIESEL TANK
DRUM
EMPTY 5 GAL. BUCKET
GAS VALVE
MOBILE AST
REFRIGERATOR
TRANSFORMER
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CAR000171983
DIESEL TANK
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P7
DRUM
P3
TRANSFORMER
APN 04814010
APN 04814019
APN 04814011
APN 04814028
APN 04822017
APN 04822014
Road 85
Road 87
Road 17
Road 19
Road 88a
P9
P10
P11
APN 04820006
APN 04820004
APN 04820008
APN 04819005
APN 04819001
APN 04819006
APN 04820001
APN 04820010
APN 04820019
APN 04819007
APN 04819004
APN 04819003
APN 04819002
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APN 04820003
APN 04820009
0
0.25
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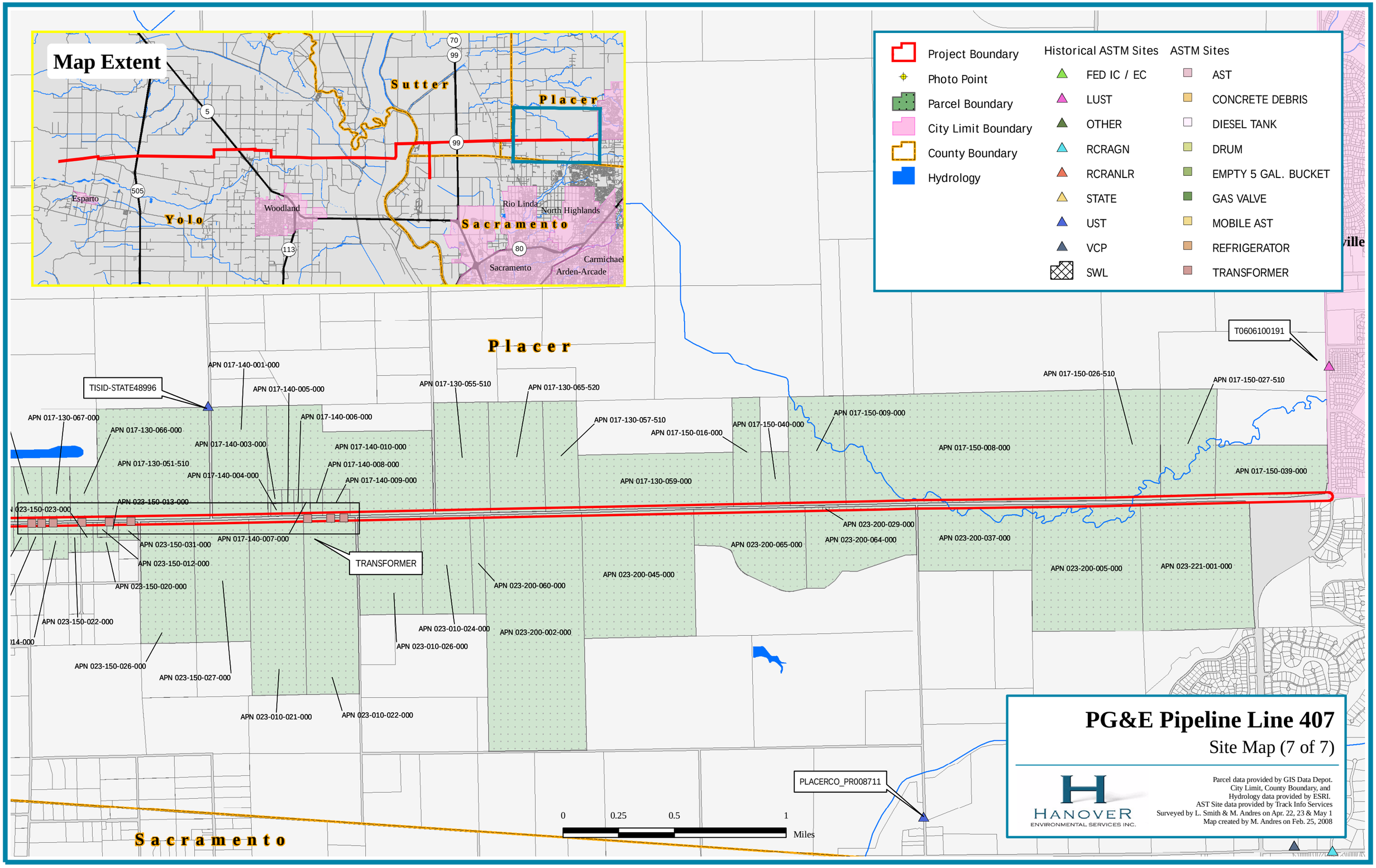
1
Miles
PG&E Pipeline Line 407
Site Map (1 of 7)
HANOVER
ENVIRONMENTAL SERVICES INC.
Parcel data provided by GIS Data Depot.
City Limit, County Boundary, and
Hydrology data provided by ESRI.
AST Site data provided by Track Info Services
Surveyed by L. Smith & M. Andres on Apr. 22, 23 & May 1
Map created by M. Andres on Feb. 25, 2008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Yolo
Sacramento
Esparto
Woodland
Rio Linda
North Highlands
Sacramento
Carmichael
Arden-Arcade
Project Boundary
Photo Point
Parcel Boundary
City Limit Boundary
County Boundary
Hydrology
Historical ASTM Sites
FED IC / EC
LUST
OTHER
RCRAGN
RCRANLR
STATE
UST
VCP
SWL
ASTM Sites
AST
CONCRETE DEBRIS
DIESEL TANK
DRUM
EMPTY 5 GAL. BUCKET
GAS VALVE
MOBILE AST
REFRIGERATOR
TRANSFORMER
TISID-STATE48996
T0606100191
PLACERCO_PR008711
TRANSFORMER
APN 017-140-001-000
APN 017-140-005-000
APN 017-130-055-510
APN 017-130-065-520
APN 017-150-026-510
APN 017-150-027-510
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APN 017-130-066-000
APN 017-140-006-000
APN 017-130-057-510
APN 017-150-016-000
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APN 023-200-064-000
APN 023-200-037-000
APN 023-150-012-000
APN 023-200-045-000
APN 023-200-005-000
APN 023-221-001-000
APN 023-150-020-000
APN 023-200-060-000
APN 023-150-022-000
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APN 023-150-026-000
APN 023-150-027-000
APN 023-010-021-000
APN 023-010-022-000
0
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1
Miles
Sacramento
PG&E Pipeline Line 407
Site Map (7 of 7)
HANOVER
ENVIRONMENTAL SERVICES INC.
Parcel data provided by GIS Data Depot.
City Limit, County Boundary, and
Hydrology data provided by ESRI.
AST Site data provided by Track Info Services
Surveyed by L. Smith & M. Andres on Apr. 22, 23 & May 1
Map created by M. Andres on Feb. 25, 2008

Photo 61: A pole mounted transformer located in the subject corridor.

Photo 62: The subject corridor viewing in a northerly direction.

Photo 63: A pole mounted transformer located in the subject corridor.

Photo 64: A pole mounted transformer located in the subject corridor.

Photo 65: A pole mounted transformer located in the subject corridor.

Photo 66: A pole mounted transformer located in the subject corridor.

Photo 67: A pole mounted transformer located in the subject corridor.

Photo 68: A pole mounted transformer located in the subject corridor.

Photo 69: A pole mounted transformer located in the subject corridor.

Photo 70: 8000 Pleasant Grove Rd is adjacent to the subject corridor to the south.

Photo 71: A pole mounted transformer located in the subject corridor.

Photo 72: A pole mounted transformer located in the subject corridor.

Photo 73: A pole mounted transformer located in the subject corridor.

Photo 74: A pole mounted transformer located in the subject corridor.

Photo 75: A pole mounted transformer located in the subject corridor.

Photo 76: A pole mounted transformer located in the subject corridor.

Photo 77: A pole mounted transformer located in the subject corridor.

Photo 78: A pole mounted transformer located in the subject corridor.

Photo 79: A pole mounted transformer located in the subject corridor.

Photo 80: A pole mounted transformer located in the subject corridor.

Photo 81: A pole mounted transformer located in the subject corridor.

Photo 82: A pole mounted transformer located in the subject corridor.

Photo 83: A pole mounted transformer located in the subject corridor.

Photo 84: A pole mounted transformer located in the subject corridor.

Photo 85: A pole mounted transformer located in the subject corridor.

Photo 86: A pole mounted transformer located in the subject corridor.

Appendix C: Regulatory Records Review

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 60 **DIST/DIR:** 0.00 -- **MAP ID:** 1

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1575
ID2: CA410
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.13
PERCENT CLAY (PERCENT < 2mm):	46.7
K FACTOR:	0.23
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.9
SOIL PERMEABILITY (INCHES PER HOUR):	0.23
CUMULATIVE LAYER THICKNESS (INCHES):	60.9
HYDROLOGIC CHARACTERISTICS:	3.9
SOIL DRAINAGE:	5.2
SUFACE SLOPE (PERCENT):	1
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	50.3
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0.3
ANNUAL FLOOD FREQUENCY:	2.9

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 21 **DIST/DIR:** 0.00 -- **MAP ID:** 2

NAME: MONROE`S LANDFILL
ADDRESS: 8784 PALLADAY ROAD
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 04/09/08
ID1: SWIS34-CR-5008
ID2:
STATUS: CLOSED
PHONE:

SITE OPERATOR INFORMATION:

Operator: *Stark J E*
Operator Address: *8784 Palladay Road* *Elverta* *CA 95626*
Permit Date:
Permit Status:
Land Use Name: *Rural,Residential,Agricultural*
GIS Source for LAT and LONG: *Map*

SITE ACTIVITY INFORMATION:

Activity: *Solid Waste Disposal Site*
Accepted Waste:
Operational Status: *Closed*
Regulatory Status *Pre-regulations*
Program Type
Closure Date:
Closure Type:
Permitted Throughput with Units: *0*
Permitted Capacity with Units: *0*
Remaining Capacity with Units (landfills only): *0*
Permitted Total Acreage: *0*
Permitted Disposal Acreage: *0*
Last Tire Inspection Count:
Last Tire Inspection Count Date:
Original Tire Inspection Count:
Last Tire Inspection Count Date:
Inspection Frequency: *Annual*

SITE OWNER INFORMATION:

Owner: *Miller Edward And Becky*
Owner Phone:
Owner Address: *P.O. Box 571*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 67 **DIST/DIR:** 0.00 -- **MAP ID:** 3

NAME: USGS-DIGITAL DATA SERIES-11
ADDRESS:
US
CONTACT:

REV: 1/19/99
ID1: DDS-USGS-12356
ID2:
STATUS: BEDROCK GEOLOGY
PHONE:

SITE INFORMATION

AREA: 0.0457565
PERIMETER: 1.36517
ROCK DESCRIPTION: Pliocene continental
METAMORPHOSIS: No Metamorphism
STRATIGRAPHIC ORDER: 8 - Stratigraphic order from youngest (1) to oldest (162)

SOILS

SEARCH ID: 53 **DIST/DIR:** 0.00 -- **MAP ID:** 4

NAME: USGS-DIGITAL DATA SERIES-11
ADDRESS:
US
CONTACT:

REV: 1/19/99
ID1: DDS-USGS-12311
ID2:
STATUS: BEDROCK GEOLOGY
PHONE:

SITE INFORMATION

AREA: 4.28714
PERIMETER: 24.1069
ROCK DESCRIPTION: Quaternary
METAMORPHOSIS: No Metamorphism
STRATIGRAPHIC ORDER: 4 - Stratigraphic order from youngest (1) to oldest (162)

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 65 **DIST/DIR:** 0.00 -- **MAP ID:** 5

NAME: USGS-DIGITAL DATA SERIES-11
ADDRESS:
US
CONTACT:

REV: 1/19/99
ID1: DDS-USGS-12332
ID2:
STATUS: BEDROCK GEOLOGY
PHONE:

SITE INFORMATION

AREA: 0.13358
PERIMETER: 4.21871
ROCK DESCRIPTION: Upper Cretaceous
METAMORPHOSIS: No Metamorphism
STRATIGRAPHIC ORDER: 41 - Stratigraphic order from youngest (1) to oldest (162)

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 64 **DIST/DIR:** 0.00 -- **MAP ID:** 6

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1519
ID2: CA490
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.15
PERCENT CLAY (PERCENT < 2mm):	28.4
K FACTOR:	0.33
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.4
SOIL PERMEABILITY (INCHES PER HOUR):	1.37
CUMULATIVE LAYER THICKNESS (INCHES):	61.4
HYDROLOGIC CHARACTERISTICS:	2.3
SOIL DRAINAGE:	3.3
SUFACE SLOPE (PERCENT):	1.3
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	36.1
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3.8

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 63 **DIST/DIR:** 0.00 -- **MAP ID:** 7

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1611
ID2: CA489
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.16
PERCENT CLAY (PERCENT < 2mm):	34.3
K FACTOR:	0.35
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.5
SOIL PERMEABILITY (INCHES PER HOUR):	0.5
CUMULATIVE LAYER THICKNESS (INCHES):	60.6
HYDROLOGIC CHARACTERISTICS:	2.9
SOIL DRAINAGE:	3.1
SUFACE SLOPE (PERCENT):	0.8
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	40
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3.7

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 69 **DIST/DIR:** 0.00 -- **MAP ID:** 8

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1542
ID2: CA489
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.16
PERCENT CLAY (PERCENT < 2mm):	34.3
K FACTOR:	0.35
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.5
SOIL PERMEABILITY (INCHES PER HOUR):	0.5
CUMULATIVE LAYER THICKNESS (INCHES):	60.6
HYDROLOGIC CHARACTERISTICS:	2.9
SOIL DRAINAGE:	3.1
SUFACE SLOPE (PERCENT):	0.8
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	40
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3.7

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 61 **DIST/DIR:** 0.00 -- **MAP ID:** 9

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1628
ID2: CA488
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.15
PERCENT CLAY (PERCENT < 2mm):	51.3
K FACTOR:	0.21
ORGANIC MATERIAL (PERCENT BY WEIGHT):	3
SOIL PERMEABILITY (INCHES PER HOUR):	0.34
CUMULATIVE LAYER THICKNESS (INCHES):	72
HYDROLOGIC CHARACTERISTICS:	3.7
SOIL DRAINAGE:	4.7
SUFACE SLOPE (PERCENT):	0.8
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	57.8
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0.2
ANNUAL FLOOD FREQUENCY:	2.5

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

SWL

SEARCH ID: 22 **DIST/DIR:** 0.00 -- **MAP ID:** 10

NAME: WILBURN PROPERTY
ADDRESS: 9990 BASELINE ROAD
ROSEVILLE CA
PLACER
CONTACT:

REV: 01/19/05
ID1: SWIS31-TI-1211
ID2:
STATUS: CLEAN CLOSED
PHONE:

SITE OPERATOR INFORMATION:

SITE OPERATOR INFORMATION:

Operator: *Wilburn Property*
Operator Address: *9990 Baseline Road Roseville CA*
Permit Date:
Permit Status:
Land Use Name: *Residential,Agricultural*
GIS Source for LAT and LONG: *GPS*

Operator: *Wilburn Property*
Operator Address: *9990 Baseline Road Roseville CA*
Permit Date:
Permit Status:
Land Use Name: *Residential,Agricultural*
GIS Source for LAT and LONG: *GPS*

SITE ACTIVITY INFORMATION:

SITE ACTIVITY INFORMATION:

Activity: *Waste Tire Location*
Accepted Waste:
Operational Status: *Clean Closed*
Regulatory Status *Excluded*
Closure Date:
Closure Type:
Permitted Throughput with Units:
Permitted Capacity with Units: *Tires*
Remaining Capacity with Units (landfills only):
Permitted Total Acreage: *0*
Permitted Disposal Acreage:
Last Tire Inspection Count: *20*
Last Tire Inspection Count Date: *6/7/2000*
Original Tire Inspection Count:
Last Tire Inspection Count Date:
Inspection Frequency: *None*

Activity: *Waste Tire Location*
Accepted Waste:
Operational Status: *Clean Closed*
Regulatory Status *Excluded*
Closure Date:
Closure Type:
Permitted Throughput with Units:
Permitted Capacity with Units: *Tires*
Remaining Capacity with Units (landfills only):
Permitted Total Acreage: *0*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 22 **DIST/DIR:** 0.00 -- **MAP ID:** 10

NAME: WILBURN PROPERTY
ADDRESS: 9990 BASELINE ROAD
ROSEVILLE CA
PLACER
CONTACT:

REV: 01/19/05
ID1: SWIS31-TI-1211
ID2:
STATUS: CLEAN CLOSED
PHONE:

Permitted Disposal Acreage:
Last Tire Inspection Count: *20*
Last Tire Inspection Count Date: *6/7/2000*
Original Tire Inspection Count:
Last Tire Inspection Count Date:
Inspection Frequency: *None*

SITE OWNER INFORMATION:

SITE OWNER INFORMATION:

Owner: *Wilburn Property*
Owner Phone:
Owner Address: *9990 Baseline Road*

Owner: *Wilburn Property*
Owner Phone:
Owner Address: *9990 Baseline Road*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 59 **DIST/DIR:** 0.00 -- **MAP ID:** 11

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1666
ID2: CA404
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.12
PERCENT CLAY (PERCENT < 2mm):	19.7
K FACTOR:	0.28
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.3
SOIL PERMEABILITY (INCHES PER HOUR):	2.38
CUMULATIVE LAYER THICKNESS (INCHES):	62.4
HYDROLOGIC CHARACTERISTICS:	2.3
SOIL DRAINAGE:	3.3
SUFACE SLOPE (PERCENT):	1
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	30.9
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 58 **DIST/DIR:** 0.00 -- **MAP ID:** 12

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1307
ID2: CA462
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.14
PERCENT CLAY (PERCENT < 2mm):	20
K FACTOR:	0.35
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.5
SOIL PERMEABILITY (INCHES PER HOUR):	2.24
CUMULATIVE LAYER THICKNESS (INCHES):	59.6
HYDROLOGIC CHARACTERISTICS:	2.8
SOIL DRAINAGE:	4.5
SUFACE SLOPE (PERCENT):	0.7
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	31.1
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0.2
ANNUAL FLOOD FREQUENCY:	2.6

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 57 **DIST/DIR:** 0.00 -- **MAP ID:** 13

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1608
ID2: CA456
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.07
PERCENT CLAY (PERCENT < 2mm):	22.4
K FACTOR:	0.23
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.3
SOIL PERMEABILITY (INCHES PER HOUR):	0.54
CUMULATIVE LAYER THICKNESS (INCHES):	42.7
HYDROLOGIC CHARACTERISTICS:	3.8
SOIL DRAINAGE:	3.2
SUFACE SLOPE (PERCENT):	4.4
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	33.7
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3.9

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 56 **DIST/DIR:** 0.00 -- **MAP ID:** 14

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1637
ID2: CA459
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.16
PERCENT CLAY (PERCENT < 2mm):	31
K FACTOR:	0.33
ORGANIC MATERIAL (PERCENT BY WEIGHT):	1.3
SOIL PERMEABILITY (INCHES PER HOUR):	1.48
CUMULATIVE LAYER THICKNESS (INCHES):	63.6
HYDROLOGIC CHARACTERISTICS:	3
SOIL DRAINAGE:	4.7
SUFACE SLOPE (PERCENT):	0.6
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	39.1
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	2.9

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 55 **DIST/DIR:** 0.00 -- **MAP ID:** 15

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1656
ID2: CA436
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.11
PERCENT CLAY (PERCENT < 2mm):	18.8
K FACTOR:	0.28
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.2
SOIL PERMEABILITY (INCHES PER HOUR):	2.29
CUMULATIVE LAYER THICKNESS (INCHES):	67
HYDROLOGIC CHARACTERISTICS:	2.6
SOIL DRAINAGE:	3
SUFACE SLOPE (PERCENT):	2.5
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	29.5
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3.1

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 54 **DIST/DIR:** 0.00 -- **MAP ID:** 16

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1561
ID2: CA411
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.08
PERCENT CLAY (PERCENT < 2mm):	25.8
K FACTOR:	0.2
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.3
SOIL PERMEABILITY (INCHES PER HOUR):	0.45
CUMULATIVE LAYER THICKNESS (INCHES):	67.1
HYDROLOGIC CHARACTERISTICS:	3.8
SOIL DRAINAGE:	3.8
SUFACE SLOPE (PERCENT):	1.8
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	29.7
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3.9

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 62 **DIST/DIR:** 0.00 -- **MAP ID:** 17

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1631
ID2: CA489
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.16
PERCENT CLAY (PERCENT < 2mm):	34.3
K FACTOR:	0.35
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.5
SOIL PERMEABILITY (INCHES PER HOUR):	0.5
CUMULATIVE LAYER THICKNESS (INCHES):	60.6
HYDROLOGIC CHARACTERISTICS:	2.9
SOIL DRAINAGE:	3.1
SUFACE SLOPE (PERCENT):	0.8
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	40
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3.7

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 76 **DIST/DIR:** 0.00 -- **MAP ID:** 18

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1573
ID2: CA494
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.14
PERCENT CLAY (PERCENT < 2mm):	42.1
K FACTOR:	0.26
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.7
SOIL PERMEABILITY (INCHES PER HOUR):	0.17
CUMULATIVE LAYER THICKNESS (INCHES):	43.8
HYDROLOGIC CHARACTERISTICS:	3.6
SOIL DRAINAGE:	3.2
SUFACE SLOPE (PERCENT):	16.4
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	50.2
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	4

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 75 **DIST/DIR:** 0.00 -- **MAP ID:** 19

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1607
ID2: CA493
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.11
PERCENT CLAY (PERCENT < 2mm):	36.6
K FACTOR:	0.32
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.4
SOIL PERMEABILITY (INCHES PER HOUR):	0.43
CUMULATIVE LAYER THICKNESS (INCHES):	76.3
HYDROLOGIC CHARACTERISTICS:	3.8
SOIL DRAINAGE:	4.9
SUFACE SLOPE (PERCENT):	0.5
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	45.8
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0.1
ANNUAL FLOOD FREQUENCY:	3.2

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 74 **DIST/DIR:** 0.00 -- **MAP ID:** 20

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1590
ID2: CA492
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.11
PERCENT CLAY (PERCENT < 2mm):	28.4
K FACTOR:	0.33
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.4
SOIL PERMEABILITY (INCHES PER HOUR):	0.49
CUMULATIVE LAYER THICKNESS (INCHES):	61.8
HYDROLOGIC CHARACTERISTICS:	3.9
SOIL DRAINAGE:	3.4
SUFACE SLOPE (PERCENT):	5
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	36.7
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	4

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 73 **DIST/DIR:** 0.00 -- **MAP ID:** 21

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1567
ID2: CA492
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.11
PERCENT CLAY (PERCENT < 2mm):	28.4
K FACTOR:	0.33
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.4
SOIL PERMEABILITY (INCHES PER HOUR):	0.49
CUMULATIVE LAYER THICKNESS (INCHES):	61.8
HYDROLOGIC CHARACTERISTICS:	3.9
SOIL DRAINAGE:	3.4
SUFACE SLOPE (PERCENT):	5
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	36.7
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	4

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 72 **DIST/DIR:** 0.00 -- **MAP ID:** 22

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1596
ID2: CA410
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.13
PERCENT CLAY (PERCENT < 2mm):	46.7
K FACTOR:	0.23
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.9
SOIL PERMEABILITY (INCHES PER HOUR):	0.23
CUMULATIVE LAYER THICKNESS (INCHES):	60.9
HYDROLOGIC CHARACTERISTICS:	3.9
SOIL DRAINAGE:	5.2
SUFACE SLOPE (PERCENT):	1
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	50.3
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0.3
ANNUAL FLOOD FREQUENCY:	2.9

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 71 **DIST/DIR:** 0.00 -- **MAP ID:** 23

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1507
ID2: CA496
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.12
PERCENT CLAY (PERCENT < 2mm):	24.6
K FACTOR:	0.31
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.6
SOIL PERMEABILITY (INCHES PER HOUR):	1.16
CUMULATIVE LAYER THICKNESS (INCHES):	25.1
HYDROLOGIC CHARACTERISTICS:	3.7
SOIL DRAINAGE:	2.9
SUFACE SLOPE (PERCENT):	45
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	32.7
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	4

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 70 **DIST/DIR:** 0.00 -- **MAP ID:** 24

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1491
ID2: CA495
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.14
PERCENT CLAY (PERCENT < 2mm):	33.6
K FACTOR:	0.31
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.5
SOIL PERMEABILITY (INCHES PER HOUR):	0.46
CUMULATIVE LAYER THICKNESS (INCHES):	31.9
HYDROLOGIC CHARACTERISTICS:	3.2
SOIL DRAINAGE:	3
SUFACE SLOPE (PERCENT):	37.5
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	41.1
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	4

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 66 **DIST/DIR:** 0.00 -- **MAP ID:** 25

NAME: USGS-DIGITAL DATA SERIES-11
ADDRESS:
US
CONTACT:

REV: 1/19/99
ID1: DDS-USGS-12371
ID2:
STATUS: BEDROCK GEOLOGY
PHONE:

SITE INFORMATION

AREA: 0.0215148
PERIMETER: 1.30975
ROCK DESCRIPTION: Pliocene continental
METAMORPHOSIS: No Metamorphism
STRATIGRAPHIC ORDER: 8 - Stratigraphic order from youngest (1) to oldest (162)

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SOILS

SEARCH ID: 68 **DIST/DIR:** 0.04 SE **MAP ID:** 26

NAME: USSOILS DATA
ADDRESS:
CA
CONTACT:

REV: 3/18/97
ID1: CASO-18-1615
ID2: CA489
STATUS: STATSGO
PHONE:

SITE INFORMATION

The National Resource Conservation Service recommends that the data not be used to describe soil characteristics for regions smaller than a multi-county area.

WATER CAPACITY (INCHES PER INCH):	0.16
PERCENT CLAY (PERCENT < 2mm):	34.3
K FACTOR:	0.35
ORGANIC MATERIAL (PERCENT BY WEIGHT):	0.5
SOIL PERMEABILITY (INCHES PER HOUR):	0.5
CUMULATIVE LAYER THICKNESS (INCHES):	60.6
HYDROLOGIC CHARACTERISTICS:	2.9
SOIL DRAINAGE:	3.1
SUFACE SLOPE (PERCENT):	0.8
LIQUID LIMIT (PERCENT MOISTURE BY WEIGHT):	40
HYDRIC COMPONENT SHARE (1=ALL COMPONENTS):	0
ANNUAL FLOOD FREQUENCY:	3.7

LEGEND

HYDROLOGIC CHARACTERISTICS:
1 = HIGH INFILTRATION
2 = MODERATE INFILTRATION
3 = SLOW INFILTRATION
4 = VERY SLOW INFILTRATION

SOIL DRAINAGE:
1 = EXCESS
2 = MODERATE EXCESS
3 = WELL
4 = MODERATELY WELL
5 = MODERATELY POOR
6 = POOR
7 = VERY POOR

ANNUAL FLOOD FREQUENCY:
1 = GREATER THAN 50 PERCENT
2 = 5 TO 50 PERCENT
3 = 0 TO 5 PERCENT
4 = NONE

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 8 **DIST/DIR:** 0.14 SE **MAP ID:** 27

NAME:	TULE FARMS INC	**REV:**	6/6/06
ADDRESS:	12530 CO RD 85	**ID1:**	CAR000171983
	CAPAY CA 95607	**ID2:**	
	YOLO	**STATUS:**	SGN
CONTACT:	FRITZ DURST	**PHONE:**	530-662-4553

SITE INFORMATION

CONTACT INFORMATION: FRITZ DURST
23710 CO RD 13
CAPAY CA 95607

PHONE: 530-662-4553

UNIVERSE INFORMATION:

NAIC INFORMATION

11121 - VEGETABLE AND MELON FARMING
11116 - RICE FARMING

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

Benzene
Ignitable waste
Tetrachloroethylene
Trichloroethylene

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 15 **DIST/DIR:** 0.14 SE **MAP ID:** 27

NAME: TULE FARMS INC
ADDRESS: 12530 CO RD 85
CAPAY CA 95607
YOLO
CONTACT:

REV: 7/10/07
ID1: 110024545973
ID2: CAR000171983
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: RCRAINFO
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 3/6/2006
ENFORCEMENT ACT:
REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

PROGRAM ID: CAR000171983
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: RCRAINFO
LAST EXTRACTED: 4/26/2006 7:36:28 PM

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 4/26/2006 7:36:28 PM
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110024545973
AGENCY INTERESTED: 4/26/2006 7:36:28 PM
INTEREST ENDED:
SOURCE OF DATA: RCRAINFO
LAST EXTRACTED:

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: REGULAR URBAN, HWY
LAST REPORTED:
POSTED TO DATABASE: 4/26/2006 7:36:28 PM
DATA UPDATED:
ENTERED PERSON/METHOD: REFRESH
PARENT REG ID:
CONFIDENCE IN ADDR:
ENFORCEMENT SENSITIVE:
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST:
LEGISLATIVE DIST:
HYDROLOGICAL UNTIS:
EPA REGION: 09
AIRSHED:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 15 **DIST/DIR:** 0.14 SE **MAP ID:** 27

NAME: TULE FARMS INC
ADDRESS: 12530 CO RD 85
CAPAY CA 95607
YOLO
CONTACT:

REV: 7/10/07
ID1: 110024545973
ID2: CAR000171983
STATUS: FRS
PHONE:

CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 13 **DIST/DIR:** 0.31 SE **MAP ID:** 28

NAME: CPB DESERET FARMS
ADDRESS: 14130 ROAD 117
WEST SACRAMENTO CA 95691
YOLO
CONTACT:

REV: 7/10/07
ID1: 110009333569
ID2: CAD983648296
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110009333569
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: FRS
LAST EXTRACTED:

PROGRAM: CERCLIS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL: DISCOVERY DATE
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: SUPERFUND - AN UNCONTROLLED OR ABANDONED PLACE WHERE HAZARDOUS WASTE IS LOCATED, POSSIBLY AFFECTING LOCAL ECOSYSTEMS OR PEOPLE.

PROGRAM ID: CAD983648296
AGENCY INTERESTED: 9/16/1992
INTEREST ENDED:
SOURCE OF DATA: CERCLIS
LAST EXTRACTED:

SITE TYPE: POTENTIALLY CONTAMINATED SITE
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: REGULAR URBAN, HWY
LAST REPORTED:
POSTED TO DATABASE: 3/1/2000
DATA UPDATED: 12/5/2006 5:19:42 AM
ENTERED PERSON/METHOD: REFRESH
PARENT REG ID:
CONFIDENCE IN ADDR:
ENFORCEMENT SENSITIVE: N
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY:
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST:
LEGISLATIVE DIST:
HYDROLOGICAL UNTIS:
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 28 **DIST/DIR:** 0.51 NW **MAP ID:** 29

NAME:	LINCOLN RANCH	**REV:**	01/01/94
ADDRESS:	1515 BREWER	**ID1:**	TISID-STATE48996
	PLEASANT GROVE CA 95668	**ID2:**	
	Sutter	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

This site was listed in the FIDS Zip Code List as a UST site. The Office of Hazardous Data Management produced the FIDS list. The FIDS list is an index of names and locations of sites recorded in various California State environmental agency databases. It is sorted by zip code and as an index, details regarding the sites were never included.

The UST information included in FIDS as provided by the Office of Hazardous Data Management was originally collected from the SWEEPS database. The SWEEPS database recorded Underground Storage Tanks and was maintained by the State Water Resources Control Board (SWRCB). That agency no longer maintains the SWEEPS database and last updated it in 1994. The last release of that 1994 database was in 1997.

Oversight of Underground Storage Tanks within California is now conducted by Certified Unified Program Agencies referred to as CUPA s. There are approximately 102 CUPA s and Local Oversight Programs (LOP s) in the State of California. Most are city or county government agencies. As of 1998, all sites or facilities with underground storage tanks were required by Federal mandate to obtain certification by designated UST oversight agencies (in this case, CUPA s) that the UST/s at their location were upgraded or removed in adherence with the 1998 RCRA standards.

Information from the FIDS/SWEEPS lists were included in this report search to help identify where underground storage tanks may have existed that were not recorded in CUPA databases or lists collected by Track Info Services. This may occur if a tank was removed prior to development of recent CUPA UST lists or never registered with a CUPA.

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 46 **DIST/DIR:** 0.60 NE **MAP ID:** 30

NAME: FIDDYMENT PROPERTY
ADDRESS: 6405 FIDDYMENT RD
ROSEVILLE CA 95678
PLACER
CONTACT:

REV: 01/12/06
ID1: T0606100191
ID2:
STATUS: CASE CLOSED
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER:
RESPONSIBLE PARTY: *FIDDYMENT,JOHN S*
ADDRESS OF RESPONSIBLE PARTY: *6405 FIDDYMENT RD,ROSEVILLE,CA 95678*
SITE OPERATOR: *JOHN S FIDDYMENT*
WATER SYSTEM:

CASE NUMBER: *310240*
CASE TYPE: *SOIL ONLY*
SUBSTANCE LEAKED: *DIESEL*
SUBSTANCE QUANTITY:
LEAK CAUSE:
LEAK SOURCE:
HOW LEAK WAS DISCOVERED:
DATE DISCOVERED (blank if not reported): *1992-12-18*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported):
STATUS: *CASE CLOSED*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency): *EXCAVATE AND DISPOSE-REMOVE CONTAMINATED SOIL AND DISPOSE IN APPROVED SITE*
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *NONE TAKEN*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1993-01-25*
REVIEW DATE (blank if not reported): *1994-04-27*
DATE OF LEAK CONFIRMATION (blank if not reported): *1992-12-18*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported):
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported): *1993-02-25*
REPORT DATE (blank if not reported): *1992-12-18*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *0*
MTBE TESTED: *NOT REQUIRED TO BE TESTED*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 10 **DIST/DIR:** 0.61 SE **MAP ID:** 31

NAME: ALPHA TECHNOLOGY
ADDRESS: 8920 ELWYN AVE.
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 7/10/07
ID1: 110022006238
ID2:
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: NCES
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: UNSPECIFIED UNIVERSE - THE HANDLER IS IN A HAZARDOUS WASTE UNIVERSE OTHER THAN TSD, GENERATOR (LQG, SQG, CESQG), TRANSPORTER, OR USED OIL PROGRAM.

PROGRAM ID: 061260001423
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: NCES
LAST EXTRACTED: 5/21/2005 12:13:05 AM

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 5/21/2005 12:13:04 AM
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110022006238
AGENCY INTERESTED: 5/21/2005 12:13:04 AM
INTEREST ENDED:
SOURCE OF DATA: NCES
LAST EXTRACTED:

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC: 3
ADDRESS TYPE: REGULAR URBAN
LAST REPORTED:
POSTED TO DATABASE: 5/21/2005 12:13:04 AM
DATA UPDATED:
ENTERED PERSON/METHOD: REFRESH
PARENT REG ID:
CONFIDENCE IN ADDR:
ENFORCEMENT SENSITIVE:
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY:
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST:
LEGISLATIVE DIST:
HYDROLOGICAL UNTIS:
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 32 **DIST/DIR:** 0.61 N- **MAP ID:** 32

NAME:	WALTER C WATSON WATSON FARMS	**REV:**	01/01/94
ADDRESS:	8628 PLEASANT GROVE	**ID1:**	TISID-STATE37753
	ELVERTA CA 95626	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

This site was listed in the FIDS Zip Code List as a UST site. The Office of Hazardous Data Management produced the FIDS list. The FIDS list is an index of names and locations of sites recorded in various California State environmental agency databases. It is sorted by zip code and as an index, details regarding the sites were never included.

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Information from the FIDS/SWEEPS lists were included in this report search to help identify where underground storage tanks may have existed that were not recorded in CUPA databases or lists collected by Track Info Services. This may occur if a tank was removed prior to development of recent CUPA UST lists or never registered with a CUPA.

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 43 **DIST/DIR:** 0.84 N- **MAP ID:** 33

NAME:	MCI TELECOMMUNICATIONS	**REV:**	04/04/2000
ADDRESS:	3387 RIEGO RD.	**ID1:**	SUTTERCO_51-221
	PLEASANT GROVE CA 95668	**ID2:**	
	Sutter	**STATUS:**	ACTIVE
CONTACT:	MCI TELECOMMUNICATIONS	**PHONE:**	(916) 373-4604

SUTTER COUNTY PERMITTED UST LIST INFORMATION

Permit Number:	*51-221*
Status:	*ACTIVE*
Tank Capacity:	*4000 DOUBLE*
Tank Contents:	*DIESEL*
Tank Owner:	*MCI TELECOMMUNICATIONS*
Tank Owner Address:	*2820 KOVR DR. WEST SACRAMENTO , CA 95605*

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 14 **DIST/DIR:** 0.86 SE **MAP ID:** 34

NAME: WALLACE AND SONS E L INCORPORATED
ADDRESS: 14954 COUNTY ROAD 100B
WOODLAND CA 95695
YOLO
CONTACT:

REV: 7/10/07
ID1: 110010458183
ID2: CAD076100452
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: HWTS-DATAMART
PROVIDED BY: STATE AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: STATE MASTER -

PROGRAM ID: CAD076100452
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: HWTS-DATAMART
LAST EXTRACTED: 11/18/2004 5:38:04 PM

PROGRAM: RCRAINFO
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 2/28/1996
ENFORCEMENT ACT:
REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

PROGRAM ID: CAD076100452
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: NOTIFICATION (RCRA)
LAST EXTRACTED:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110010458183
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: FRS
LAST EXTRACTED:

PROGRAM: NEI
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

PROGRAM ID: NEICA1135468
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: NEI
LAST EXTRACTED: 6/14/2005 11:02:23 AM

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: IRREGULAR
LAST REPORTED:
POSTED TO DATABASE: 3/1/2000
DATA UPDATED: 12/22/2003 10:46:47 AM
ENTERED PERSON/METHOD: WILFREDM
PARENT REG ID:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 14 **DIST/DIR:** 0.86 SE **MAP ID:** 34

NAME: WALLACE AND SONS E L INCORPORATED
ADDRESS: 14954 COUNTY ROAD 100B
WOODLAND CA 95695
YOLO
CONTACT:

REV: 7/10/07
ID1: 110010458183
ID2: CAD076100452
STATUS: FRS
PHONE:

CONFIDENCE IN ADDR: MEDIUM
ENFORCEMENT SENSITIVE: N
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST:
LEGISLATIVE DIST:
HYDROLOGICAL UNTIS:
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 42 **DIST/DIR:** 0.87 N- **MAP ID:** 35

NAME:	EL RIO FARMS	**REV:**	01/01/94
ADDRESS:	5341 RIEGO	**ID1:**	TISID-STATE37605
	SACRAMENTO CA 95837	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

This site was listed in the FIDS Zip Code List as a UST site. The Office of Hazardous Data Management produced the FIDS list. The FIDS list is an index of names and locations of sites recorded in various California State environmental agency databases. It is sorted by zip code and as an index, details regarding the sites were never included.

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 11 **DIST/DIR:** 0.91 NW **MAP ID:** 36

NAME: CONSOLIDATED DEALER SYSTEMS
ADDRESS: 2546 RIEGO RD
PLEASANT GROVE CA 95668
Sutter
CONTACT:

REV:
ID1: CAD982445512
ID2:
STATUS:
PHONE:

```
RCRIS      : CAD982445512
PCS        :
AFS/AIRS     :
SSTS   :
CERCLIS       :
NCDB    :
ENF DOCKET :
CONTR LIST    :
CRIM DOCKET   :
FFIS        :
CICIS     :
STATE  :
PADS       :
TRIS    :
DandB  : 603836065
UNKNOWN       :
```

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 2 **DIST/DIR:** 0.91 NW **MAP ID:** 36

NAME:	CONSOLIDATED DEALER SYSTEMS	**REV:**	6/6/06
ADDRESS:	2546 RIEGO RD	**ID1:**	CAD982445512
	PLEASANT GROVE CA 95668	**ID2:**	
	SUTTER	**STATUS:**	SGN
CONTACT:		**PHONE:**	

SITE INFORMATION

CONTACT INFORMATION: ENVIRONMENTAL MANAGER
2546 RIEGO RD
PLEASANT GROVE CA 95668

PHONE: 9166553635

UNIVERSE INFORMATION:

NAIC INFORMATION

81149 - OTHER PERSONAL AND HOUSEHOLD GOODS REPAIR AND MAINTENANCE

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 12 **DIST/DIR:** 0.91 NW **MAP ID:** 36

NAME: CONSOLIDATED DEALER SYSTEMS
ADDRESS: 2546 RIEGO RD
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 7/10/07
ID1: 110002814633
ID2: CAD982445512
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110002814633
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: FRS
LAST EXTRACTED:

PROGRAM: RCRAINFO
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 9/1/1996
ENFORCEMENT ACT:
REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

PROGRAM ID: CAD982445512
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: EPA INSPECTION
LAST EXTRACTED:

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: REGULAR URBAN
LAST REPORTED:
POSTED TO DATABASE: 3/1/2000
DATA UPDATED: 1/6/2006 12:44:36 AM
ENTERED PERSON/METHOD: REFRESH
PARENT REG ID:
CONFIDENCE IN ADDR: MEDIUM
ENFORCEMENT SENSITIVE: N
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST: 03
LEGISLATIVE DIST: 1
HYDROLOGICAL UNTIS: 18020111
EPA REGION: 09
AIRSHED:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 12 **DIST/DIR:** 0.91 NW **MAP ID:** 36

NAME: CONSOLIDATED DEALER SYSTEMS
ADDRESS: 2546 RIEGO RD
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 7/10/07
ID1: 110002814633
ID2: CAD982445512
STATUS: FRS
PHONE:

CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 19 **DIST/DIR:** 0.96 N- **MAP ID:** 37

NAME: CORNELIUS AIRSTRIP
ADDRESS: RIEGO RD and PACIFIC AVE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 07/03/00
ID1: CAL51070016
ID2:
STATUS: PROPERTY/SITE REFERRED
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
CORNELIUS AIRSTRIP

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *PROPERTY/SITE REFERRED TO ANOTHER AGENCY (REFOA)*
AWP Site Type: *N/A*
NPL Site:
Fund:
Status Date: *11161994*
Lead:
Staff:
Senior Supervisor:

DTSC Region and RWQCB : *1 / SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB: *CENTRAL VALLEY*
Site Access:
On Cortese List:
Groundwater Contamination:
Haz Ranking Score:
Haz Ranking Score:
Number of Sources Contributing to Contamination at the Site: *0*

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***DISCOVERY (DISC)***
Activity Status: *PROPERTY/SITE REFERRED TO ANOTHER AGENCY*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *04151983*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

DATE	COMMENT
04151983	*Facility identified from Division of Aero printout.*
07131983	*Facility Drive-By: No problems. Small farm operation.*
11011983	*No problem based on drive-by.*
06231997	*The Sutter County Community Services Department indicated*

DATE **COMMENT**

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 19 **DIST/DIR:** 0.96 N- **MAP ID:** 37

NAME:	CORNELIUS AIRSTRIP	**REV:**	07/03/00
ADDRESS:	RIEGO RD and PACIFIC AVE	**ID1:**	CAL51070016
	PLEASANT GROVE CA 95668	**ID2:**	
	SUTTER	**STATUS:**	PROPERTY/SITE REFERRED
CONTACT:		**PHONE:**	

06231997	*that it does not have a Hazardous Materials Remediation*

DATE	**COMMENT**
06231997	*program and is not overseeing this site.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 16 **DIST/DIR:** 0.96 S- **MAP ID:** 38

NAME: HOLTSMAN PROPERTY
ADDRESS: 9245 WALERGA ROAD
ROSEVILLE CA 95678
PLACER
CONTACT:

REV: 07/03/00
ID1: CAL31490006
ID2:
STATUS: PROPERTY/SITE REFERRED
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
HOLTSMAN PROPERTY

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *PROPERTY/SITE REFERRED TO ANOTHER AGENCY (REFOA)*
AWP Site Type: *N/A*
NPL Site:
Fund:
Status Date: *03261991*
Lead:
Staff:
Senior Supervisor:

DTSC Region and RWQCB : *1 / SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB:
Site Access:
On Cortese List:
Groundwater Contamination:
Haz Ranking Score:
Haz Ranking Score:
Number of Sources Contributing to Contamination at the Site: *0*

PROJECTED ACTIVITIES (blank below = not reported by agency)

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***DISCOVERY (DISC)***
Activity Status: *PROPERTY/SITE REFERRED TO ANOTHER AGENCY*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *01171991*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

Activity: ***(SS)***
Activity Status: *PROPERTY/SITE REFERRED TO ANOTHER AGENCY*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *03261991*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)
DATE **COMMENT**

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 16 **DIST/DIR:** 0.96 S- **MAP ID:** 38

NAME: HOLTSMAN PROPERTY
ADDRESS: 9245 WALERGA ROAD
ROSEVILLE CA 95678
PLACER
CONTACT:

REV: 07/03/00
ID1: CAL31490006
ID2:
STATUS: PROPERTY/SITE REFERRED
PHONE:

01171991 *Facility Drive-by (Local Agency): Local agency informed DHS*

DATE	COMMENT
01171991	*of possible illegally buried waste.*
DATE	**COMMENT**
01201991	*Inspection (State): Site visit showed scattered drums con-*
DATE	**COMMENT**
01201991	*taining oil/degreasers, batteries, and local oil stains.*
DATE	**COMMENT**
01201991	*Only construction materials found buried.*
DATE	**COMMENT**
01201991	*EPA assisted with local Health Dept investigation. Placer*
DATE	**COMMENT**
01201991	*County Health Dept will require waste to be removed, there-*
DATE	**COMMENT**
01201991	*fore County lead.*
DATE	**COMMENT**
03261991	*Site Screening Done: Local Health Dept overseeing removal*
DATE	**COMMENT**
03261991	*of soild waste.*
DATE	**COMMENT**
03261991	*Site Listed on Cortese -- contaminated soils on site.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 29 **DIST/DIR:** 1.01 N- **MAP ID:** 39

NAME:	MEYER FOOD STORE	**REV:**	01/01/94
ADDRESS:	8000 PLEASANT GROVE ELVERTA CA 95626 Sacramento	**ID1:**	TISID-STATE34999
		ID2:	
		STATUS:	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 30 **DIST/DIR:** 1.01 N- **MAP ID:** 39

NAME:	REGIO MARKET AND DELI	**REV:**	05/30/2003
ADDRESS:	8000 PLEASANT GROVE RD	**ID1:**	PLACERCO_PR000713
	ELVERTA CA	**ID2:**	
	SACRAMENTO	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

COUNTY OF PLACER ACTIVE and CLOSED UST TANKS LIST INFORMATION

Status:	*ACTIVE*
Comments:	
District Code:	*018*
Number of Tanks:	*2*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 17 **DIST/DIR:** 1.02 SE **MAP ID:** 40

NAME: INTERSTATE BATTERY
ADDRESS: 451 ANTELOPE ST
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 07/18/05
ID1: CAL34360066
ID2:
STATUS: CERTIFIED
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)

INTERSTATE BATTERY

INTERSTATE BATTERY DISTRIBUTION CO.

GENERAL SITE INFORMATION

File Name (if different than site name): *INTERSTATE BATTERY DISTRIBUTION CO.*

Status: *CERTIFIED*
AWP Site Type: *RESPONSIBLE PARTY*
NPL Site:
Fund:
Status Date: *06131983*
Lead: *N/A*
Staff:
DTSC Region and RWQCB : *SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB:
Site Access:
On Cortese List:
Groundwater Contamination:
Haz Ranking Score:
Haz Ranking Score:
Number of Sources Contributing to Contamination at the Site: *0*

BACKGROUND INFORMATION (blank below = not reported by agency)

Mr. Michael Corbridge had steam cleaned batteries by a fence which seperates both properties. Run-off water from the steam cleaning process discharged into Mr. Warner s property, causing lead contamination of the soil. The contaminated area is located at 451 Antelope St., Elverta California.

PROJECTED ACTIVITIES (blank below = not reported by agency)

Activity: ***SITE SCREENING***
Activity Status: *CERTIFIED*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *11191982*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

Activity: ***CERTIFICATION***
Activity Status: *CERTIFIED*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *06131983*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 17 **DIST/DIR:** 1.02 SE **MAP ID:** 40

NAME:	INTERSTATE BATTERY	**REV:**	07/18/05
ADDRESS:	451 ANTELOPE ST	**ID1:**	CAL34360066
	ELVERTA CA 95626	**ID2:**	
	SACRAMENTO	**STATUS:**	CERTIFIED
CONTACT:		**PHONE:**	

Gallons of Liquid Treated: *0*

Activity:	***REMOVAL ACTION***
Activity Status:	*CERTIFIED*
Completion Due Date:	
Revised Completion Due Date:	
Date Activity Actually Completed:	*06131983*
Yards of Solids Removed:	*0*
Yards of Solids Treated:	*0*
Gallons of Liquid Removed:	*0*
Gallons of Liquid Treated:	*0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Comments Date:

: *Certified. According to Auditor General Report, 3.5 drums of waste and an unspecified amount of soil was removed. The Department staff oversaw soil excavation. A meeting between Department, responsible party, property owner, county environmental health, and consulting party was held on 11/19/82 to discuss cleanup plan for this site.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

UST

SEARCH ID: 25 **DIST/DIR:** 1.11 SE **MAP ID:** 41

NAME: FREED, CLEDA
ADDRESS: 3115 TINY LN
ROSEVILLE CA
PLACER
CONTACT:

REV: 05/30/2003
ID1: PLACERCO_PR005339
ID2:
STATUS: CLOSED
PHONE:

COUNTY OF PLACER ACTIVE and CLOSED UST TANKS LIST INFORMATION

Status: *CLOSED*
Comments:
District Code: *015*
Number of Tanks: *1*

UST

SEARCH ID: 41 **DIST/DIR:** 1.18 SE **MAP ID:** 42

NAME: EL RIO FARMS
ADDRESS: 11000 GARDEN
SACRAMENTO CA 95837
Sacramento
CONTACT:

REV: 01/01/94
ID1: TISID-STATE37606
ID2:
STATUS: ACTIVE
PHONE:

UST HISTORICAL DATA

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 47 **DIST/DIR:** 1.20 N- **MAP ID:** 43

NAME: VAN DYKE S RICE DRYER
ADDRESS: 4036 PLEASANT GROVE RD
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 01/12/06
ID1: T0610100043
ID2:
STATUS: CASE CLOSED
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER:
RESPONSIBLE PARTY: *VAN DYKE S RICE DRYER*
ADDRESS OF RESPONSIBLE PARTY: *4036 PLEASANT GROVE RD,YUBA CITY,CA 95991*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *510050*
CASE TYPE: *AQUIFER AFFECTED*
SUBSTANCE LEAKED: *GASOLINE*
SUBSTANCE QUANTITY:
LEAK CAUSE:
LEAK SOURCE:
HOW LEAK WAS DISCOVERED:
DATE DISCOVERED (blank if not reported): *1992-05-11*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported):
STATUS: *CASE CLOSED*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *NONE TAKEN*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1992-06-15*
REVIEW DATE (blank if not reported): *1996-10-23*
DATE OF LEAK CONFIRMATION (blank if not reported): *1992-06-02*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported):
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported): *1992-10-22*
REPORT DATE (blank if not reported): *1992-06-02*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *1*
MTBE TESTED: *SITE NOT TESTED FOR MTBE. INCLUDES UNKNOWN AND NOT ANALYZED*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 31 **DIST/DIR:** 1.20 N- **MAP ID:** 43

NAME:	VAN DYKE S RICE DRYER, INC.	**REV:**	01/01/94
ADDRESS:	4036 PLEASANT GROVE	**ID1:**	TISID-STATE48927
	PLEASANT GROVE CA 95668	**ID2:**	
	Sutter	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 18 **DIST/DIR:** 1.20 N- **MAP ID:** 43

NAME: VAN DYKES RICE DRYER INC
ADDRESS: 4036 PLEASANT GROVE ROAD
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 07/03/00
ID1: CAL51070011
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)

OTHER SITE NAMES (blank below = not reported by agency)

OTHER SITE NAMES (blank below = not reported by agency)
AERO PRINT-OUT (VAN DYKES AIRSTRIP DIV)

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *PROPERTY/SITE REFERRED TO RWQCB (REFRW)*
AWP Site Type: *N/A*
NPL Site:
Fund:
Status Date: *12311997*
Lead:
Staff:
Senior Supervisor:

DTSC Region and RWQCB : *1 / SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB:
Site Access: *Controlled*
On Cortese List:
Groundwater Contamination:
Haz Ranking Score:
Haz Ranking Score:
Number of Sources Contributing to Contamination at the Site: *0*

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)
ID SOURCE NAME, and VALUE: *EPA IDENTIFICATION NUMBER CAD028925444*

PROJECTED ACTIVITIES (blank below = not reported by agency)

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***DISCOVERY (DISC)***
Activity Status: *PROPERTY/SITE REFERRED TO RWQCB*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *04061983*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

Activity: ***(SS)***
Activity Status: *PROPERTY/SITE REFERRED TO RWQCB*
Completion Due Date:
Revised Completion Due Date:

- Continued on next page -

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 18 **DIST/DIR:** 1.20 N- **MAP ID:** 43

NAME: VAN DYKES RICE DRYER INC
ADDRESS: 4036 PLEASANT GROVE ROAD
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 07/03/00
ID1: CAL51070011
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

Date Activity Actually Completed: *01271987*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

DATE	COMMENT
04061983	*Facility identified from CDFA PCO List.*
05091983	*Questionnaire sent.*
05251983	*Questionnaire Received. Recycle washwater and soap.*
06291983	*Facility Drive-By: Greenish-water around site in canal.*
06291983	*Stressed vegetations. Three spray rigs at site. Unable to*
06291983	*see airstrip.*
09281983	*Phone Follow-Up: Kocide SD used on the seed and put back on*
09281983	*rice fields. Chemicals: 30% cupric, 19.5% hydroxide copper.*
09281983	*Site referred to HWMB/Enforcement and RWQCB.*
01271987	*Site Screening Done: Recommend Preliminary Assessment.*
01271987	*Visual evidence and suspected use of hazardous materials.*
12311997	*Site Screening completed. RWQCB had involvement in site*
12311997	*activities as part of investigations into a number of rice*
12311997	*treating facilities. RWQCB suspects that residual copper*
12311997	*contamination in soil is likely given past facility*
DATE	COMMENT

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 18 **DIST/DIR:** 1.20 N- **MAP ID:** 43

NAME: VAN DYKES RICE DRYER INC
ADDRESS: 4036 PLEASANT GROVE ROAD
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 07/03/00
ID1: CAL51070011
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

12311997 *practices. Soil sampling has not been conducted. Refer to*

DATE	COMMENT
12311997	*RWQCB.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 36 **DIST/DIR:** 1.39 S- **MAP ID:** 44

NAME:	ELVERTA MAINTENANCE FACILITY	**REV:**	01/01/94
ADDRESS:	7940 SORENTO	**ID1:**	TISID-STATE38116
	ELVERTA CA 95626	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

This site was listed in the FIDS Zip Code List as a UST site. The Office of Hazardous Data Management produced the FIDS list. The FIDS list is an index of names and locations of sites recorded in various California State environmental agency databases. It is sorted by zip code and as an index, details regarding the sites were never included.

The UST information included in FIDS as provided by the Office of Hazardous Data Management was originally collected from the SWEEPS database. The SWEEPS database recorded Underground Storage Tanks and was maintained by the State Water Resources Control Board (SWRCB). That agency no longer maintains the SWEEPS database and last updated it in 1994. The last release of that 1994 database was in 1997.

Oversight of Underground Storage Tanks within California is now conducted by Certified Unified Program Agencies referred to as CUPA s. There are approximately 102 CUPA s and Local Oversight Programs (LOP s) in the State of California. Most are city or county government agencies. As of 1998, all sites or facilities with underground storage tanks were required by Federal mandate to obtain certification by designated UST oversight agencies (in this case, CUPA s) that the UST/s at their location were upgraded or removed in adherence with the 1998 RCRA standards.

Information from the FIDS/SWEEPS lists were included in this report search to help identify where underground storage tanks may have existed that were not recorded in CUPA databases or lists collected by Track Info Services. This may occur if a tank was removed prior to development of recent CUPA UST lists or never registered with a CUPA.

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 49 **DIST/DIR:** 1.39 S- **MAP ID:** 44

NAME: WESTERN AREA POWER ADMIN
ADDRESS: 7940 SORENTO RD
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 01/12/06
ID1: T0606700973
ID2:
STATUS: POLLUTION CHARACTERIZATION
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER: *C598*
RESPONSIBLE PARTY: *US DOE, ATTN GEORGE MCALLISTER,*
ADDRESS OF RESPONSIBLE PARTY: *114 PARKSHORE DR, FOLSOM, CA 95630*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *341148*
CASE TYPE: *OTHER*
SUBSTANCE LEAKED: *GASOLINE*
SUBSTANCE QUANTITY:
LEAK CAUSE: *UNKNOWN*
LEAK SOURCE: *UNKNOWN*
HOW LEAK WAS DISCOVERED: *TANK CLOSURE*
DATE DISCOVERED (blank if not reported): *1997-11-04*
HOW LEAK WAS STOPPED: *NEW TANK*
STOP DATE (blank if not reported): *1997-11-04*
STATUS: *POLLUTION CHARACTERIZATION*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *FREV*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1997-11-24*
REVIEW DATE (blank if not reported): *2002-03-22*
DATE OF LEAK CONFIRMATION (blank if not reported): *1997-11-04*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported): *1997-11-21*
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported):
REPORT DATE (blank if not reported): *1997-11-19*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *1*
MTBE TESTED: *YES*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 4 **DIST/DIR:** 1.39 S- **MAP ID:** 44

NAME:	USDOE WAPA ELVERTA MAINTENANCE FAC	**REV:**	6/6/06
ADDRESS:	7940 SORENTO RD	**ID1:**	CA9890090005
	ELVERTA CA 95626	**ID2:**	
	SACRAMENTO	**STATUS:**	SGN
CONTACT:	BRYAN DWINELL	**PHONE:**	9169784403

SITE INFORMATION

CONTACT INFORMATION: BRYAN DWINELL
7940 SORENTO RD
ELVERTA CA 95626

PHONE: 9169784403

UNIVERSE INFORMATION:

NAIC INFORMATION

2211 - ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 23 **DIST/DIR:** 1.39 SE **MAP ID:** 45

NAME:	AHLERS, MIKE	**REV:**	05/30/2003
ADDRESS:	9380 WATT AVE	**ID1:**	PLACERCO_PR008711
	ROSEVILLE CA	**ID2:**	
	PLACER	**STATUS:**	CLOSED
CONTACT:		**PHONE:**	

COUNTY OF PLACER ACTIVE and CLOSED UST TANKS LIST INFORMATION

Status:	*CLOSED*
Comments:	
District Code:	*011*
Number of Tanks:	*2*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 48 **DIST/DIR:** 1.53 S- **MAP ID:** 46

NAME: ELVERTA SUBSTATION
ADDRESS: 736 ELVERTA RD W
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 01/12/06
ID1: T0606700581
ID2:
STATUS: CASE CLOSED
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER: *R147*
RESPONSIBLE PARTY: *CA DEPT OF ENERGY*
ADDRESS OF RESPONSIBLE PARTY: *1825 BELL ST SUITE 105,SACRAMENTO,CA 95825*
SITE OPERATOR: *DEPT OF ENERGY*
WATER SYSTEM:

CASE NUMBER: *340681*
CASE TYPE: *SOIL ONLY*
SUBSTANCE LEAKED: *PCB S*
SUBSTANCE QUANTITY:
LEAK CAUSE:
LEAK SOURCE:
HOW LEAK WAS DISCOVERED:
DATE DISCOVERED (blank if not reported): *1986-10-26*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported):
STATUS: *CASE CLOSED*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency): *EXCAVATE AND DISPOSE-REMOVE CONTAMINATED SOIL AND DISPOSE IN APPROVED SITE*
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *NONE TAKEN*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1992-12-17*
REVIEW DATE (blank if not reported): *2002-03-22*
DATE OF LEAK CONFIRMATION (blank if not reported): *1992-12-10*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported):
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported): *1992-12-10*
REPORT DATE (blank if not reported): *1992-12-10*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *0*
MTBE TESTED: *NOT REQUIRED TO BE TESTED*
MTBE CLASS: *

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

UST

SEARCH ID: 34 **DIST/DIR:** 1.53 S- **MAP ID:** 46

NAME: ELVERTA
ADDRESS: 736 W ELVERTA RD
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 05/30/01
ID1: AST1155
ID2:
STATUS: AST SWRCB REG.5S
PHONE:

Region: *5S*
Company Name: *DEPARTMENT OF ENERGY*
Company Name 2: *WESTERN AREA POWER ADMIN.*

UST

SEARCH ID: 37 **DIST/DIR:** 1.55 SE **MAP ID:** 47

NAME: LA VERNE SCHEIDEL
ADDRESS: 316 ELVERTA ELVERTA RD
ELVERTA CA 95626
Sacramento
CONTACT:

REV: 01/01/94
ID1: TISID-STATE37915
ID2:
STATUS: ACTIVE
PHONE:

UST HISTORICAL DATA

This site was listed in the FIDS Zip Code List as a UST site. The Office of Hazardous Data Management produced the FIDS list. The FIDS list is an index of names and locations of sites recorded in various California State environmental agency databases. It is sorted by zip code and as an index, details regarding the sites were never included.
The UST information included in FIDS as provided by the Office of Hazardous Data Management was originally collected from the SWEEPS database. The SWEEPS database recorded Underground Storage Tanks and was maintained by the State Water Resources Control Board (SWRCB). That agency no longer maintains the SWEEPS database and last updated it in 1994. The last release of that 1994 database was in 1997.
Oversight of Underground Storage Tanks within California is now conducted by Certified Unified Program Agencies referred to as CUPA s. There are approximately 102 CUPA s and Local Oversight Programs (LOP s) in the State of California. Most are city or county government agencies. As of 1998, all sites or facilities with underground storage tanks were required by Federal mandate to obtain certification by designated UST oversight agencies (in this case, CUPA s) that the UST/s at their location were upgraded or removed in adherence with the 1998 RCRA standards.
Information from the FIDS/SWEEPS lists were included in this report search to help identify where underground storage tanks may have existed that were not recorded in CUPA databases or lists collected by Track Info Services. This may occur if a tank was removed prior to development of recent CUPA UST lists or never registered with a CUPA.

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 1 **DIST/DIR:** 1.57 SE **MAP ID:** 48

NAME:	CHRIS AUTO REPAIR	**REV:**	6/6/06
ADDRESS:	105 BILLY MITCHELL	**ID1:**	CAD982479982
	ROSEVILLE CA 95747	**ID2:**	
	PLACER	**STATUS:**	SGN
CONTACT:		**PHONE:**	

SITE INFORMATION

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

UST

SEARCH ID: 24 **DIST/DIR:** 1.58 NW **MAP ID:** 49

NAME: ALL TERRAIN EXPLORATION
ADDRESS: 6330 BREWER RD
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 05/30/01
ID1: AST101276
ID2:
STATUS: AST SWRCB REG.5S
PHONE:

Region: *5S*
Company Name: *ALL TERRAIN EXPLORATION*
Company Name 2:

UST

SEARCH ID: 26 **DIST/DIR:** 1.59 SE **MAP ID:** 50

NAME: KENCO ENGINEERING
ADDRESS: 2155 PFE RD
ROSEVILLE CA
PLACER
CONTACT:

REV: 05/30/2003
ID1: PLACERCO_PR000675
ID2:
STATUS: CLOSED
PHONE:

COUNTY OF PLACER ACTIVE and CLOSED UST TANKS LIST INFORMATION
Status: *CLOSED*
Comments:
District Code: *017*
Number of Tanks: *1*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 27 **DIST/DIR:** 1.59 SE **MAP ID:** 50

NAME:	KENCO ENGINEERING INC	**REV:**	05/30/2003
ADDRESS:	2155 PFE RD	**ID1:**	PLACERCO_PR0000675
	ROSEVILLE CA	**ID2:**	
	PLACER	**STATUS:**	CLOSED
CONTACT:		**PHONE:**	

COUNTY OF PLACER ACTIVE and CLOSED UST TANKS LIST INFORMATION

Status:	*CLOSED*
Comments:	
District Code:	*017*
Number of Tanks:	*1*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 51 **DIST/DIR:** 1.70 SE **MAP ID:** 51

NAME: ZINE S GARAGE
ADDRESS: 220 ELVERTA RD
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 01/12/06
ID1: T0606701017
ID2:
STATUS: POLLUTION CHARACTERIZATION
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

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LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER: *D517*
RESPONSIBLE PARTY: *ZINE S GARAGE*
ADDRESS OF RESPONSIBLE PARTY: *220 ELVERTA RD, ELVERTA, CA 95626*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *341192*
CASE TYPE: *WELL AFFECTED*
SUBSTANCE LEAKED: *GASOLINE*
SUBSTANCE QUANTITY:
LEAK CAUSE: *UNKNOWN*
LEAK SOURCE: *D,*
HOW LEAK WAS DISCOVERED: *TANK CLOSURE*
DATE DISCOVERED (blank if not reported): *1998-03-09*
HOW LEAK WAS STOPPED: *CT,*
STOP DATE (blank if not reported):
STATUS: *POLLUTION CHARACTERIZATION*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *FREV*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1998-06-09*
REVIEW DATE (blank if not reported): *2002-05-10*
DATE OF LEAK CONFIRMATION (blank if not reported): *1998-03-09*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported): *2000-10-01*
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported): *2002-06-01*
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported):
REPORT DATE (blank if not reported): *1998-03-09*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration): *2001-03-08*
MTBE GROUNDWATER CONCENTRATION (parts per billion): *EQUAL TO 380.00*
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *3*
MTBE FUEL: *1*
MTBE TESTED: *YES*
MTBE CLASS: *C*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 39 **DIST/DIR:** 1.70 SE **MAP ID:** 51

NAME:	ZINES GARAGE	**REV:**	01/01/94
ADDRESS:	220 ELVERTA	**ID1:**	TISID-STATE37105
	ELVERTA CA 95626	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

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Information from the FIDS/SWEEPS lists were included in this report search to help identify where underground storage tanks may have existed that were not recorded in CUPA databases or lists collected by Track Info Services. This may occur if a tank was removed prior to development of recent CUPA UST lists or never registered with a CUPA.

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 45 **DIST/DIR:** 1.72 SE **MAP ID:** 52

NAME:	RIO RAMAZA MARINA	**REV:**	01/01/94
ADDRESS:	10000 GARDEN	**ID1:**	TISID-STATE37389
	SACRAMENTO CA 95837	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

This site was listed in the FIDS Zip Code List as a UST site. The Office of Hazardous Data Management produced the FIDS list. The FIDS list is an index of names and locations of sites recorded in various California State environmental agency databases. It is sorted by zip code and as an index, details regarding the sites were never included.

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Information from the FIDS/SWEEPS lists were included in this report search to help identify where underground storage tanks may have existed that were not recorded in CUPA databases or lists collected by Track Info Services. This may occur if a tank was removed prior to development of recent CUPA UST lists or never registered with a CUPA.

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 20 **DIST/DIR:** 1.72 SE **MAP ID:** 53

NAME: AGRIFORM FARM SUPPLY, INC
ADDRESS: 40189 COUNTY ROAD 18C
WOODLAND CA 95776
YOLO
CONTACT:

REV: 07/03/00
ID1: CAL57280008
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)

OTHER SITE NAMES (blank below = not reported by agency)
CHEVRON/AGRIFORM FARM SUPPLY/ACID SPILL

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *PROPERTY/SITE REFERRED TO RWQCB (REFRW)*
AWP Site Type: *N/A*
NPL Site:
Fund:
Status Date: *12281995*
Lead:
Staff:
Senior Supervisor:

DTSC Region and RWQCB : *1 / SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB:
Site Access:
On Cortese List:
Groundwater Contamination:
Haz Ranking Score:
Haz Ranking Score:
Number of Sources Contributing to Contamination at the Site: *0*

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***(SS)***
Activity Status: *PROPERTY/SITE REFERRED TO RWQCB*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *12281995*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

DATE	COMMENT
02151980	*QUESTIONNAIRE SENT: WADE S*
03251980	*QUESTIONNAIRE RECEIVED: WADE S*
03251980	*WASTES DISPOSED AT RD. 18-C (OFF-SITE)*
10201980	*INSPECTION(LOCAL) INSPECTION and SAMPLING BY CO. AG. DEPT.*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 20 **DIST/DIR:** 1.72 SE **MAP ID:** 53

NAME: AGRIFORM FARM SUPPLY, INC
ADDRESS: 40189 COUNTY ROAD 18C
WOODLAND CA 95776
YOLO
CONTACT:

REV: 07/03/00
ID1: CAL57280008
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

DATE	COMMENT
03261982	*FACILITY DRIVE-BY DRIVE BY*
12281995	*Site Screening completed. Test results from samples taken*
12281995	*from rinsewater pond revealed Di-Syston at up to 2491.8 ppm,*
12281995	*O,P -DDE at up to 35 ppm, P,P -DDE at up to 46.5 ppm, and*
12281995	*Toxaphene at up to 2281.5 ppm of contamination in the dried*
12281995	*pond bed. A cleanup agreement was made between the Regional*
12281995	*Water Quality Control Board (RWQCB) and Agriform. On 11/5/95*
12281995	*the RWQCB certified that the rinsewater pond contamination*
12281995	*levels were below standards set by the RWQCB. Refer site to*
12281995	*RWQCB for ongoing oversight.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 3 **DIST/DIR:** 1.76 SE **MAP ID:** 54

NAME:	ROB AUERNIG AUTOBODY	**REV:**	6/6/06
ADDRESS:	1780 P F E RD	**ID1:**	CA0000971515
	ROSEVILLE CA 95747	**ID2:**	
	PLACER	**STATUS:**	SGN
CONTACT:	ROBERT AUERNIG	**PHONE:**	9167830280

SITE INFORMATION

CONTACT INFORMATION: ROBERT AUERNIG
1780 P F E RD
ROSEVILLE CA 95747

PHONE: 9167830280

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 38 **DIST/DIR:** 1.78 SE **MAP ID:** 55

NAME:	TRANSPORTATION	**REV:**	01/01/94
ADDRESS:	7900 ELOISE	**ID1:**	TISID-STATE37398
	ELVERTA CA 95626	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 52 **DIST/DIR:** 1.78 S- **MAP ID:** 56

NAME: SACRAMENTO INTERNATIONAL AIRPORT
ADDRESS: 7207 EARHART DRIVE
SACRAMENTO CA 95837
SACRAMENTO
CONTACT:

REV: 01/08/07
ID1: T0606702396
ID2:
STATUS: LEAK BEING CONFIRMED
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER: *RO0001615*
RESPONSIBLE PARTY: *GREG ROWE*
ADDRESS OF RESPONSIBLE PARTY: *6900 AIRPORT BOULEVARD*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *341468*
CASE TYPE: *OTHER*
SUBSTANCE LEAKED: *MTBE,NNM*
SUBSTANCE QUANTITY:
LEAK CAUSE: *UNKNOWN*
LEAK SOURCE: *UNKNOWN*
HOW LEAK WAS DISCOVERED: *NO DESCRIPTION*
DATE DISCOVERED (blank if not reported): *2006-06-27*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported):
STATUS: *LEAK BEING CONFIRMED*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency):
DATE OF ENFORCEMENT (blank if not reported):

ENTER DATE (blank if not reported):
REVIEW DATE (blank if not reported):
DATE OF LEAK CONFIRMATION (blank if not reported): *2006-07-25*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported):
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported):
REPORT DATE (blank if not reported): *2006-07-25*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *0*
MTBE TESTED: *YES*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRANLR

SEARCH ID: 9 **DIST/DIR:** 1.79 S- **MAP ID:** 57

NAME: ALLIED AVIATION FUELING COMPANY INC *D
ADDRESS: 7201 EARHART DR
SACRAMENTO CA 95837
CONTACT: JOHN A CORMIER

REV: 4/1/08
ID1: CAR000151597
ID2:
STATUS: NLR
PHONE: 916-924-1002

CONTACT INFORMATION:

JOHN A CORMIER
916-924-1002

UNIVERSE INFORMATION:

GOVERNMENT PERFORMANCE AND RESULTS ACT (GPRA)

GPRA CA BASELINE UNIVERSE:	*NO*
GPRA CA 2008:	*NO*

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	NO
SUBJCA TSD 3004:	NO
SUBJCA NON TSD:	NO
SUBJCA TSD DISCRETION:	NO
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	NO
GENERATOR STATUS:	NO
TRANSPORTER:	NO
UNIVERSAL WASTE:	NO
RECYCLER:	NO
USED OIL:	NO
IMPORTER:	NO
MIXED WASTE GENERATOR:	NO
ONSITE BURNER EXEMPT:	NO
FURNACE EXEMPTION:	NO
UNDERGROUND INJECTION:	NO
NAIC 1:	Other Support Activities for Air Transportation
NAIC 2:	
NAIC 3:	
NAIC 4:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 5 **DIST/DIR:** 1.79 S- **MAP ID:** 57

NAME:	ALLIED AVIATION SACRAMENTO INTL AIRPORT	**REV:**	6/6/06
ADDRESS:	7201 EARHART DR SACRAMENTO CA 95837 CA067	**ID1:** **ID2:** **STATUS:**	CAR000151597 SGN
CONTACT:	JOHN CORMIER	**PHONE:**	916-924-1002

SITE INFORMATION

CONTACT INFORMATION: JOHN CORMIER
7201 EARHART DRIVE TRAILER NO 1
SACRAMENTO CA 95837

PHONE: 916-924-1002

CONTACT INFORMATION: JOHN CORMIER
7201 EARHART DR ALLIED AVIATION FUEL STN
SACRAMENTO CA 95837

PHONE: 916-924-1002

UNIVERSE INFORMATION:

NAIC INFORMATION

48819 - OTHER SUPPORT ACTIVITIES FOR AIR TRANSPORTATION
488119 - OTHER AIRPORT OPERATIONS

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

Ignitable waste

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 7 **DIST/DIR:** 1.79 S- **MAP ID:** 57

NAME: SACRAMENTO INTERNATIONAL FUEL FACILITY
ADDRESS: 7330 EARHART DR
SACRAMENTO CA 95837
CONTACT: JOHN A CORMIER

REV: 4/1/08
ID1: CAR000185157
ID2:
STATUS: SGN
PHONE: 916-924-1002

CONTACT INFORMATION:

JOHN A CORMIER
916-924-1002
JOHN.CORMIER ALLIEDAVIATION.COM

UNIVERSE INFORMATION:

GOVERNMENT PERFORMANCE AND RESULTS ACT (GPRA)

GPRA CA BASELINE UNIVERSE:	*NO*
GPRA CA 2008:	*NO*

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	NO
SUBJCA TSD 3004:	NO
SUBJCA NON TSD:	NO
SUBJCA TSD DISCRETION:	NO
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	NO
GENERATOR STATUS:	SQG
TRANSPORTER:	NO
UNIVERSAL WASTE:	NO
RECYCLER:	NO
USED OIL:	NO
IMPORTER:	NO
MIXED WASTE GENERATOR:	NO
ONSITE BURNER EXEMPT:	NO
FURNACE EXEMPTION:	NO
UNDERGROUND INJECTION:	NO
NAIC 1:	Other Support Activities for Air Transportation
NAIC 2:	
NAIC 3:	
NAIC 4:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 35 **DIST/DIR:** 1.79 SE **MAP ID:** 58

NAME:	ELVERTA GAS	**REV:**	01/01/94
ADDRESS:	7801 RIO LINDA	**ID1:**	TISID-STATE37588
	ELVERTA CA 95825	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 50 **DIST/DIR:** 1.79 SE **MAP ID:** 58

NAME: YENOVKIAN PROPERTY
ADDRESS: 7801 RIO LINDA BLVD
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 01/12/06
ID1: T0606701062
ID2:
STATUS: REMEDIATION PLAN
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

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LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER: *D556*
RESPONSIBLE PARTY: *ARAM YENOVKIAN*
ADDRESS OF RESPONSIBLE PARTY: *1071 LOS MOLINOS WAY*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *341238*
CASE TYPE: *SOIL ONLY*
SUBSTANCE LEAKED: *GASOLINE*
SUBSTANCE QUANTITY:
LEAK CAUSE: *UNKNOWN*
LEAK SOURCE: *UNKNOWN*
HOW LEAK WAS DISCOVERED: *NO DESCRIPTION*
DATE DISCOVERED (blank if not reported): *1998-08-26*
HOW LEAK WAS STOPPED: *CLOSE TANK*
STOP DATE (blank if not reported): *1998-08-26*
STATUS: *REMEDIATION PLAN*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *FREV*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1999-04-23*
REVIEW DATE (blank if not reported): *2002-04-05*
DATE OF LEAK CONFIRMATION (blank if not reported): *1998-08-26*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported): *1998-08-26*
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported): *1999-10-13*
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported): *2003-12-15*
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported):
REPORT DATE (blank if not reported): *1998-09-16*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration): *1965-01-05*
MTBE GROUNDWATER CONCENTRATION (parts per billion): *LESS THAN 0.5*
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *1*
MTBE FUEL: *1*
MTBE TESTED: *YES*
MTBE CLASS: *D*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 44 **DIST/DIR:** 1.83 S- **MAP ID:** 59

NAME:	METRO AIRPORT	**REV:**	01/01/94
ADDRESS:	7207 EARHART	**ID1:**	TISID-STATE37921
	SACRAMENTO CA 95837	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 33 **DIST/DIR:** 1.83 SE **MAP ID:** 60

NAME:	AIR BLOWN CONCRETE	**REV:**	01/01/94
ADDRESS:	601 DELANO	**ID1:**	TISID-STATE38325
	ELVERTA CA 95626	**ID2:**	
	Sacramento	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

UST HISTORICAL DATA

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 6 **DIST/DIR:** 1.85 S- **MAP ID:** 61

NAME:	PST SACRAMENTO STORAGE	**REV:**	6/6/06
ADDRESS:	7201 EARHART DR	**ID1:**	CAD981977523
	SACRAMENTO CA 95837	**ID2:**	
	SACRAMENTO	**STATUS:**	SGN
CONTACT:	ENVIRONMENTAL MANAGER	**PHONE:**	9166480649

SITE INFORMATION

CONTACT INFORMATION: ENVIRONMENTAL MANAGER
7201 EARHART DR
SACRAMENTO CA 95832

PHONE: 9166480649

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 40 **DIST/DIR:** 1.85 S- **MAP ID:** 61

NAME:	DEPT ARPTS, SACRAMENTO INTL AIRPORT OP and MA	**REV:**	01/12/2000
ADDRESS:	7201 EARHART DR	**ID1:**	SACRAMENTO15279
	SACRAMENTO CA 95837	**ID2:**	
	SACRAMENTO	**STATUS:**	NUMBER OF CERTIFIED TANKS:5
CONTACT:		**PHONE:**	

COUNTY OF SACRAMENTO CERTIFIED UNDERGROUND TANKS LIST INFORMATION

Certification Number: *15279*

Number of Tanks: *5*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

OTHER

SEARCH ID: 161 **DIST/DIR:** NON GC **MAP ID:**

NAME: PRICE-LESS DRUG STORE
ADDRESS: 8031 WATT AVE
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 08/22/05
ID1: FA0010483
ID2:
STATUS: NOT REPORTED
PHONE:

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT MASTER LIST OF SITES WITH POTENTIALLY HAZARDOUS MATERIALS:
Number of Tanks at Site (where applicable):

RCRAGN

SEARCH ID: 77 **DIST/DIR:** NON GC **MAP ID:**

NAME: PACIFIC BELL
ADDRESS: 2 MILE S/E PLEASANT GROVE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 6/6/06
ID1: CAT080015142
ID2:
STATUS: SGN
PHONE:

SITE INFORMATION

CONTACT INFORMATION: ENVIRONMENTAL MANAGER
2 MILE S/E PLEASANT GROVE
PLEASANT GROVE CA 95668

PHONE: 9164850997

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 84 **DIST/DIR:** NON GC **MAP ID:**

NAME:	TOSCO NORTHWEST CO NO 11252	**REV:**	6/6/06
ADDRESS:	I 5 AND COUNTRY ROAD NO 6 DUNNIGAN CA 95937 YOLO	**ID1:** **ID2:** **STATUS:**	CAR000000323 SGN
CONTACT:	LYNN CHUN	**PHONE:**	2064427193

SITE INFORMATION

CONTACT INFORMATION: LYNN CHUN
601 UNION ST STE 2500
SEATTLE WA 98101

PHONE: 2064427193

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

OTHER

SEARCH ID: 160 **DIST/DIR:** NON GC **MAP ID:**

NAME:	MONROE S DUMP	**REV:**	07/18/05
ADDRESS:	PALLADAY RD	**ID1:**	CAL34490020
	ELVERTA CA 95626	**ID2:**	
	SACRAMENTO	**STATUS:**	PROPERTY/SITE REFERRED TO RWQC
CONTACT:		**PHONE:**	

GENERAL SITE INFORMATION

Site Type:	*Historical*
Status:	*Refer: RWQCB*
Status Date:	*1981-08-04 00:00:00*
NPL Site:	*NO*
Funding:	
Regulatory Agencies Involved:	*NONE SPECIFIED*
Lead Agency:	*NONE SPECIFIED*
Project Manager:	
Supervisor:	*Referred - Not Assigned*
Branch:	*Central California*
Acres:	
Assessor s Parcel Number:	*NONE SPECIFIED*
Past Uses:	*NONE SPECIFIED*
Potential Contaminants:	*NONE SPECIFIED*
Confirmed Contaminants:	*NONE SPECIFIED*
Potential Media Affected:	*NONE SPECIFIED*
Restricted Use:	*NO*
Site Management Required:	*NONE SPECIFIED*
Special Programs Associated with this Site:	

OTHER SITE NAMES (blank below = not reported by agency)

34490020

COMPLETED ACTIVITIES AND DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Discovery***
Completion Date:	***1981-06-08***
Comments:	*FACILITY IDENTIFIED ANONYMOUS PHONE TIP.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

OTHER

SEARCH ID: 159 **DIST/DIR:** NON GC **MAP ID:**

NAME: VERIZON WIRELESS
ADDRESS: 3517 WATT AVE
NORTH HIGHLANDS CA 95660
SACRAMENTO
CONTACT:

REV: 08/22/05
ID1: FA0018227
ID2:
STATUS: NOT REPORTED
PHONE:

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT MASTER LIST OF SITES WITH POTENTIALLY HAZARDOUS MATERIALS:
Number of Tanks at Site (where applicable):

OTHER

SEARCH ID: 158 **DIST/DIR:** NON GC **MAP ID:**

NAME: SASHA AUTO BODY
ADDRESS: 7245 32ND ST W
NORTH HIGHLANDS CA 95660
SACRAMENTO
CONTACT:

REV: 08/22/05
ID1: FA0013938
ID2:
STATUS: NOT REPORTED
PHONE:

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT MASTER LIST OF SITES WITH POTENTIALLY HAZARDOUS MATERIALS:
Number of Tanks at Site (where applicable):

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRANLR

SEARCH ID: 86 **DIST/DIR:** NON GC **MAP ID:**

NAME:	FOSROC INC	**REV:**	6/6/06
ADDRESS:	665 NORTH COUNTRY RD STE 101 WOODLAND CA 95695 YOLO	**ID1:**	CAD981687593
		ID2:	
		STATUS:	NLR
CONTACT:	LEO HICKAM	**PHONE:**	5028682617

SITE INFORMATION

CONTACT INFORMATION: LEO HICKAM
150 CARLEY CT
GEORGETOWN KY 40324

PHONE: 5028682617

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 85 **DIST/DIR:** NON GC **MAP ID:**

NAME:	USA GASOLINE CORP FACILITY NO 3088	**REV:**	7/8/03
ADDRESS:	29770 COUNTRY RD NO 8	**ID1:**	CAR000144394
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	SGN
CONTACT:	CHUCK MILLER	**PHONE:**	818-865-9200

DETAILS NOT AVAILABLE

RCRAGN

SEARCH ID: 83 **DIST/DIR:** NON GC **MAP ID:**

NAME:	PACIFIC BELL	**REV:**	6/6/06
ADDRESS:	ROAD 89	**ID1:**	CAT080017387
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	SGN
CONTACT:		**PHONE:**	

SITE INFORMATION

CONTACT INFORMATION: ENVIRONMENTAL MANAGER
ROAD EIGHTY NINETH
DUNNIGAN CA 95937

PHONE: 9164850997

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 82 **DIST/DIR:** NON GC **MAP ID:**

NAME:	DELTA AIR LINES SACRAMENTO	**REV:**	2/9/04
ADDRESS:	SACRAMENTO AIRPORT	**ID1:**	CAD982011140
	SACRAMENTO CA 95837	**ID2:**	
	SACRAMENTO	**STATUS:**	SGN
CONTACT:	ENVIRONMENTAL MANAGER	**PHONE:**	9162978352

SITE INFORMATION

UNIVERSE TYPE:

SQG - SMALL QUANTITY GENERATOR: GENERATES 100 - 1000 KG/MONTH OF HAZARDOUS WASTE

SIC INFORMATION:

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 81 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CHEVRON 1001558	**REV:**	6/6/06
ADDRESS:	7201 EARHART DRIVE SACRAMENTO CA 95837 SACRAMENTO	**ID1:** **ID2:** **STATUS:**	CAT000614917 LGN
CONTACT:	KATHY L NORRIS	**PHONE:**	9258425931

SITE INFORMATION

CONTACT INFORMATION: ENVIRONMENTAL MANAGER
ARPT BLVD and INT FIFTH
SACRAMENTO CA 95837

PHONE: 4156383434

UNIVERSE INFORMATION:

NAIC INFORMATION

42471 - PETROLEUM BULK STATIONS AND TERMINALS

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

Ignitable waste
Benzene

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 80 **DIST/DIR:** NON GC **MAP ID:**

NAME:	AERA SACRAMENTO UNIT	**REV:**	6/6/06
ADDRESS:	50 N 2ND ST	**ID1:**	CAD981453459
	SACRAMENTO CA 95691	**ID2:**	
	SACRAMENTO	**STATUS:**	LGN
CONTACT:	RON CHAMBERS	**PHONE:**	8053265641

SITE INFORMATION

CONTACT INFORMATION: RON CHAMBERS
P O BOX 11164
BAKERSFIELD CA 933891164

PHONE: 8053265641

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

Corrosive waste
Ignitable waste

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 78 **DIST/DIR:** NON GC **MAP ID:**

NAME:	PACIFIC BELL	**REV:**	6/6/06
ADDRESS:	N/W CORNER PLEASANT GROVE PLEASANT GROVE CA 95668 SUTTER	**ID1:**	CAT080015159
		ID2:	
		STATUS:	SGN
CONTACT:		**PHONE:**	

SITE INFORMATION

CONTACT INFORMATION: ENVIRONMENTAL MANAGER
N/W CORNER PLEASANT GROVE
PLEASANT GROVE CA 95668

PHONE: 9164850997

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 107 **DIST/DIR:** NON GC **MAP ID:**

NAME:	WEST SACRAMENTO BRYTE LANDFILL	**REV:**	7/10/07
ADDRESS:	COUNTY ROAD 126 and ROAD 124	**ID1:**	110013919331
	WEST SACRAMENTO CA 95691	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICALF61
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:03:50 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110013919331
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/11/2003 3:13:19 PM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI-HAP
LAST REPORTED:	4/11/2003 3:13:20 PM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	DIRECTION
LAST REPORTED:	
POSTED TO DATABASE:	4/11/2003 3:13:20 PM
DATA UPDATED:	6/29/2005 2:42:10 PM
ENTERED PERSON/METHOD:	ESZ
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

OTHER

SEARCH ID: 164 **DIST/DIR:** NON GC **MAP ID:**

NAME: SILVER CREEK **REV:** 08/08/07
ADDRESS: 4300 PFE ROAD AND 9245 WALERGA ROAD (ADJOINING PROPERTIES)
ID1: CAL60000292
ROSEVILLE CA 95747 **ID2:**
PLACER **STATUS:** NO FURTHER ACTION
CONTACT: **PHONE:**

GENERAL SITE INFORMATION

Site Type:	*Voluntary Cleanup*
Status:	*No Further Action*
Status Date:	*2006-06-27 00:00:00*
NPL Site:	*NO*
Funding:	*Responsible Party*
Regulatory Agencies Involved:	*SMBRP*
Lead Agency:	*NONE SPECIFIED*
Project Manager:	*LEONA WINNER*
Supervisor:	*Steven Becker*
Branch:	*Brownfields Revitalization Unit*
Acres:	*28.6*
Assessor s Parcel Number:	*NONE SPECIFIED*
Past Uses:	*AGRICULTURAL - LIVESTOCK, AGRICULTURAL - ORCHARD*
Potential Media Affected:	*NMA*
Restricted Use:	*NO*
Site Management Required:	*NONE SPECIFIED*
Special Programs Associated with this Site:	*Voluntary Cleanup Program*

OTHER SITE NAMES (blank below = not reported by agency)

101788

60000292

COMPLETED ACTIVITIES AND DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Area Name: ***PROJECT WIDE***
Sub- Area Name:
Document Type: ***Preliminary Endangerment Assessment Report***
Completion Date: ***2006-06-27 00:00:00***
Comments: *Pre-existing data was received and no further action was deemed necessary.*

Area Name: ***PROJECT WIDE***
Sub- Area Name:
Document Type: ***Voluntary Clean-up Agreement***
Completion Date: ***2006-05-02 00:00:00***
Comments: *A Voluntary Cleanup Agreement was executed. The agreement calls for the completion of a Preliminary Endangerment Assessment.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRAGN

SEARCH ID: 79 **DIST/DIR:** NON GC **MAP ID:**

NAME:	SIERRA MACHINERY SERVICES	**REV:**	6/6/06
ADDRESS:	751 B PACIFIC AVENUE	**ID1:**	CAR000157404
	PLEASANT GROVE CA 95668	**ID2:**	
	SACRAMENTO	**STATUS:**	SGN
CONTACT:	LINDA S GRODE	**PHONE:**	916-655-3077

SITE INFORMATION

CONTACT INFORMATION: LINDA GRODE
751 B PACIFIC AVENUE
PLEASANT GROVE CA 95668

PHONE: 916-655-3077

UNIVERSE INFORMATION:

NAIC INFORMATION

81131 - COMMERCIAL AND INDUSTRIAL MACHINERY AND EQUIPMENT (EXCEPT AUTOMOTIVE AND ELECTRONIC) REPAIR AND MAINTENANCE

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

Ignitable waste
Lead
Tetrachloroethylene
Benzene

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 175 **DIST/DIR:** NON GC **MAP ID:**

NAME: CENTER UNIFIED SCHOOL DISTRICT
ADDRESS: 8408 WATT AVE
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 01/12/06
ID1: T0606700572
ID2:
STATUS: CASE CLOSED
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER: *B561*
RESPONSIBLE PARTY: *CENTER UNIFIED SCHOOL DISTRICT*
ADDRESS OF RESPONSIBLE PARTY: *8408 WATT AVE, ELVERTA, CA 95626*
SITE OPERATOR: *AL WHENT*
WATER SYSTEM:

CASE NUMBER: *340671*
CASE TYPE: *SOIL ONLY*
SUBSTANCE LEAKED: *GASOLINE*
SUBSTANCE QUANTITY:
LEAK CAUSE:
LEAK SOURCE:
HOW LEAK WAS DISCOVERED:
DATE DISCOVERED (blank if not reported): *1992-08-12*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported):
STATUS: *CASE CLOSED*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency): *EXCAVATE AND DISPOSE-REMOVE CONTAMINATED SOIL AND DISPOSE IN APPROVED SITE*
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *NONE TAKEN*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1992-11-18*
REVIEW DATE (blank if not reported): *2002-03-22*
DATE OF LEAK CONFIRMATION (blank if not reported): *1992-08-12*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported): *1992-08-20*
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported): *1992-10-15*
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported):
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported): *1992-10-28*
DATE REMEDIAL ACTION UNDERWAY (blank if not reported): *1992-10-15*
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported): *1993-02-19*
REPORT DATE (blank if not reported): *1992-08-12*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *1*
MTBE TESTED: *SITE NOT TESTED FOR MTBE. INCLUDES UNKNOWN AND NOT ANALYZED*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

OTHER

SEARCH ID: 162 **DIST/DIR:** NON GC **MAP ID:**

NAME:	GENERAL CARTAGE	**REV:**	07/18/05
ADDRESS:	COUNTY ROAD 103 AND COUNTY ROAD 27 WOODLAND CA 95695 YOLO	**ID1:** **ID2:** **STATUS:**	CAL57420004 PROPERTY/SITE REFERRED TO RWQC
CONTACT:		**PHONE:**	

GENERAL SITE INFORMATION

Site Type:	*Historical*
Status:	*Refer: RWQCB*
Status Date:	*1987-01-29 00:00:00*
NPL Site:	*NO*
Funding:	
Regulatory Agencies Involved:	*NONE SPECIFIED*
Lead Agency:	*NONE SPECIFIED*
Project Manager:	
Supervisor:	*Referred - Not Assigned*
Branch:	*Central California*
Acres:	
Assessor s Parcel Number:	*NONE SPECIFIED*
Past Uses:	*NONE SPECIFIED*
Potential Contaminants:	*NONE SPECIFIED*
Confirmed Contaminants:	*NONE SPECIFIED*
Potential Media Affected:	*NONE SPECIFIED*
Restricted Use:	*NO*
Site Management Required:	*NONE SPECIFIED*
Special Programs Associated with this Site:	

OTHER SITE NAMES (blank below = not reported by agency)

57420004

COMPLETED ACTIVITIES AND DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Site Screening***
Completion Date:	***1987-01-29***
Comments:	*SITE SCREENING DONE. NO DEPARTMENT OF HEALTH SERVICES FILE FOUND.*

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Discovery***
Completion Date:	***1982-03-26***
Comments:	*FACILITY IDENTIFIED: OBSERVED ON DRIVE BYS - ACTIVE SITE. FACILITY DRIVE-BY: PETROLEUM DISCHARGED TO STREET DRAIN. FINAL STRATEGY SITE REFERRRED: TO COUNTY HEALTH AND REGIONAL WATER QUALITY CONTROL BOARD.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 132 **DIST/DIR:** NON GC **MAP ID:**

NAME:	USA PETROLEUM	**REV:**	7/10/07
ADDRESS:	29770 COUNTY ROAD 8	**ID1:**	110021334796
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA635317
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:58:27 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110021334796
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/19/2005 9:09:04 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/19/2005 9:09:05 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN, HWY
LAST REPORTED:	
POSTED TO DATABASE:	5/19/2005 9:09:04 AM
DATA UPDATED:	
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 127 **DIST/DIR:** NON GC **MAP ID:**

NAME:	KANG CHEVRON	**REV:**	7/10/07
ADDRESS:	COUNTY ROAD 6 and 89	**ID1:**	110021341430
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA351074
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:58:00 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110021341430
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/19/2005 9:31:44 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/19/2005 9:31:44 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	DIRECTION
LAST REPORTED:	
POSTED TO DATABASE:	5/19/2005 9:31:44 AM
DATA UPDATED:	
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 126 **DIST/DIR:** NON GC **MAP ID:**

NAME:	DUNNIGAN SHELL	**REV:**	7/10/07
ADDRESS:	I-5 and COUNTY ROAD 6	**ID1:**	110021272978
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110021272978
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/19/2005 7:01:00 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/19/2005 7:01:00 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA635184
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:56:00 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	DIRECTION
LAST REPORTED:	
POSTED TO DATABASE:	5/19/2005 7:01:00 AM
DATA UPDATED:	
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 125 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CONOCO PHILLIPS COMPANY	**REV:**	7/10/07
ADDRESS:	I-5 and COUNTY ROAD 6	**ID1:**	110021306380
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110021306380
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/19/2005 8:06:08 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/19/2005 8:06:09 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA163596
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:55:57 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	DIRECTION
LAST REPORTED:	
POSTED TO DATABASE:	5/19/2005 8:06:09 AM
DATA UPDATED:	9/30/2005 11:27:31 AM
ENTERED PERSON/METHOD:	SJOHNSON
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 124 **DIST/DIR:** NON GC **MAP ID:**

NAME:	BSK ASSOCIATES	**REV:**	7/10/07
ADDRESS:	30035 COUNTY ROAD 8	**ID1:**	110021334590
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110021334590
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/19/2005 9:08:36 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/19/2005 9:08:36 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA351225
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:57:56 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN, HWY
LAST REPORTED:	
POSTED TO DATABASE:	5/19/2005 9:08:36 AM
DATA UPDATED:	
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 121 **DIST/DIR:** NON GC **MAP ID:**

NAME: SPRECKELS SUGAR COMPANY WOODLAND
ADDRESS: 40600 COUNTY ROAD UNIT 18C
WOODLAND CA 95776
YOLO
CONTACT:

REV: 7/10/07
ID1: 110000601322
ID2: CAT000624767
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110000601322
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: FRS
LAST EXTRACTED:

PROGRAM: NEI
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

PROGRAM ID: NEICA1135809
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: NEI
LAST EXTRACTED: 6/14/2005 11:02:53 AM

PROGRAM: TRIS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL: FIRST REPORTING YEAR
INT END QUAL:
LAST REPORTED: 7/6/2001
ENFORCEMENT ACT:
REG PROGRAM: TRI REPORTER - A TOXIC RELEASE INVENTORY REPORTER IS A FACILITY WHICH: EMPLOYS THE EQUIVALENT OF 10 OR MORE FULL-TIME EMPLOYEES; AND IS INCLUDED IN STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES 10XX, 12XX, 20XX-39XX, 4911, 4931, 4939, 4953, 5169, 5171, OR 7389; AND MANUFACTURES (DEFINED TO INCLUDE IMPORTING), PROCESSES, OR OTHERWISE USES ANY EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA) SECTION 313 CHEMICAL IN QUANTITIES GREATER THAN THE ESTABLISHED THRESHOLD IN THE COURSE OF A CALENDAR YEAR (I.E., MANUFACTURES OR PROCESSES OVER 25,000 POUNDS OF THE APPROXIMATELY 600 DESIGNATED CHEMICALS OR 28 CHEMICAL CATEGORIES SPECIFIED IN THE REGULATIONS, OR USES MORE THAN 10,000 POUNDS OF ANY DESIGNATED CHEMICAL OR CATEGORY).

PROGRAM ID: 95695SPRCKCOUNT
AGENCY INTERESTED: 12/31/1987
INTEREST ENDED:
SOURCE OF DATA: TRI REPORTING FORM
LAST EXTRACTED:

PROGRAM: RCRAINFO
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 9/1/1996
ENFORCEMENT ACT:
REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

PROGRAM ID: CAT000624767
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: EPA INSPECTION
LAST EXTRACTED:

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 121 **DIST/DIR:** NON GC **MAP ID:**

NAME: SPRECKELS SUGAR COMPANY WOODLAND
ADDRESS: 40600 COUNTY ROAD UNIT 18C
WOODLAND CA 95776
YOLO
CONTACT:

REV: 7/10/07
ID1: 110000601322
ID2: CAT000624767
STATUS: FRS
PHONE:

LOCATION DESC:
ADDRESS TYPE: IRREGULAR
LAST REPORTED:
POSTED TO DATABASE: 3/1/2000
DATA UPDATED: 9/5/2002 12:28:31 PM
ENTERED PERSON/METHOD: BBD
PARENT REG ID:
CONFIDENCE IN ADDR: MEDIUM
ENFORCEMENT SENSITIVE: N
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST: 03
LEGISLATIVE DIST: 1
HYDROLOGICAL UNTIS: 18020109
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 120 **DIST/DIR:** NON GC **MAP ID:**

NAME:	ROBERT S MINI MART	**REV:**	7/10/07
ADDRESS:	450 COUNTY ROAD 102	**ID1:**	110021364414
	WOODLAND CA 95776	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA635110
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:58:44 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110021364414
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/19/2005 11:24:10 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/19/2005 11:24:11 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN, HWY
LAST REPORTED:	
POSTED TO DATABASE:	5/19/2005 11:24:11 AM
DATA UPDATED:	
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 119 **DIST/DIR:** NON GC **MAP ID:**

NAME:	OLD CITY OF WOODLAND LANDFILL	**REV:**	7/10/07
ADDRESS:	SE CORNER OF COUNTY ROADS 102	**ID1:**	110014017919
	WOODLAND CA 95776	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICALF69
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:02:07 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110014017919
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/11/2003 7:12:34 PM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI-HAP
LAST REPORTED:	4/11/2003 7:12:35 PM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	DIRECTION
LAST REPORTED:	
POSTED TO DATABASE:	4/11/2003 7:12:35 PM
DATA UPDATED:	6/22/2006 1:07:37 PM
ENTERED PERSON/METHOD:	KGOODWIN
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 134 **DIST/DIR:** NON GC **MAP ID:**

NAME:	NORTH HIGHLANDS AIR NATIONAL GUARD	**REV:**	07/03/00
ADDRESS:	8 ACRES;6 MI NORTHEAST OF SACRAMENTO, CA	**ID1:**	CAL34480006
	SACRAMENTO CA 95660	**ID2:**	
	SACRAMENTO	**STATUS:**	DELISTED
CONTACT:		**PHONE:**	

OTHER SITE NAMES (blank below = not reported by agency)

OTHER SITE NAMES (blank below = not reported by agency)
NORTH HIGHLANDS ANG

GENERAL SITE INFORMATION

File Name (if different than site name):	*NORTH HIGHLANDS ANG*
Status:	*DELISTED (DLIST)*
AWP Site Type:	*OPEN MILITARY BASE*
NPL Site:	*N*
Fund:	
Status Date:	*09051995*
Lead:	*DTSC*
Staff:	*JHARRIS3*
Senior Supervisor:	*EHONG*
DTSC Region and RWQCB :	*1 / SACRAMENTO*
Branch:	*OMF-NORTHERN CALIF*
RWQCB:	*CENTRAL VALLEY*
Site Access:	
On Cortese List:	*Listed*
Groundwater Contamination:	*N*
Haz Ranking Score:	
Haz Ranking Score:	
Number of Sources Contributing to Contamination at the Site:	*3*

BACKGROUND INFORMATION (blank below = not reported by agency)

The North Highlands Air National Guard (NHANG) Station began operation in 1950. NHANG installs, operates and maintains mobile communication equipment. From the early 1960s thru 1979, vehicles and equipment were washed down in an open lot on the southwest side of the facility. In 1980, an oil/water separator was installed which is connected to the sanitary sewer.

Maintenance operations required the use of lubricants, fuels solvents, thinner and paint. Waste was usually disposed by a contractor or to DRMO at McClellan AFB. Small spills may have occured. No orders have ever been issued to the facility.

INFORMATION ON SPECIAL PROGRAMS THE SITE IS ASSOCIATED WITH (blank below = not reported by agency)

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 134 **DIST/DIR:** NON GC **MAP ID:**

NAME:	NORTH HIGHLANDS AIR NATIONAL GUARD	**REV:**	07/03/00
ADDRESS:	8 ACRES;6 MI NORTHEAST OF SACRAMENTO, CA	**ID1:**	CAL34480006
	SACRAMENTO CA 95660	**ID2:**	
	SACRAMENTO	**STATUS:**	DELISTED
CONTACT:		**PHONE:**	

DEFENSE MEMORANDUM OF AGREEMENT

PROJECTED ACTIVITIES (blank below = not reported by agency)

PROJECTED ACTIVITIES (blank below = not reported by agency)

PROJECTED ACTIVITIES (blank below = not reported by agency)

Activity:	***(PA)***
Activity Status:	*DELISTED*
Completion Due Date:	
Revised Completion Due Date:	
Date Activity Actually Completed:	*01311991*
Yards of Solids Removed:	*0*
Yards of Solids Treated:	*0*
Gallons of Liquid Removed:	*0*
Gallons of Liquid Treated:	*0*

Activity:	***PRELIMINARY ENDANGERMENT ASSESSMENT (PEA)***
Activity Status:	*DELISTED*
Completion Due Date:	
Revised Completion Due Date:	
Date Activity Actually Completed:	*01191996*
Yards of Solids Removed:	*0*
Yards of Solids Treated:	*0*
Gallons of Liquid Removed:	*0*
Gallons of Liquid Treated:	*0*

Activity:	***DELISTED (DLIST)***
Activity Status:	*DELISTED*
Completion Due Date:	
Revised Completion Due Date:	
Date Activity Actually Completed:	*01191996*
Yards of Solids Removed:	*0*
Yards of Solids Treated:	*0*
Gallons of Liquid Removed:	*0*
Gallons of Liquid Treated:	*0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

DATE	**COMMENT**
01311991	*PA 01/31/91*

DATE	**COMMENT**
01311991	*Jan 1991 preliminary Assessment reviewed by RWQCB. Site*

DATE	**COMMENT**
01311991	*Investigative report reviewed by both DTSC and RWQCB, final*

DATE	**COMMENT**
01311991	*submitted to DTSC September 8, 1995*

DATE	**COMMENT**
01191996	*PEA 01-19-1996 The final Preliminary Assessment/Site*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 134 **DIST/DIR:** NON GC **MAP ID:**

NAME:	NORTH HIGHLANDS AIR NATIONAL GUARD	**REV:**	07/03/00
ADDRESS:	8 ACRES;6 MI NORTHEAST OF SACRAMENTO, CA	**ID1:**	CAL34480006
	SACRAMENTO CA 95660	**ID2:**	
	SACRAMENTO	**STATUS:**	DELISTED
CONTACT:		**PHONE:**	

DATE	COMMENT
01191996	*Inspection (PA/SI) for the North Highland Air National*
DATE	**COMMENT**
01191996	*Guard Station (NHANG) was submitted to DTSC for review in*
DATE	**COMMENT**
01191996	*October of 1995. DTSC and the Central Valley Regional Water*
DATE	**COMMENT**
01191996	*Quality Control Board (RWQCB) reviewed and approved the*
DATE	**COMMENT**
01191996	*final PA/SI Report on January 19, 1995.*
DATE	**COMMENT**
01191996	*The PA/SI report provided assessments for two areas at*
DATE	**COMMENT**
01191996	*NHANG. The two areas were former truck and equipment wash*
DATE	**COMMENT**
01191996	*down areas. Soil and soil gas samples were collected*
DATE	**COMMENT**
01191996	*and analyzed for volatiles, semi-volatiles, inorganics and*
DATE	**COMMENT**
01191996	*petroleum compounds.*
DATE	**COMMENT**
01191996	*Volume Treated, Stabilized, or Disposed: N/A.*
DATE	**COMMENT**
01191996	*Approximate cost and funding source: The cost of the*
DATE	**COMMENT**
01191996	*PA/SI and actions was approximately $100,000. The*
DATE	**COMMENT**
01191996	*project was DERA funded.*
DATE	**COMMENT**
01191996	*DELIST - The Department has determined, based upon a remedial*
DATE	**COMMENT**
01191996	*investigation or site characterization that the site poses no*
DATE	**COMMENT**
01191996	*significant threat to public health, welfare or the environment*
DATE	**COMMENT**

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Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 134 **DIST/DIR:** NON GC **MAP ID:**

NAME:	NORTH HIGHLANDS AIR NATIONAL GUARD	**REV:**	07/03/00
ADDRESS:	8 ACRES;6 MI NORTHEAST OF SACRAMENTO, CA	**ID1:**	CAL34480006
	SACRAMENTO CA 95660	**ID2:**	
	SACRAMENTO	**STATUS:**	DELISTED
CONTACT:		**PHONE:**	

01191996	*and therefore, implementation of removal/remedial measures is*

DATE	**COMMENT**
01191996	*not necessary.*

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 117 **DIST/DIR:** NON GC **MAP ID:**

NAME: AGRIFORM, DIV. OF TREMONT
ADDRESS: 40189 COUNTY ROAD 18 C
WOODLAND CA 95776
YOLO
CONTACT:

REV: 7/10/07
ID1: 110023166517
ID2: I09 200506164335 1
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: NCDB
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: COMPLIANCE ACTIVITY - A COMPLIANCE MONITORING OR ENFORCEMENT ACTIVITY, FROM THE TIME AN INSPECTOR CONDUCTS AN INSPECTION UNTIL THE TIME THE INSPECTOR CLOSES OR THE CASE SETTLES THE ENFORCEMENT ACTION.

PROGRAM ID: I09 200506164335 1
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: NCDB
LAST EXTRACTED: 12/5/2005 2:28:48 PM

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 12/5/2005 2:28:48 PM
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110023166517
AGENCY INTERESTED: 12/5/2005 2:28:48 PM
INTEREST ENDED:
SOURCE OF DATA: NCDB
LAST EXTRACTED:

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: REGULAR URBAN, HWY
LAST REPORTED:
POSTED TO DATABASE: 12/5/2005 2:28:48 PM
DATA UPDATED:
ENTERED PERSON/METHOD: REFRESH
PARENT REG ID:
CONFIDENCE IN ADDR:
ENFORCEMENT SENSITIVE:
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST:
LEGISLATIVE DIST:
HYDROLOGICAL UNTIS:
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 117 **DIST/DIR:** NON GC **MAP ID:**

NAME:	AGRIFORM, DIV. OF TREMONT	**REV:**	7/10/07
ADDRESS:	40189 COUNTY ROAD 18 C	**ID1:**	110023166517
	WOODLAND CA 95776	**ID2:**	I09 200506164335 1
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 135 **DIST/DIR:** NON GC **MAP ID:**

NAME: MONROE S DUMP
ADDRESS: PALLADAY RD
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 07/03/00
ID1: CAL34490020
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
MONROE S DUMP

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *PROPERTY/SITE REFERRED TO RWQCB (REFRW)*
AWP Site Type: *N/A*
NPL Site:
Fund:
Status Date: *08041981*
Lead:
Staff:
Senior Supervisor:

DTSC Region and RWQCB : *1 / SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB: *CENTRAL VALLEY*
Site Access: *Controlled*
On Cortese List:
Groundwater Contamination:
Haz Ranking Score:
Haz Ranking Score:
Number of Sources Contributing to Contamination at the Site: *0*

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***DISCOVERY (DISC)***
Activity Status: *PROPERTY/SITE REFERRED TO RWQCB*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *06081981*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

DATE	COMMENT
06081981	*FACILITY IDENTIFIED ANONYMOUS PHONE TIP*
06111981	*FACILITY DRIVE-BY PROPERTY FENCED, UNABLE TO SURVEY*
06111981	*SOME JUNK CARS*
06151981	*FOUND FILE ON MONROE S DUMP FROM 1958*

DATE **COMMENT**

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 135 **DIST/DIR:** NON GC **MAP ID:**

NAME: MONROE S DUMP
ADDRESS: PALLADAY RD
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 07/03/00
ID1: CAL34490020
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

06151981 *MRS. MONROE OWNED DUMP IN 1958. WET GAR-*

DATE	COMMENT
06151981	*BAGE DUMPED FROM 1955-1958.DUMPED 2 LOAD*
06151981	*PER DAY AT MONROE S DUMP. WHERRUY HOUSG*
06151981	*ADJ TO MATHER FIELD*
06181981	*AERIAL SURVEILLANCE AERIAL PHOTOS ORDERED*
06241981	*CO ENVR HLTH. B.ANDERSON NOT KNOW EXACT*
06241981	*LOCATION*
07011981	*INSPECTION(STATE) LETTER SENT TO MR. JIM STARK REQUESTING*
07011981	*SITE INSP and SAMPLING OF HIS PROPERTY AT*
07011981	*8784-8840 PALLADAY RD.*
07211981	*MR B.COURTNER,SWMB CALLED W/INFO ON MON-*
07211981	*ROE S DUMP:LOC-ON S SIDE OF PALLADAY RD*
07211981	*AT THE END OF THE E-W SEC OF THE RD.DUMP*
07211981	*REMAINED OPEN FOR ABOUT 4-5 YRS. IT WAS*
07211981	*A RURAL DUMP SURROUNDED BY AGRI-PROBABLY*
07211981	*PEST and/OR CONTAINERS DUMP. IT SLOPES TO*
07211981	*THE S-E. ON THE E and S BOUNDARIES IS A*
07211981	*CREEK. A WATER WELL WAS DRILLED. SIZE IS*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 135 **DIST/DIR:** NON GC **MAP ID:**

NAME: MONROE S DUMP
ADDRESS: PALLADAY RD
ELVERTA CA 95626
SACRAMENTO
CONTACT:

REV: 07/03/00
ID1: CAL34490020
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

DATE	COMMENT
07211981	*APPROX 20 ACRES*
07221981	*CO ASSESSOR: ELMER KELLETT OWNS 8784*
07221981	*PALLADAY RD, KELLET S ADDR: 13122 GLORY*
07221981	*LN. RNCHO. MARK/NANCY PHEATT OWN 8846*
07221981	*PALLADAY RD*
08031981	*INSPECTION(STATE) ASP. COULD NOT LOCATE WELL. ONLY MUNI*
08031981	*WASTE VISIBLE. SEVERAL BACK-HOE TRENCHES*
08031981	*ON SITE.STARK IS BUYING PROP FROM KELLET*
08031981	*VEG DOES NOT APPEAR STRESSED. NO HZD WST*
08031981	*VISIBLE.*
08041981	*RATIONALE FOR NFA NO APPARENT PROBLEM BASED ON INSP*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

UST

SEARCH ID: 174 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CHIMA S MARKET	**REV:**	01/01/2000
ADDRESS:	29029 COUNTY ROAD 6 AND COUNTY ROAD 89	**ID1:**	YOLO_PERMT_UST0103
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	RENEWAL PERMIT
CONTACT:	CHIMA HARMINDAR	**PHONE:**	530-724-3446

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*11/18/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*DIESEL*
Capacity:	*6000*
Installed:	*07/01/94*
Active:	*5*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*5*
Tank Owner:	*CHIMA HARMINDAR*
Owner Address:	*PO BOX 89 DUNNIGAN , CA 95937-0089*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*11/18/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*6000*
Installed:	*07/01/94*
Active:	*5*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*5*
Tank Owner:	*CHIMA HARMINDAR*
Owner Address:	*PO BOX 89 DUNNIGAN , CA 95937-0089*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*11/18/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*12000*
Installed:	*07/01/94*
Active:	*5*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*5*
Tank Owner:	*CHIMA HARMINDAR*
Owner Address:	*PO BOX 89 DUNNIGAN , CA 95937-0089*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*11/18/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 174 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CHIMA S MARKET	**REV:**	01/01/2000
ADDRESS:	29029 COUNTY ROAD 6 AND COUNTY ROAD 89	**ID1:**	YOLO_PERMT_UST0103
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	RENEWAL PERMIT
CONTACT:	CHIMA HARMINDAR	**PHONE:**	530-724-3446

Last Test:	
Contents:	*DIESEL*
Capacity:	*6000*
Installed:	*07/01/94*
Active:	*5*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*5*
Tank Owner:	*CHIMA HARMINDAR*
Owner Address:	*PO BOX 89 DUNNIGAN , CA 95937-0089*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*11/18/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*6000*
Installed:	*07/01/94*
Active:	*5*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*5*
Tank Owner:	*CHIMA HARMINDAR*
Owner Address:	*PO BOX 89 DUNNIGAN , CA 95937-0089*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 173 **DIST/DIR:** NON GC **MAP ID:**

NAME: CHIMA S MARKET
ADDRESS: 29029 COUNTY ROAD 6
DUNNIGAN CA 95937
YOLO
CONTACT:

REV: 04/20/99
ID1: YOLO_CERT_000102
ID2:
STATUS: CERTIFICATE NUMBER: 10711
PHONE:

INFORMATION FROM THE YOLO COUNTY CERTIFIED USTS LIST
Certification Number: *10711*
Notes:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 172 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CHEVRON-DUNNIGAN (TANKS)	**REV:**	01/01/2000
ADDRESS:	4040 COUNTY ROAD 89	**ID1:**	YOLO_PERMT_UST0096
	DUNNIGAN CA 95937	**ID2:**	
	Yolo	**STATUS:**	RENEWAL PERMIT
CONTACT:	PARTHIAN INC	**PHONE:**	530-724-0108

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*10/01/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*10000*
Installed:	*01/01/96*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*PARTHIAN INC*
Owner Address:	*5700 STONERIDGE MALL 225 PLEASANTON , CA 94588*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*10/01/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*10000*
Installed:	*01/01/96*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*PARTHIAN INC*
Owner Address:	*5700 STONERIDGE MALL 225 PLEASANTON , CA 94588*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*10/01/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*15000*
Installed:	*01/01/96*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*PARTHIAN INC*
Owner Address:	*5700 STONERIDGE MALL 225 PLEASANTON , CA 94588*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 171 **DIST/DIR:** NON GC **MAP ID:**

NAME: CHEVRON-DUNNIGAN
ADDRESS: 4040 COUNTY ROAD 89
DUNNIGAN CA 95937
Yolo
CONTACT:

REV: 04/20/99
ID1: YOLO_CERT_000096
ID2:
STATUS: CERTIFICATE NUMBER: 10700
PHONE:

INFORMATION FROM THE YOLO COUNTY CERTIFIED USTS LIST
Certification Number: *10700*
Notes:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

UST

SEARCH ID: 170 **DIST/DIR:** NON GC **MAP ID:**

NAME:	BEACON TRUCK STOP 51-6	**REV:**	01/01/2000
ADDRESS:	29770 COUNTY ROAD 8	**ID1:**	YOLO_PERMT_UST0034
	DUNNIGAN CA 95937	**ID2:**	
	Yolo	**STATUS:**	RENEWAL PERMIT
CONTACT:	ULTRAMAR INC	**PHONE:**	530-724-3477

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*04/26/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*10000*
Installed:	*01/01/90*
Active:	*6*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*6*
Tank Owner:	*ULTRAMAR INC*
Owner Address:	*PO BOX 466 HANFORD , CA 93230*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*04/26/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*10000*
Installed:	*01/01/90*
Active:	*6*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*6*
Tank Owner:	*ULTRAMAR INC*
Owner Address:	*PO BOX 466 HANFORD , CA 93230*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*04/26/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*DIESEL*
Capacity:	*20000*
Installed:	*01/01/90*
Active:	*6*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*6*
Tank Owner:	*ULTRAMAR INC*
Owner Address:	*PO BOX 466 HANFORD , CA 93230*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*04/26/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 170 **DIST/DIR:** NON GC **MAP ID:**

NAME:	BEACON TRUCK STOP 51-6	**REV:**	01/01/2000
ADDRESS:	29770 COUNTY ROAD 8	**ID1:**	YOLO_PERMT_UST0034
	DUNNIGAN CA 95937	**ID2:**	
	Yolo	**STATUS:**	RENEWAL PERMIT
CONTACT:	ULTRAMAR INC	**PHONE:**	530-724-3477

Last Test:
Contents: *DIESEL*
Capacity: *20000*

Installed: *01/01/90*
Active: *6*
Exempt: *0*
Inactive: *0*
Last Tank: *6*
Tank Owner: *ULTRAMAR INC*
Owner Address: *PO BOX 466 HANFORD , CA 93230*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST
Inspected: *04/26/99*
Status: *RENEWAL PERMIT*
Tank Status: *RENEWAL PERMIT*
Last Test:
Contents: *DIESEL*
Capacity: *20000*

Installed: *01/01/90*
Active: *6*
Exempt: *0*
Inactive: *0*
Last Tank: *6*
Tank Owner: *ULTRAMAR INC*
Owner Address: *PO BOX 466 HANFORD , CA 93230*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST
Inspected: *04/26/99*
Status: *RENEWAL PERMIT*
Tank Status: *RENEWAL PERMIT*
Last Test:
Contents: *UNLEADED*
Capacity: *10000*

Installed: *01/01/90*
Active: *6*
Exempt: *0*
Inactive: *0*
Last Tank: *6*
Tank Owner: *ULTRAMAR INC*
Owner Address: *PO BOX 466 HANFORD , CA 93230*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

UST

SEARCH ID: 169 **DIST/DIR:** NON GC **MAP ID:**

NAME: BEACON TRUCK STOP 51-6
ADDRESS: 29770 COUNTY ROAD 8
DUNNIGAN CA 95937
YOLO
CONTACT:

REV: 04/20/99
ID1: YOLO_CERT_000034
ID2:
STATUS: CERTIFICATE NUMBER: 10777
PHONE:

INFORMATION FROM THE YOLO COUNTY CERTIFIED USTS LIST
Certification Number: *10777*
Notes: *ASSIGNED NEW CERTIFICATE AND DECAL NUMBER*

OTHER

SEARCH ID: 154 **DIST/DIR:** NON GC **MAP ID:**

NAME: CALIFORNIA-AMERICAN WATER CO
ADDRESS: 7751 WATT AVE
NORTH HIGHLANDS CA 95660
SACRAMENTO
CONTACT:

REV: 08/22/05
ID1: FA0010480
ID2:
STATUS: NOT REPORTED
PHONE:

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT MASTER LIST OF SITES WITH POTENTIALLY HAZARDOUS MATERIALS:
Number of Tanks at Site (where applicable):

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT MASTER LIST OF SITES WITH POTENTIALLY HAZARDOUS MATERIALS:
Number of Tanks at Site (where applicable):

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

OTHER

SEARCH ID: 153 **DIST/DIR:** NON GC **MAP ID:**

NAME:	A-1 METALS	**REV:**	07/18/05
ADDRESS:	24TH STREET AND ELKHORN BLVD NORTH HIGHLANDS CA 95660 SACRAMENTO	**ID1:** **ID2:** **STATUS:**	CAL34340110 PROPERTY/SITE REFERRED TO RWQC
CONTACT:		**PHONE:**	

GENERAL SITE INFORMATION

Site Type:	*Historical*
Status:	*Refer: RWQCB*
Status Date:	*1994-11-16 00:00:00*
NPL Site:	*NO*
Funding:	
Regulatory Agencies Involved:	*NONE SPECIFIED*
Lead Agency:	*NONE SPECIFIED*
Project Manager:	
Supervisor:	*Referred - Not Assigned*
Branch:	*Central California*
Acres:	
Assessor s Parcel Number:	*NONE SPECIFIED*
Past Uses:	*NONE SPECIFIED*
Potential Contaminants:	*ACID SOLUTION 2>PH WITH METALS, ALKALINE SOLUTION 2<PH<12.5, WITH METALS, Polychlorinated biphenyls (PCBs)*
Confirmed Contaminants:	*NONE SPECIFIED*
Potential Media Affected:	*NONE SPECIFIED*
Restricted Use:	*NO*
Site Management Required:	*NONE SPECIFIED*
Special Programs Associated with this Site:	

OTHER SITE NAMES (blank below = not reported by agency)

34340110

COMPLETED ACTIVITIES AND DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Discovery***
Completion Date:	***1981-01-09***
Comments:	*FACILITY IDENTIFIED CALL RECIEVED*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 149 **DIST/DIR:** NON GC **MAP ID:**

NAME: GUINDA
ADDRESS: COUNTY ROAD 57
GUINDA CA 95695
YOLO
CONTACT:

REV: 12/01/03
ID1: SWIS57-CR-0004
ID2:
STATUS: CLEAN CLOSED
PHONE:

Activity: *Solid Waste Disposal Site*
Accepted Waste:
Operational Status: *Clean Closed*
Regulatory Status *Unpermitted*
Closure Date:
Closure Type:
Permitted Throughput with Units: *0*
Permitted Capacity with Units: *0*
Remaining Capacity with Units (landfills only): *0*
Permitted Total Acreage: *0*
Permitted Disposal Acreage: *0*
Last Tire Inspection Count: *0*
Last Tire Inspection Count Date:
Original Tire Inspection Count: *0*
Last Tire Inspection Count Date:
Inspection Frequency: *None*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 118 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CITY OF WOODLAND WATER POLLUTION CONTROL FACILITY	**REV:**	7/10/07
ADDRESS:	42929 COUNTY ROAD 24	**ID1:**	110000721504
	WOODLAND CA 95776	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	PCS	**PROGRAM ID:**	CA0077950
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	7/8/1974
AGENCY INT QUAL:	ORIGINAL PERMIT ISSUE DATE	**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NPDES PERMIT
LAST REPORTED:	11/21/1991	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	NPDES MAJOR - A CLEAN WATER ACT (CWA) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MAJOR DISCHARGER OF POLLUTANTS INTO WATERS OF THE UNITED STATES.		

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA635943
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:53:55 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110000721504
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	4/11/2007 1:50:41 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	NO
FEDERAL AGENCY:	

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 118 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CITY OF WOODLAND WATER POLLUTION CONTROL FACILITY	**REV:**	7/10/07
ADDRESS:	42929 COUNTY ROAD 24	**ID1:**	110000721504
	WOODLAND CA 95776	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	03
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	18020109
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

OTHER

SEARCH ID: 155 **DIST/DIR:** NON GC **MAP ID:**

NAME: D04 WATT AV UNDERPASS STORM DRNG PS
ADDRESS: WATT AVE/MADISON AVE
NORTH HIGHLANDS CA 95660
SACRAMENTO
CONTACT:

REV: 08/22/05
ID1: FA0013707
ID2:
STATUS: NOT REPORTED
PHONE:

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT MASTER LIST OF SITES WITH POTENTIALLY HAZARDOUS MATERIALS:
Number of Tanks at Site (where applicable):

FED IC / EC

SEARCH ID: 184 **DIST/DIR:** NON GC **MAP ID:**

NAME: EVERGREEN VACANT PARCEL 2
ADDRESS: EVERGREEN AVENUE
WEST SACRAMENTO CA 95691
CONTACT:

REV: 2/8/08
ID1: 69598405-43742
ID2: 69598405
STATUS: EPA BROWNFIELD
PHONE:

SITE INFORMATION:

EPA ID:
EPA SITE NAME:
SITE ALIAS:
CONTAMINANTS:
TOTAL ACRES:
CERCLA WASTELAN:
RCRA FACILITY:
AIR AFFECTED:
GROUNDWATER AFFECTED:
SURFACE WATER AFFECTED:
NUMBER OF PARCELS:
LOCAL PARCEL NUMBER: 067-120-24
ADD DATE: 3/15/2007 2:14:59 PM

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FED IC / EC

SEARCH ID: 183 **DIST/DIR:** NON GC **MAP ID:**

NAME: EVERGREEN VACANT PARCEL 1
ADDRESS: EVERGREEN AVENUE
WEST SACRAMENTO CA 95691
CONTACT:

REV: 2/8/08
ID1: 69598405-43741
ID2: 69598405
STATUS: EPA BROWNFIELD
PHONE:

SITE INFORMATION:

EPA ID:
EPA SITE NAME:
SITE ALIAS:
CONTAMINANTS:
TOTAL ACRES:
CERCLA WASTELAN:
RCRA FACILITY:
AIR AFFECTED:
GROUNDWATER AFFECTED:
SURFACE WATER AFFECTED:
NUMBER OF PARCELS:
LOCAL PARCEL NUMBER: 067-100-04
ADD DATE: 3/15/2007 2:10:32 PM

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FED IC / EC

SEARCH ID: 182 **DIST/DIR:** NON GC **MAP ID:**

NAME: 427 C STREET and 317 5TH STREET
ADDRESS: 427 C STREET and 317 5TH STREET
WEST SACREMENTO CA 95691
CONTACT:

REV: 2/8/08
ID1: 69598405-49781
ID2: 69598405
STATUS: EPA BROWNFIELD
PHONE:

SITE INFORMATION:

EPA ID:
EPA SITE NAME:
SITE ALIAS:
CONTAMINANTS:
TOTAL ACRES:
CERCLA WASTELAN:
RCRA FACILITY:
AIR AFFECTED:
GROUNDWATER AFFECTED:
SURFACE WATER AFFECTED:
NUMBER OF PARCELS:
LOCAL PARCEL NUMBER: 010-481-01 and 010-481-02
ADD DATE: 5/14/2007 10:03:43 PM

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 178 **DIST/DIR:** NON GC **MAP ID:**

NAME: SAC METRO AIRPORT
ADDRESS: EARHART DR
SACRAMENTO CA 95837
SACRAMENTO
CONTACT:

REV: 07/11/02
ID1: 340998
ID2:
STATUS: LEAK BEING CONFIRMED
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred dating after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *CENTRAL VALLEY REGION*
LOCAL CASE NUMBER:
RESPONSIBLE PARTY: *PARADISO MECHANICAL, INC*
ADDRESS OF RESPONSIBLE PARTY: *PO BOX 1836, SAN LEANDRO, CA 94577*
SITE OPERATOR:
WATER SYSTEM: *SACRAMENTO METRO AIRPORT*

CASE NUMBER: *340998*
CASE TYPE: *SOIL ONLY*
SUBSTANCE LEAKED: *DIESEL*
SUBSTANCE QUANTITY:
LEAK CAUSE: *UNKNOWN*
LEAK SOURCE: *UNKNOWN*
HOW LEAK WAS DISCOVERED: *TANK CLOSURE*
DATE DISCOVERED (blank if not reported): *4/14/94*
HOW LEAK WAS STOPPED: *CLOSE TANK*
STOP DATE (blank if not reported):
STATUS: *LEAK BEING CONFIRMED*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *NONE TAKEN*
DATE OF ENFORCEMENT (blank if not reported): *1/1/65*

ENTER DATE (blank if not reported): *2/2/95*
REVIEW DATE (blank if not reported): *2/2/95*
DATE OF LEAK CONFIRMATION (blank if not reported): *4/14/94*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported):
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported):
REPORT DATE (blank if not reported): *2/2/95*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION:
MTBE SOIL CONCENTRATION:
MTBE CNTS: *0*
MTBE FUEL: *0*
MTBE TESTED: *NOT REQUIRED TO BE TESTED*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 177 **DIST/DIR:** NON GC **MAP ID:**

NAME: FORMER SPRECKELS SUGAR PLANT
ADDRESS: 40600 COUNTRY ROAD 18C
WOODLAND CA 95695
YOLO
CONTACT:

REV: 01/12/06
ID1: T0611345442
ID2:
STATUS: POLLUTION CHARACTERIZATION
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *REGIONAL BOARD*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER:
RESPONSIBLE PARTY: *JACK KLEIN*
ADDRESS OF RESPONSIBLE PARTY: *200 CYPRESS DRIVE*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *570315*
CASE TYPE: *OTHER*
SUBSTANCE LEAKED: *GASOLINE*
SUBSTANCE QUANTITY:
LEAK CAUSE: *UNKNOWN*
LEAK SOURCE: *UNKNOWN*
HOW LEAK WAS DISCOVERED: *OM,*
DATE DISCOVERED (blank if not reported): *2002-06-18*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported):
STATUS: *POLLUTION CHARACTERIZATION*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *SEL*
DATE OF ENFORCEMENT (blank if not reported):

ENTER DATE (blank if not reported):
REVIEW DATE (blank if not reported):
DATE OF LEAK CONFIRMATION (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported): *2005-09-05*
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported):
REPORT DATE (blank if not reported): *2002-09-23*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *1*
MTBE TESTED: *SITE NOT TESTED FOR MTBE. INCLUDES UNKNOWN AND NOT ANALYZED*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 176 **DIST/DIR:** NON GC **MAP ID:**

NAME: CHEVRON 9-2597
ADDRESS: I-5 and CO RD 102
WOODLAND CA 95695
YOLO
CONTACT:

REV: 01/12/06
ID1: T0611300029
ID2:
STATUS: POLLUTION CHARACTERIZATION
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *REGIONAL BOARD*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER:
RESPONSIBLE PARTY: *CHEVRON*
ADDRESS OF RESPONSIBLE PARTY: *2410 CAMINO RAMON, SAN RAMON, CA 94583*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *570044*
CASE TYPE: *AQUIFER AFFECTED*
SUBSTANCE LEAKED: *GASOLINE*
SUBSTANCE QUANTITY:
LEAK CAUSE:
LEAK SOURCE:
HOW LEAK WAS DISCOVERED:
DATE DISCOVERED (blank if not reported):
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported):
STATUS: *POLLUTION CHARACTERIZATION*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *TC*
DATE OF ENFORCEMENT (blank if not reported): *2001-05-18*

ENTER DATE (blank if not reported): *1990-01-12*
REVIEW DATE (blank if not reported): *2001-11-16*
DATE OF LEAK CONFIRMATION (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported): *2006-08-25*
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported):
REPORT DATE (blank if not reported): *1989-04-04*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration): *1999-07-08*
MTBE GROUNDWATER CONCENTRATION (parts per billion): *EQUAL TO 8350.00*
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *11*
MTBE FUEL: *1*
MTBE TESTED: *YES*
MTBE CLASS: *A*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 181 **DIST/DIR:** NON GC **MAP ID:**

NAME: CONOCOPHILLIPS-76 STATION (FORMER BP 11252)
ADDRESS: 28700 COUNTY ROAD 6
DUNNIGAN CA 95937
YOLO
CONTACT:

REV: 03/29/06
ID1: T0611314479
ID2:
STATUS: POLLUTION CHARACTERIZATION
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *REGIONAL BOARD*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER:
RESPONSIBLE PARTY: *SHELBY LATHROP*
ADDRESS OF RESPONSIBLE PARTY: *76 BROADWAY*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *570333*
CASE TYPE: *OTHER*
SUBSTANCE LEAKED: *8006619,MTBE*
SUBSTANCE QUANTITY:
LEAK CAUSE:
LEAK SOURCE:
HOW LEAK WAS DISCOVERED:
DATE DISCOVERED (blank if not reported): *2004-12-07*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported):
STATUS: *POLLUTION CHARACTERIZATION*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *VC*
DATE OF ENFORCEMENT (blank if not reported):

ENTER DATE (blank if not reported):
REVIEW DATE (blank if not reported):
DATE OF LEAK CONFIRMATION (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported): *2006-08-31*
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported):
REPORT DATE (blank if not reported): *2006-03-08*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *0*
MTBE TESTED: *YES*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 180 **DIST/DIR:** NON GC **MAP ID:**

NAME: CHEVRON 9-2466 (FORMER)
ADDRESS: I-5 and CO RD 6
DUNNIGAN CA 95937
YOLO
CONTACT:

REV: 01/12/06
ID1: T0611300188
ID2:
STATUS: CASE CLOSED
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *LOCAL AGENCY*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER:
RESPONSIBLE PARTY: *CHEVRON*
ADDRESS OF RESPONSIBLE PARTY: *2410 CAMINO RAMON,SAN RAMON, CA 94583*
SITE OPERATOR:
WATER SYSTEM:

CASE NUMBER: *570241*
CASE TYPE: *SOIL ONLY*
SUBSTANCE LEAKED: *GASOLINE*
SUBSTANCE QUANTITY:
LEAK CAUSE: *CORROSION*
LEAK SOURCE: *TANK*
HOW LEAK WAS DISCOVERED: *TANK CLOSURE*
DATE DISCOVERED (blank if not reported): *1994-07-12*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported): *1994-07-12*
STATUS: *CASE CLOSED*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *NONE TAKEN*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1994-09-26*
REVIEW DATE (blank if not reported): *1996-04-03*
DATE OF LEAK CONFIRMATION (blank if not reported): *1994-07-12*
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported):
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported): *1995-10-11*
REPORT DATE (blank if not reported): *1994-09-15*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *1*
MTBE TESTED: *SITE NOT TESTED FOR MTBE. INCLUDES UNKNOWN AND NOT ANALYZED*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

LUST

SEARCH ID: 179 **DIST/DIR:** NON GC **MAP ID:**

NAME: BP 11252
ADDRESS: I-5 and CO RD 6 NW
DUNNIGAN CA 95937
YOLO
CONTACT:

REV: 01/12/06
ID1: T0611300116
ID2:
STATUS: CASE CLOSED
PHONE:

RELEASE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

Please note that some data previously provided by the State Water Resources Control Board in the LUSTIS database is not currently being provided by the agency in the most recent edition. Incidents that occurred after the year 2000 may not have much information. Field headers with blank information following after should be interpreted as unreported by the agency.

LEAD AGENCY: *REGIONAL BOARD*
REGIONAL BOARD: *5S*
LOCAL CASE NUMBER:
RESPONSIBLE PARTY: *BP*
ADDRESS OF RESPONSIBLE PARTY: *2868 PROSPECT PARK DR, 360, RANCHO CORDOVA, CA 95670*
SITE OPERATOR: *BP OIL CO.*
WATER SYSTEM:

CASE NUMBER: *570156*
CASE TYPE: *SOIL ONLY*
SUBSTANCE LEAKED: *WASTE OIL*
SUBSTANCE QUANTITY:
LEAK CAUSE: *UNKNOWN*
LEAK SOURCE: *UNKNOWN*
HOW LEAK WAS DISCOVERED: *TANK CLOSURE*
DATE DISCOVERED (blank if not reported): *1990-04-06*
HOW LEAK WAS STOPPED:
STOP DATE (blank if not reported): *1990-04-06*
STATUS: *CASE CLOSED*
ABATEMENT METHOD (please note that not all code translations have been provided by the reporting agency):
ENFORCEMENT TYPE (please note that not all code translations have been provided by the reporting agency): *NONE TAKEN*
DATE OF ENFORCEMENT (blank if not reported): *1965-01-01*

ENTER DATE (blank if not reported): *1991-03-29*
REVIEW DATE (blank if not reported): *1997-05-01*
DATE OF LEAK CONFIRMATION (blank if not reported):
DATE PRELIMINARY SITE ASSESSMENT PLAN WAS SUBMITTED (blank if not reported): *1990-04-06*
DATE PRELIMINARY SITE ASSESSMENT PLAN BEGAN (blank if not reported):
DATE POLLUTION CHARACTERIZATION PLAN BEGAN (blank if not reported):
DATE REMEDIATION PLAN WAS SUBMITTED (blank if not reported):
DATE REMEDIAL ACTION UNDERWAY (blank if not reported):
DATE POST REMEDIAL ACTION MONITORING BEGAN (blank if not reported):
DATE CLOSURE LETTER ISSUED (SITE CLOSED) (blank if not reported): *1997-04-23*
REPORT DATE (blank if not reported): *1991-03-11*

MTBE DATA FROM THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD LUSTIS DATABASE

MTBE DATE(Date of historical maximum MTBE concentration):
MTBE GROUNDWATER CONCENTRATION (parts per billion):
MTBE SOIL CONCENTRATION (parts per million):
MTBE CNTS: *0*
MTBE FUEL: *0*
MTBE TESTED: *NOT REQUIRED TO BE TESTED*
MTBE CLASS: *

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 133 **DIST/DIR:** NON GC **MAP ID:**

NAME: A-1 METALS
ADDRESS: 24TH STREET AND ELKHORN BLVD
NORTH HIGHLANDS CA 95660
SACRAMENTO
CONTACT:

REV: 07/03/00
ID1: CAL34340110
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
A-1 METALS

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *PROPERTY/SITE REFERRED TO RWQCB (REFRW)*
AWP Site Type: *N/A*
NPL Site:
Fund:
Status Date: *11161994*
Lead:
Staff:
Senior Supervisor:

DTSC Region and RWQCB : *1 / SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB: *CENTRAL VALLEY*
Site Access:
On Cortese List:
Groundwater Contamination:
Haz Ranking Score:
Haz Ranking Score:
Number of Sources Contributing to Contamination at the Site: *0*

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***DISCOVERY (DISC)***
Activity Status: *PROPERTY/SITE REFERRED TO RWQCB*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *01091981*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

DATE	COMMENT
01091981	*FACILITY IDENTIFIED CALL RECIEVED*
DATE	**COMMENT**
05041981	*SAMPLE RESULTS BY HMMS/ENF.*
DATE	**COMMENT**
05071981	*SAMPLE RESULTS BY MCCLELLAN AFB*
DATE	**COMMENT**
05071981	*BY HMMS/ENF.*
DATE	**COMMENT**

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 133 **DIST/DIR:** NON GC **MAP ID:**

NAME:	A-1 METALS	**REV:**	07/03/00
ADDRESS:	24TH STREET AND ELKHORN BLVD NORTH HIGHLANDS CA 95660 SACRAMENTO	**ID1:**	CAL34340110
		ID2:	
		STATUS:	PROPERTY/SITE REFERRED TO RWQC
CONTACT:		**PHONE:**	

08171981 SAMPLE RESULTS BY HMMS/ENF.

DATE	COMMENT
08311981	*ENFORCEMENT ACTION CLEAN-UP BEGUN*

DATE	COMMENT
09021981	*SAMPLE RESULTS BY RWQCB AFTER INITIAL CLEAN-UP*

DATE	COMMENT
09081981	*SAMPLE RESULTS BY RWQCB AFTER MORE CLEAN-UP*

DATE	COMMENT
09141981	*SAMPLE RESULTS BY RWQCB AFTER MORE CLEAN-UP*

DATE	COMMENT
09171981	*SAMPLE RESULTS BY RWQCB AFTER MORE CLEAN-UP*

DATE	COMMENT
10011981	*RATIONALE FOR NFA CLEAN-UP COMPLETE*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

OTHER

SEARCH ID: 156 **DIST/DIR:** NON GC **MAP ID:**

NAME:	NORTH HIGHLANDS AIR NATIONAL GUARD	**REV:**	07/18/05
ADDRESS:	8 ACRES;6 MI NORTHEAST OF SACRAMENTO, CA	**ID1:**	CAL34480006
	SACRAMENTO CA 95660	**ID2:**	
	SACRAMENTO	**STATUS:**	DELISTED
CONTACT:		**PHONE:**	

OTHER SITE NAMES (blank below = not reported by agency)

NORTH HIGHLANDS ANG

NORTH HIGHLANDS AIR NATIONAL GUARD

GENERAL SITE INFORMATION

File Name (if different than site name):	*NORTH HIGHLANDS ANG*
Status:	*DELISTED*
AWP Site Type:	*OPEN MILITARY BASE*
NPL Site:	*N*
Fund:	
Status Date:	*09051995*
Lead:	*DEPT OF TOXIC SUBSTANCES CONTROL*
Staff:	
DTSC Region and RWQCB :	*SACRAMENTO*
Branch:	*OMF-NORTHERN CALIF*
RWQCB:	
Site Access:	
On Cortese List:	
Groundwater Contamination:	*N*
Haz Ranking Score:	
Haz Ranking Score:	
Number of Sources Contributing to Contamination at the Site:	*3*

BACKGROUND INFORMATION (blank below = not reported by agency)

The North Highlands Air National Guard (NHANG) Station began oper ation in 1950. NHANG installs, operates and maintains mobile com munication equipment. From the early 1960s thru 1979, vehicles an d equipment were washed down in an open lot on the southwest side of the facility. In 1980, an oil/water separator was in- stalle d which is connected to the sanitary sewer. Maintenance operat ions required the use of lubricants, fuels solvents, thinner and paint. Waste was usually disposed by a con- tractor or to DRMO at McClellan AFB. Small spills may have occured. No orders have e ver been issued to the facility.

INFORMATION ON SPECIAL PROGRAMS THE SITE IS ASSOCIATED WITH (blank below = not reported by agency)

DEFENSE MEMORANDUM OF AGREEMENT

PROJECTED ACTIVITIES (blank below = not reported by agency)

Activity:	***PRELIMINARY ENDANGERMENT ASSESSMENT***
Activity Status:	*DELISTED*
Completion Due Date:	*01191996*
Revised Completion Due Date:	
Date Activity Actually Completed:	*01191996*
Yards of Solids Removed:	
Yards of Solids Treated:	
Gallons of Liquid Removed:	
Gallons of Liquid Treated:	
Activity:	***DELISTED***
Activity Status:	*DELISTED*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

OTHER

SEARCH ID: 156 **DIST/DIR:** NON GC **MAP ID:**

NAME:	NORTH HIGHLANDS AIR NATIONAL GUARD	**REV:**	07/18/05
ADDRESS:	8 ACRES;6 MI NORTHEAST OF SACRAMENTO, CA	**ID1:**	CAL34480006
	SACRAMENTO CA 95660	**ID2:**	
	SACRAMENTO	**STATUS:**	DELISTED
CONTACT:		**PHONE:**	

Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *01191996*
Yards of Solids Removed:
Yards of Solids Treated:
Gallons of Liquid Removed:
Gallons of Liquid Treated:

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)
Comments Date:
: *PEA 01-19-1996 The final Preliminary Assessment/Site Inspection (PA/SI) for the North Highland Air National Guard Station (NHANG) was submitted to DTSC for review in October of 1995. DTSC and the Central Valley Regional Water Quality Control Board (RWQCB) r eviewed and approved the final PA/SI Report on January 19, 1995. The PA/SI report provided assessments for two areas at NHANG. T he two areas were former truck and equipment wash down areas. Soi l and soil gas samples were collected and analyzed for volatiles, semi-volatiles, inorganics and petroleum compounds. Volume Tre ated, Stabilized, or Disposed: N/A. Approximate cost and fundin g source: The cost of the PA/SI and actions was approximately $1 00,000. The project was DERA funded. DELIST - The Department ha s determined, based upon a remedial investigation or site charact erization that the site poses no significant threat to public hea lth, welfare or the environment and therefore, implementation of removal/remedial measures is not necessary. PA 01/31/91 Jan 1991 preliminary Assessment reviewed by RWQCB. Si te Investigative report reviewed by both DTSC and RWQCB, final su bmitted to DTSC September 8, 1995*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 146 **DIST/DIR:** NON GC **MAP ID:**

NAME: WOODCREEK WEST ELEMENTARY SCHOOL
ADDRESS: PARCEL 70/WOODCREEK WEST DEVELOPMENT
ROSEVILLE CA 95747
PLACER
CONTACT:

REV: 07/18/05
ID1: CAL31010004
ID2:
STATUS: NO FURTHER ACTION FOR DTSC
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)

WOODCREEK WEST ELEMENTARY SCHOOL

DRY CREEK SD

GENERAL SITE INFORMATION

File Name (if different than site name): *WOODCREEK WEST ELEMENTARY SCHOOL*

Status: *NO FURTHER ACTION FOR DTSC*
AWP Site Type: *PROPOSED SCHOOL SITE PROPERTY*
NPL Site:
Fund:
Status Date: *03172000*
Lead: *DEPT OF TOXIC SUBSTANCES CONTROL*
Staff: *ECARGILE*
DTSC Region and RWQCB : *SACRAMENTO*
Branch: *SCHOOL EVALUATION*
RWQCB:
Site Access:
Groundwater Contamination:
Number of Sources Contributing to Contamination at the Site: *0*

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)

ID SOURCE NAME, and VALUE: *CALSTARS CODE 101237-11 CDE*

ID SOURCE NAME, and VALUE: *CALSTARS CODE 104022-11 VCA*

BACKGROUND INFORMATION (blank below = not reported by agency)

This 10-acre site is located on the future Wookcreek West parcel 70 and 71 in Roseville, Ca., and is owned by Sares Regis Group. The Site has remained undeveloped since at least 1952. It was historically utilized for dry land grazing and the production of wheat and oats.

PROJECTED ACTIVITIES (blank below = not reported by agency)

Activity: ***PHASE 1 - CALMORTGAGE AND SCHOOL SITE PROPERTIES***
Activity Status: *NO FURTHER ACTION FOR DTSC*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *11241999*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

Activity: ***I/SE, IORSE, FFA, FFSRA, VCA, EA***
Activity Status: *NO FURTHER ACTION FOR DTSC*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *01202000*
Yards of Solids Removed: *0*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 146 **DIST/DIR:** NON GC **MAP ID:**

NAME:	WOODCREEK WEST ELEMENTARY SCHOOL	**REV:**	07/18/05
ADDRESS:	PARCEL 70/WOODCREEK WEST DEVELOPMENT	**ID1:**	CAL31010004
	ROSEVILLE CA 95747	**ID2:**	
	PLACER	**STATUS:**	NO FURTHER ACTION FOR DTSC
CONTACT:		**PHONE:**	

Yards of Solids Treated:	*0*
Gallons of Liquid Removed:	*0*
Gallons of Liquid Treated:	*0*

Activity:	***PRELIMINARY ENDANGERMENT ASSESSMENT***
Activity Status:	*NO FURTHER ACTION FOR DTSC*
Completion Due Date:	
Revised Completion Due Date:	
Date Activity Actually Completed:	*03172000*
Yards of Solids Removed:	*0*
Yards of Solids Treated:	*0*
Gallons of Liquid Removed:	*0*
Gallons of Liquid Treated:	*0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Comments Date: ***01202000***

: *ORDER/VCP - Voluntary Cleanup Agreement executed with the school district for performance of a Preliminary Endangerment Assessment PEA - Preliminary Endangerment Assessment completed, school site approved. PHSEI - Pursuant to an agreement between the Department of Toxic Substancs Control (DTSC) and the California Department of Educa- tion, DTSC s Site Mitigation Program completed a review of a Phase I Environmental Assessment and has determined that a Preliminary Endangerment Assessment is required. The PEA will be conducted under DTSC s oversight pursuant to agreements between DTSC and the pertinent school district. Any subsequent cleanup activities (if needed) after the PEA would be conducted pursuant to agreements between DTSC and the Dry Creek Joint Elementary School District.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 152 **DIST/DIR:** NON GC **MAP ID:**

NAME: VALLEY BY-PRODUCTS/WOOD and YARD OPERATION
ADDRESS: 44090 COUNTY ROAD 28H
YOLO CA 95776
YOLO
CONTACT:

REV: 11/12/98
ID1: SWIS57-AA-0023
ID2:
STATUS: CLOSED
PHONE:

Activity: *Composting Facility (Green Waste)*
Accepted Waste: *Green Materials,Wood waste*
Operational Status: *Closed*
Regulatory Status *Permitted*
Closure Date:
Closure Type:
Permitted Throughput with Units: *500 Tons/day*
Permitted Capacity with Units: *50000 Cubic Yards*
Remaining Capacity with Units (landfills only):
Permitted Total Acreage: *15*
Permitted Disposal Acreage:
Last Tire Inspection Count: *0*
Last Tire Inspection Count Date:
Original Tire Inspection Count: *0*
Last Tire Inspection Count Date:
Inspection Frequency: *None*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 151 **DIST/DIR:** NON GC **MAP ID:**

NAME: VALLEY BY-PRODUCTS/BIOSOLIDS RES PROJ
ADDRESS: 44090 COUNTY ROAD 28H
YOLO CA 95776
YOLO
CONTACT:

REV: 11/12/98
ID1: SWIS57-AA-0028
ID2:
STATUS: CLOSED
PHONE:

Activity: *Composting Facility (Sludge)*
Accepted Waste:
Operational Status: *Closed*
Regulatory Status *Notification*
Closure Date:
Closure Type:
Permitted Throughput with Units: *0*
Permitted Capacity with Units: *0*
Remaining Capacity with Units (landfills only):
Permitted Total Acreage: *0*
Permitted Disposal Acreage:
Last Tire Inspection Count: *0*
Last Tire Inspection Count Date:
Original Tire Inspection Count: *0*
Last Tire Inspection Count Date:
Inspection Frequency: *None*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 150 **DIST/DIR:** NON GC **MAP ID:**

NAME: REIFF FARMS
ADDRESS: COUNTY ROAD 19
WOODLAND CA 95695
YOLO
CONTACT:

REV: 01/12/98
ID1: SWIS57-CR-0007
ID2:
STATUS: TO BE DETERMINED
PHONE:

Activity: *Solid Waste Disposal Site*
Accepted Waste:
Operational Status: *To Be Determined*
Regulatory Status *Unpermitted*
Closure Date:
Closure Type:
Permitted Throughput with Units: *0*
Permitted Capacity with Units: *0*
Remaining Capacity with Units (landfills only): *0*
Permitted Total Acreage: *0*
Permitted Disposal Acreage: *0*
Last Tire Inspection Count: *0*
Last Tire Inspection Count Date:
Original Tire Inspection Count: *0*
Last Tire Inspection Count Date:
Inspection Frequency: *None*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 142 **DIST/DIR:** NON GC **MAP ID:**

NAME: NEW ELEMENTARY SCHOOL
ADDRESS: PRE ROAD/WALERGA ROAD
ROSEVILLE CA 95747
PLACER
CONTACT:

REV: 07/18/05
ID1: CAL31020013
ID2:
STATUS: PRELIMINARY ENDANGERMENT ASSES
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
NEW ELEMENTARY SCHOOL

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *PRELIMINARY ENDANGERMENT ASSESSMENT REQUIRED*
AWP Site Type: *PROPOSED SCHOOL SITE PROPERTY*
NPL Site: *U*
Fund:
Status Date: *06102004*
Lead: *DEPT OF TOXIC SUBSTANCES CONTROL*
Staff: *KSIGLOWI*
DTSC Region and RWQCB : *SACRAMENTO*
Branch: *SCHOOL EVALUATION*
RWQCB:
Site Access:
Groundwater Contamination:
Number of Sources Contributing to Contamination at the Site:

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)
ID SOURCE NAME, and VALUE: *CALSTARS CODE 104413-11*

BACKGROUND INFORMATION (blank below = not reported by agency)
The property supports a rural residence within a former small farm site and fallow land. The surface of the subject property displays a slightly rolling topography and the majority of its surface is covered with a light to moderate growth of both dried grasses, weeds, and other vegetation up to approximately three-feet high. Higher elevation areas occur on the northerly portion of the property, and the property surface overall slopes gently downward to the southwest. Firebreaks have been mowed along the east side and south side near the on-site buildings cluster. Barbed-wire fences bisect the property and define the north property boundary along PFE Road. Historically aerial photographs and personal interviews with the long-term owner revealed that the property was utilized for irrigated pasture and fallow land for at least the past seven decades

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***PHASE 1 - CALMORTGAGE AND SCHOOL SITE PROPERTIES***
Activity Status: *PRELIMINARY ENDANGERMENT ASSESSMENT REQUIRED*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *06102004*
Yards of Solids Removed:
Yards of Solids Treated:
Gallons of Liquid Removed:
Gallons of Liquid Treated:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 141 **DIST/DIR:** NON GC **MAP ID:**

NAME:	MIDDLE SCHOOL (W-73)	**REV:**	07/18/05
ADDRESS:	FIDDYMENT ROAD/DEL WEBB BOULEVARD	**ID1:**	CAL31020012
	ROSEVILLE CA 95747	**ID2:**	
	PLACER	**STATUS:**	NO FURTHER ACTION FOR DTSC
CONTACT:		**PHONE:**	

OTHER SITE NAMES (blank below = not reported by agency)

MIDDLE SCHOOL (W-73)

GENERAL SITE INFORMATION

File Name (if different than site name):

Status:	*NO FURTHER ACTION FOR DTSC*
AWP Site Type:	*PROPOSED SCHOOL SITE PROPERTY*
NPL Site:	*U*
Fund:	
Status Date:	*06152004*
Lead:	*DEPT OF TOXIC SUBSTANCES CONTROL*
Staff:	*JSOTELO*
DTSC Region and RWQCB :	*SACRAMENTO*
Branch:	*SCHOOL EVALUATION*
RWQCB:	
Site Access:	
Groundwater Contamination:	
Number of Sources Contributing to Contamination at the Site:	

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)

ID SOURCE NAME, and VALUE: *CALSTARS CODE 104408-11*

BACKGROUND INFORMATION (blank below = not reported by agency)

The site is located within the 1,483.6-acre Westpark Property. The Westpark Property was predominantly used for seasonal livestock grazing. In the past, portions of the site have been used for grazing, limited dry farming, and poultry operations.

PROJECTED ACTIVITIES (blank below = not reported by agency)

Activity:	***PHASE 1 - CALMORTGAGE AND SCHOOL SITE PROPERTIES***
Activity Status:	*NO FURTHER ACTION FOR DTSC*
Completion Due Date:	
Revised Completion Due Date:	
Date Activity Actually Completed:	*06152004*
Yards of Solids Removed:	
Yards of Solids Treated:	
Gallons of Liquid Removed:	
Gallons of Liquid Treated:	

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Comments Date: ***06152004***

: *DTSC reviewed a Phase I Environmental Assessment and has made a No Action determination for this Site.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 140 **DIST/DIR:** NON GC **MAP ID:**

NAME: ELEMENTARY SCHOOL F-70
ADDRESS: FIDDYMENT ROAD/BLUE OAKS BOULEVARD
ROSEVILLE CA 95747
PLACER
CONTACT:

REV: 07/18/05
ID1: CAL31020009
ID2:
STATUS: NO ACTION - FOR CALMORTGAGE
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
ELEMENTARY SCHOOL F-70

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *NO ACTION - FOR CALMORTGAGE ONLY*
AWP Site Type: *PROPOSED SCHOOL SITE PROPERTY*
NPL Site:
Fund:
Status Date: *05242004*
Lead: *DEPT OF TOXIC SUBSTANCES CONTROL*
Staff: *JSOTELO*
DTSC Region and RWQCB : *SACRAMENTO*
Branch: *SCHOOL EVALUATION*
RWQCB:
Site Access:
Groundwater Contamination:
Number of Sources Contributing to Contamination at the Site: *0*

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)
ID SOURCE NAME, and VALUE: *CALSTARS CODE 104406-11*

BACKGROUND INFORMATION (blank below = not reported by agency)
The site consists of an 8.1-acre portion of a larger parcel. The Fiddyment Ranch was predominantly used for seasonal live- stock grazing. In the past, portions of the site have been used for grazing, limited dry farming, and poultry operations. Surrounding land use was generally vacant cattle grazing land with some residential structures under construction east of the site.

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***PHASE 1 - CALMORTGAGE AND SCHOOL SITE PROPERTIES***
Activity Status: *NO ACTION - FOR CALMORTGAGE ONLY*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *05242004*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)
Comments Date: ***05242004***
: *No Chemicals of Concern recorded at this time.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 139 **DIST/DIR:** NON GC **MAP ID:**

NAME: ELEMENTARY SCHOOL (W-75)
ADDRESS: FIDDYMENT ROAD/DEL WEBB BOULEVARD
ROSEVILLE CA 95747
PLACER
CONTACT:

REV: 07/18/05
ID1: CAL31020010
ID2:
STATUS: NO ACTION - FOR CALMORTGAGE
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
ELEMENTARY SCHOOL (W-75)

GENERAL SITE INFORMATION

File Name (if different than site name):	*ELEMENTARY SCHOOL (W-75)*
Status:	*NO ACTION - FOR CALMORTGAGE ONLY*
AWP Site Type:	*PROPOSED SCHOOL SITE PROPERTY*
NPL Site:	
Fund:	
Status Date:	*05242004*
Lead:	*DEPT OF TOXIC SUBSTANCES CONTROL*
Staff:	*JSOTELO*
DTSC Region and RWQCB :	*SACRAMENTO*
Branch:	*SCHOOL EVALUATION*
RWQCB:	
Site Access:	
Groundwater Contamination:	
Number of Sources Contributing to Contamination at the Site:	*0*

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)
ID SOURCE NAME, and VALUE: *CALSTARS CODE 104407-11*

BACKGROUND INFORMATION (blank below = not reported by agency)
The site is located within the 1,483.6-acre Westpark Property. The Westpark Property was predominantly used for seasonal livestock grazing. In the past, portions of the site have been used for grazing, limited dry farming, and poultry operations.

PROJECTED ACTIVITIES (blank below = not reported by agency)

Activity:	***PHASE 1 - CALMORTGAGE AND SCHOOL SITE PROPERTIES***
Activity Status:	*NO ACTION - FOR CALMORTGAGE ONLY*
Completion Due Date:	
Revised Completion Due Date:	
Date Activity Actually Completed:	*05242004*
Yards of Solids Removed:	*0*
Yards of Solids Treated:	*0*
Gallons of Liquid Removed:	*0*
Gallons of Liquid Treated:	*0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)
Comments Date: ***05242004***
: *No chemicals of concern recorded at this time.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 138 **DIST/DIR:** NON GC **MAP ID:**

NAME: SPRECKELS SUGAR COMPANY
ADDRESS: COUNTY ROAD 18C
WOODLAND CA 95695
YOLO
CONTACT:

REV: 04/30/03
ID1: CAL57200003
ID2:
STATUS: PRELIMINARY ENDANGERMENT ASSES
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)

SPRECKELS SUGAR COMPANY

AMSTAR CORP SPRECKELS SUGAR DIVISION F-3

GENERAL SITE INFORMATION

File Name (if different than site name): *AMSTAR CORP*

Status: *PRELIMINARY ENDANGERMENT ASSESSMENT REQUIRED*
AWP Site Type: *N/A*
NPL Site:
Fund:
Status Date: *06271995*
Lead: *N/A*
Staff:
DTSC Region and RWQCB : *SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB:
Site Access:
Groundwater Contamination:
Number of Sources Contributing to Contamination at the Site: *0*

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)

ID SOURCE NAME, and VALUE: *EPA IDENTIFICATION NUMBER CAT000624767*

BACKGROUND INFORMATION (blank below = not reported by agency)

INFORMATION ON SPECIAL PROGRAMS THE SITE IS ASSOCIATED WITH (blank below = not reported by agency)

PROJECTED ACTIVITIES (blank below = not reported by agency)

Activity: ***DISCOVERY***
Activity Status: *PRELIMINARY ENDANGERMENT ASSESSMENT REQUIRED*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *10111983*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

Activity:
Activity Status: *PRELIMINARY ENDANGERMENT ASSESSMENT REQUIRED*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *07011984*

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 138 **DIST/DIR:** NON GC **MAP ID:**

NAME: SPRECKELS SUGAR COMPANY
ADDRESS: COUNTY ROAD 18C
WOODLAND CA 95695
YOLO
CONTACT:

REV: 04/30/03
ID1: CAL57200003
ID2:
STATUS: PRELIMINARY ENDANGERMENT ASSES
PHONE:

Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

Activity:
Activity Status: *PRELIMINARY ENDANGERMENT ASSESSMENT REQUIRED*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *06021988*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

Activity:
Activity Status: *PRELIMINARY ENDANGERMENT ASSESSMENT REQUIRED*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *12211990*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)
Comments Date: ***01011988***
: *ON CORTESE LIST The RWQCB regulates the wastewater ponds with monitoring wells. There may be fuel tanks onsite. The county gets involved with the tanks. PHONE FOLLOW-UP QUESTIONNAIRE SENT: REMAILED PERMIT APPLICATION RECEIVED. STATE INTERIM STATUS PERMIT. QUESTIONNAIRE RECEIVED FINAL STRATEGY COPY OF QUESTIONNAIRE SENT TO HMMS/ENF FACILITY DRIVE-BY DRIVE BY-PONDS and SOLIDS DISPOSED ON SITE INSPECTION(STATE) INSPECTION BY HMMS/ENFORCEMENT and ABANDONED SITE PROGRAM. FOLLOW UP INSPECTION. PCB STORAGE and SETTLING POND. SITE REFERRED: TO HMMS-ENFORCEMENT. SITE SCREENING DONE. EPA RECOMMENDS A MEDIUM PRIORITY SI, DHS CONCURS. 2 SETTLING PONDS, 2 HOLDING PONDS. WASTE: LEAD ACETATE 200 LBS ASBESTOS. PRIOR TO EARLY 1970S LEAD ACETATE, ASBESTOS and REFUSE WERE DISPOSED IN ON SITE LANDFILL. LANDFILL MATERIALS WERE ROUTINELY BURNED. THEY ARE CURRENTLY DRUMMED AND TRANSPORTED BY HAULER OFFSITE. PCB USED TO BE STORED ON SITE. PROCESS SUGAR BEETS TO MAKE SUGAR. YEARS OF OPERATION 1937 TO PRESENT. SUBMIT TO EPA. PRELIMINARY ASSESSMENT DONE. RCRA 3012. QUESTIONNAIRE SENT INSPECTION(STATE) DHS-TSCD. INTERIM STATUS DOCUMENT INSPECTION PER COMPANY REQUEST. INTERIM STATUS RESCINDED. EPA COMPLETED SCREENING SITE INSPECTION AND RECOMMEND NO FURTHER ACTION. ENFORCEMENT ACTION DHS/TSCD. RECINDED INTERIM STATUS PER AMSTAR CORPORATION REQUEST. REPORTED FOR PROP65 FACILITY IDENTIFIED FROM ERRIS. INSPECTION(STATE) DHS-TSCD. INTERIM STATUS DOCUMENT INSPECTION. STORAGE VIOLATIONS. ENFORCEMENT ACTION DHS/TSCD. ISSUED ISD CAD009133281 SITE SCREENING DONE. NO APPARENT INTERIM RESPONSE MEASURES NEEDS. RECOMMEND MEDIUM PRIORITY PRELIMINARY ENDANGERMENT ASSESSMENT.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 137 **DIST/DIR:** NON GC **MAP ID:**

NAME: GENERAL CARTAGE
ADDRESS: COUNTY ROAD 103 AND COUNTY ROAD 27
WOODLAND CA 95695
YOLO
CONTACT:

REV: 07/03/00
ID1: CAL57420004
ID2:
STATUS: PROPERTY/SITE REFERRED TO RWQC
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
GENERAL CARTAGE

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *PROPERTY/SITE REFERRED TO RWQCB (REFRW)*
AWP Site Type: *N/A*
NPL Site:
Fund:
Status Date: *01291987*
Lead:
Staff:
Senior Supervisor:

DTSC Region and RWQCB : *1 / SACRAMENTO*
Branch: *CENTRAL CALIFORNIA*
RWQCB:
Site Access:
On Cortese List:
Groundwater Contamination:
Haz Ranking Score:
Haz Ranking Score:
Number of Sources Contributing to Contamination at the Site: *0*

PROJECTED ACTIVITIES (blank below = not reported by agency)

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***DISCOVERY (DISC)***
Activity Status: *PROPERTY/SITE REFERRED TO RWQCB*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *03261982*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

Activity: ***(SS)***
Activity Status: *PROPERTY/SITE REFERRED TO RWQCB*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *01291987*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)
DATE **COMMENT**

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 137 **DIST/DIR:** NON GC **MAP ID:**

NAME:	GENERAL CARTAGE	**REV:**	07/03/00
ADDRESS:	COUNTY ROAD 103 AND COUNTY ROAD 27	**ID1:**	CAL57420004
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	PROPERTY/SITE REFERRED TO RWQC
CONTACT:		**PHONE:**	

03261982 *FACILITY IDENTIFIED OBSERVED ON DRIVE BYS - ACTIVE SITE*

DATE	**COMMENT**
03261982	*FACILITY DRIVE-BY PETROLEUM DISCHARGED TO STREET DRAIN*

DATE	**COMMENT**
03261982	*FINAL STRATEGY SITE REFERRRED: TO CO. HEALTH and RWQCB*

DATE	**COMMENT**
01291987	*SITE SCREENING DONE NO DHS FILE FOUND*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

OTHER

SEARCH ID: 157 **DIST/DIR:** NON GC **MAP ID:**

NAME:	ROY S WELDING	**REV:**	08/22/05
ADDRESS:	7411 WATT AVE A	**ID1:**	FA0013096
	NORTH HIGHLANDS CA 95660	**ID2:**	
	SACRAMENTO	**STATUS:**	NOT REPORTED
CONTACT:		**PHONE:**	

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT MASTER LIST OF SITES WITH POTENTIALLY HAZARDOUS MATERIALS:

Number of Tanks at Site (where applicable):

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

ERNS

SEARCH ID: 91 **DIST/DIR:** NON GC **MAP ID:**

NAME: UNKNOWN
ADDRESS: ELVERTA RD BET EL CENTRO and EAST LEVEE RD
SACRAMENTO CA 95836
SACRAMENTO
CONTACT:

REV: 5/5/91
ID1: 217784
ID2:
STATUS: UNKNOWN (NRC)
PHONE:

SPILL INFORMATION
DATE OF SPILL: 5/5/1991 **TIME OF SPILL:** 0700

PRODUCT RELEASED (1): DRUG LAB WASTE
QUANTITY (1): 5
UNITS (1): GAL

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED
AIR: NO **GROUNDWATER:** NO
LAND: YES **FIXED FACILITY:** NO
WATER: NO **OTHER:** NO
WATERBODY AFFECTED BY RELEASE: NONE

SPILL INFORMATION
DATE OF SPILL: 5/5/1991 **TIME OF SPILL:** 0700

PRODUCT RELEASED (1): DRUG LAB WASTE
QUANTITY (1): 5
UNITS (1): GAL

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED
AIR: NO **GROUNDWATER:** NO
LAND: YES **FIXED FACILITY:** NO
WATER: NO **OTHER:** NO
WATERBODY AFFECTED BY RELEASE: NONE

CAUSE OF RELEASE
DUMPING: YES **EQUIPMENT FAILURE:** NO
NATURAL PHENOMENON: NO **OPERATOR ERROR:** NO
OTHER CAUSE: NO **TRANSP. ACCIDENT:** NO
UNKNOWN: NO

ACTIONS TAKEN: CONTAINED IN DRAINAGE DITCH
RELEASE DETECTION:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

ERNS

SEARCH ID: 91 **DIST/DIR:** NON GC **MAP ID:**

NAME: UNKNOWN
ADDRESS: ELVERTA RD BET EL CENTRO and EAST LEVEE RD
SACRAMENTO CA 95836
SACRAMENTO
CONTACT:

REV: 5/5/91
ID1: 217784
ID2:
STATUS: UNKNOWN (NRC)
PHONE:

MISC. NOTES:

DISCHARGER INFORMATION
DISCHARGER ID: 217784
TYPE OF DISCHARGER:
NAME OF DISCHARGER: UNKNOWN
ADDRESS:

DUN and BRADSTREET :

CAUSE OF RELEASE

DUMPING:	YES	**EQUIPMENT FAILURE:**	NO
NATURAL PHENOMENON:	NO	**OPERATOR ERROR:**	NO
OTHER CAUSE:	NO	**TRANSP. ACCIDENT:**	NO
UNKNOWN:	NO		

ACTIONS TAKEN: CONTAINED IN DRAINAGE DITCH
RELEASE DETECTION:
MISC. NOTES:

DISCHARGER INFORMATION
DISCHARGER ID: 217784
TYPE OF DISCHARGER:
NAME OF DISCHARGER: UNKNOWN
ADDRESS:

DUN and BRADSTREET :

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 102 **DIST/DIR:** NON GC **MAP ID:**

NAME: PACIFIC BELL
ADDRESS: N/W CORNER PLEASANT GROVE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 7/10/07
ID1: 110008291142
ID2: CAT080015159
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: RCRAINFO
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 9/1/1996
ENFORCEMENT ACT:
REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

PROGRAM ID: CAT080015159
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: EPA INSPECTION
LAST EXTRACTED:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110008291142
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: FRS
LAST EXTRACTED:

PROGRAM: HWTS-DATAMART
PROVIDED BY: STATE AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: STATE MASTER -

PROGRAM ID: CAT080015159
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: HWTS-DATAMART
LAST EXTRACTED: 11/18/2004 10:28:12 AM

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: IRREGULAR
LAST REPORTED:
POSTED TO DATABASE: 3/1/2000
DATA UPDATED: 12/21/2001 8:55:51 AM
ENTERED PERSON/METHOD: FRS
PARENT REG ID:
CONFIDENCE IN ADDR: MEDIUM
ENFORCEMENT SENSITIVE: N
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 102 **DIST/DIR:** NON GC **MAP ID:**

NAME: PACIFIC BELL
ADDRESS: N/W CORNER PLEASANT GROVE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 7/10/07
ID1: 110008291142
ID2: CAT080015159
STATUS: FRS
PHONE:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST: 03
LEGISLATIVE DIST: 1
HYDROLOGICAL UNTIS: 18020109
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 101 **DIST/DIR:** NON GC **MAP ID:**

NAME: PACIFIC BELL
ADDRESS: 2 MILE S/E PLEASANT GROVE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV:
ID1: CAT080015142
ID2:
STATUS:
PHONE:

```
RCRIS      : CAT080015142
PCS        :
AFS/AIRS     :
SSTS   :
CERCLIS       :
NCDB    :
ENF DOCKET :
CONTR LIST    :
CRIM DOCKET   :
FFIS        :
CICIS     :
STATE  :
PADS       :
TRIS    :
DandB  :
UNKNOWN      :
```

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 100 **DIST/DIR:** NON GC **MAP ID:**

NAME: MONITORING STATION
ADDRESS: 4SW-7310 PACIFIC AVE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 7/10/07
ID1: 110020866981
ID2:
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 4/11/2005 8:40:47 PM
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110020866981
AGENCY INTERESTED: 4/11/2005 8:40:45 PM
INTEREST ENDED:
SOURCE OF DATA: AIRS/AQS
LAST EXTRACTED:

PROGRAM: AIRS/AQS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL: DATE MONITORING STARTED
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: AIR MONITORING SITE - A SITE ESTABLISHED TO MEASURE CONCENTRATIONS OF AIR POLLUTANTS.

PROGRAM ID: 1566
AGENCY INTERESTED: 1/1/1982
INTEREST ENDED:
SOURCE OF DATA: AQS SITES TRANSACTION
LAST EXTRACTED: 7/11/2006 1:58:15 PM

SITE TYPE: MONITORING STATION
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: IRREGULAR
LAST REPORTED:
POSTED TO DATABASE: 4/11/2005 8:40:47 PM
DATA UPDATED: 4/26/2005 3:58:45 PM
ENTERED PERSON/METHOD: ESZ
PARENT REG ID:
CONFIDENCE IN ADDR:
ENFORCEMENT SENSITIVE: N
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY:
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST:
LEGISLATIVE DIST:
HYDROLOGICAL UNTIS:
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 99 **DIST/DIR:** NON GC **MAP ID:**

NAME:	VERIZON CALIFORNIA	**REV:**	7/10/07
ADDRESS:	42360 3RD STREET	**ID1:**	110021150378
	KNIGHTS LANDING CA 95645	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA351321
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:55:18 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110021150378
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/17/2005 6:26:36 PM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/17/2005 6:26:37 PM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN
LAST REPORTED:	
POSTED TO DATABASE:	5/17/2005 6:26:37 PM
DATA UPDATED:	6/29/2005 4:27:17 PM
ENTERED PERSON/METHOD:	ESZ
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 98 **DIST/DIR:** NON GC **MAP ID:**

NAME:	RIVER GARDEN FARMS COMPANY	**REV:**	7/10/07
ADDRESS:	37060 COUNTY ROAD 6	**ID1:**	110010458147
	KNIGHTS LANDING CA 95645	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110010458147
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1135808
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:10:41 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN, HWY
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	5/18/2005 5:38:22 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 97 **DIST/DIR:** NON GC **MAP ID:**

NAME:	OAKLAND BEAN CLEANING and STORAG	**REV:**	7/10/07
ADDRESS:	42445 COUNTY ROAD 116	**ID1:**	110002437710
	KNIGHTS LANDING CA 95645	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1133524
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:08:25 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110002437710
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN, HWY
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	5/18/2005 6:45:45 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	NO
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 96 **DIST/DIR:** NON GC **MAP ID:**

NAME:	ELECTRIC LIGHTWAVE	**REV:**	7/10/07
ADDRESS:	8194 COUNTY ROAD 112	**ID1:**	110021332645
	KNIGHTS LANDING CA 95645	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110021332645
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/19/2005 9:03:21 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/19/2005 9:03:22 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA351146
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:59:01 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	5/19/2005 9:03:22 AM
DATA UPDATED:	1/5/2006 6:17:48 PM
ENTERED PERSON/METHOD:	KGOODWIN
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 95 **DIST/DIR:** NON GC **MAP ID:**

NAME:	TEICHERT AGGREGATES	**REV:**	7/10/07
ADDRESS:	27944 COUNTY ROAD 19A	**ID1:**	110013818182
	ESPARTO CA 95627	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110013818182
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/2/2003 9:50:07 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI99-CRT
LAST REPORTED:	4/2/2003 9:50:07 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1131048
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:09:24 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	4/2/2003 9:50:07 AM
DATA UPDATED:	6/25/2003 5:09:39 PM
ENTERED PERSON/METHOD:	ACARTER
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 94 **DIST/DIR:** NON GC **MAP ID:**

NAME:	ESPARTO LANDFILL (OLD)	**REV:**	7/10/07
ADDRESS:	COUNTY ROAD 19A	**ID1:**	110013919670
	ESPARTO CA 95627	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110013919670
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/11/2003 3:14:05 PM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI-HAP
LAST REPORTED:	4/11/2003 3:14:05 PM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEICALF77
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:59:14 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	4/11/2003 3:14:05 PM
DATA UPDATED:	6/26/2003 12:43:15 PM
ENTERED PERSON/METHOD:	ACARTER
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 148 **DIST/DIR:** NON GC **MAP ID:**

NAME: ESPARTO LANDFILL (OLD)
ADDRESS: COUNTY ROAD 19A
ESPARTO CA 95695
YOLO
CONTACT:

REV: 04/09/08
ID1: SWIS57-CR-0001
ID2:
STATUS: CLOSED
PHONE:

SITE OPERATOR INFORMATION:

Operator: *County Of Yolo Public Works Dept*
Operator Address: *292 West Beamer Street Woodland CA 95695*
Permit Date:
Permit Status:
Land Use Name: *Rural,Agricultural*
GIS Source for LAT and LONG: *GPS*

SITE ACTIVITY INFORMATION:

Activity: *Solid Waste Disposal Site*
Accepted Waste:
Operational Status: *Closed*
Regulatory Status *Unpermitted*
Program Type
Closure Date:
Closure Type:
Permitted Throughput with Units: *0*
Permitted Capacity with Units: *0*
Remaining Capacity with Units (landfills only): *0*
Permitted Total Acreage: *0*
Permitted Disposal Acreage: *0*
Last Tire Inspection Count:
Last Tire Inspection Count Date:
Original Tire Inspection Count:
Last Tire Inspection Count Date:
Inspection Frequency: *Quarterly*

SITE OWNER INFORMATION:

Owner: *County Of Yolo Public Works Dept*
Owner Phone: *5306668852*
Owner Address: *292 West Beamer Street*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 92 **DIST/DIR:** NON GC **MAP ID:**

NAME:	BIANCHI/SILLS DRIER and STG	**REV:**	7/10/07
ADDRESS:	8391 PLEASANT GROVE RD	**ID1:**	110013849773
	ELVERTA CA 95626	**ID2:**	
	SACRAMENTO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110013849773
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/3/2003 11:16:42 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI99-CRT
LAST REPORTED:	4/3/2003 11:16:42 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1016003
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:09:46 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN
LAST REPORTED:	
POSTED TO DATABASE:	4/3/2003 11:16:42 AM
DATA UPDATED:	5/18/2005 7:56:58 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 103 **DIST/DIR:** NON GC **MAP ID:**

NAME:	PACIFIC BELL	**REV:**	7/10/07
ADDRESS:	2 MILE S/E PLEASANT GROVE	**ID1:**	110008291133
	PLEASANT GROVE CA 95668	**ID2:**	CAT080015142
	SUTTER	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110008291133
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	HWTS-DATAMART	**PROGRAM ID:**	CAT080015142
PROVIDED BY:	STATE AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	HWTS-DATAMART
LAST REPORTED:		**LAST EXTRACTED:**	11/18/2004 10:28:07 AM
ENFORCEMENT ACT:			
REG PROGRAM:	STATE MASTER -		

PROGRAM:	RCRAINFO	**PROGRAM ID:**	CAT080015142
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	EPA INSPECTION
LAST REPORTED:	9/1/1996	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			

REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	DIRECTION
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	12/21/2001 8:55:44 AM
ENTERED PERSON/METHOD:	FRS
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 103 **DIST/DIR:** NON GC **MAP ID:**

NAME: PACIFIC BELL
ADDRESS: 2 MILE S/E PLEASANT GROVE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 7/10/07
ID1: 110008291133
ID2: CAT080015142
STATUS: FRS
PHONE:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST: 03
LEGISLATIVE DIST: 1
HYDROLOGICAL UNTIS: 18020109
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

ERNS

SEARCH ID: 90 **DIST/DIR:** NON GC **MAP ID:**

NAME: UNKNOWN
ADDRESS: COUNTY ROAD-101 NORTH OF CHURCHILL
WOODLAND CA 95695
Yolo
CONTACT:

REV: 1/3/96
ID1: 486512
ID2:
STATUS: UNKNOWN (NRC)
PHONE:

SPILL INFORMATION

DATE OF SPILL: 1/3/1996 **TIME OF SPILL:** 1630

PRODUCT RELEASED (1): DIESEL
QUANTITY (1): 100
UNITS (1): GAL

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR: NO **GROUNDWATER:** NO
LAND: YES **FIXED FACILITY:** NO
WATER: NO **OTHER:** NO
WATERBODY AFFECTED BY RELEASE:

CAUSE OF RELEASE

DUMPING: NO **EQUIPMENT FAILURE:** NO
NATURAL PHENOMENON: NO **OPERATOR ERROR:** YES
OTHER CAUSE: NO **TRANSP. ACCIDENT:** NO
UNKNOWN: NO

ACTIONS TAKEN: UNKNOWN
RELEASE DETECTION: ROAD SINGLE VEHICLE ACCIDENT CAUSED DAMAGE TO A FUEL TANK CAUSING THE SPILL
MISC. NOTES:

DISCHARGER INFORMATION

DISCHARGER ID: 486512 **DUN and BRADSTREET :**
TYPE OF DISCHARGER: UNKNOWN
NAME OF DISCHARGER: UNKNOWN
ADDRESS:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

ERNS

SEARCH ID: 89 **DIST/DIR:** NON GC **MAP ID:**

NAME: UNKNOWN
ADDRESS: NICHOLAS AVE 1/2 MI W OF PLEASANT GROVE
PLEASANT GROVE CA 95668
Sutter
CONTACT:

REV: 8/14/93
ID1: 338332
ID2:
STATUS: HIGHWAY RELATED
PHONE:

SPILL INFORMATION

DATE OF SPILL: 8/14/1993 **TIME OF SPILL:** 1534

PRODUCT RELEASED (1): TRANSFORMER OIL
QUANTITY (1): 2
UNITS (1): GAL

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR: NO **GROUNDWATER:** NO
LAND: YES **FIXED FACILITY:** NO
WATER: NO **OTHER:** NO
WATERBODY AFFECTED BY RELEASE:

CAUSE OF RELEASE

DUMPING: NO **EQUIPMENT FAILURE:** NO
NATURAL PHENOMENON: NO **OPERATOR ERROR:** NO
OTHER CAUSE: NO **TRANSP. ACCIDENT:** YES
UNKNOWN: NO

ACTIONS TAKEN: NOT STATED
RELEASE DETECTION: ABANDONED ON SIDE OF THE ROAD
MISC. NOTES:

DISCHARGER INFORMATION

DISCHARGER ID: 338332 **DUN and BRADSTREET :**
TYPE OF DISCHARGER: UNKNOWN
NAME OF DISCHARGER: UNKNOWN
ADDRESS:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

ERNS

SEARCH ID: 88 **DIST/DIR:** NON GC **MAP ID:**

NAME: ARCO
ADDRESS: STN 6225 4745 WATT AVE
NORTH HIGHLANDS CA 95660
Sacramento
CONTACT:

REV: 7/16/96
ID1: 513509
ID2:
STATUS: FIXED FACILITY
PHONE:

SPILL INFORMATION
DATE OF SPILL: 7/16/1996 **TIME OF SPILL:** 0000

PRODUCT RELEASED (1): GASOLINE, AUTOMOTIVE
QUANTITY (1): 0
UNITS (1): UNK

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED
AIR: NO **GROUNDWATER:** NO
LAND: YES **FIXED FACILITY:** NO
WATER: NO **OTHER:** NO
WATERBODY AFFECTED BY RELEASE:

CAUSE OF RELEASE
DUMPING: NO **EQUIPMENT FAILURE:** NO
NATURAL PHENOMENON: NO **OPERATOR ERROR:** NO
OTHER CAUSE: NO **TRANSP. ACCIDENT:** NO
UNKNOWN: YES

ACTIONS TAKEN: ARCO TO C/U
RELEASE DETECTION: AT GAS STATION, LINE NOT HOLDING PRESSURE, SLOW FLOW-LEAKING UNKNOWN, LEAK SOMEWHERE
MISC. NOTES: Previous Case : 96-3962

DISCHARGER INFORMATION
DISCHARGER ID: 513509 **DUN and BRADSTREET :**
TYPE OF DISCHARGER: UNKNOWN
NAME OF DISCHARGER: ARCO
ADDRESS:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

RCRANLR

SEARCH ID: 87 **DIST/DIR:** NON GC **MAP ID:**

NAME:	DELTA AIR LINES SACRAMENTO	**REV:**	6/6/06
ADDRESS:	SACRAMENTO AIRPORT	**ID1:**	CAD982011140
	SACRAMENTO CA 95837	**ID2:**	
	CA067	**STATUS:**	NLR
CONTACT:	ENVIRONMENTAL MANAGER	**PHONE:**	9162978352

SITE INFORMATION

CONTACT INFORMATION: ENVIRONMENTAL MANAGER
SACRAMENTO AIRPORT
SACRAMENTO CA 95837

PHONE: 9162978352

UNIVERSE INFORMATION:

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 168 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CHEVRON 9-2597	**REV:**	01/01/2000
ADDRESS:	18420 COUNTY ROAD 102 AND COUNTY ROAD 22 WOODLAND CA 95776 YOLO	**ID1:** **ID2:** **STATUS:**	YOLO_PERMT_UST0097 RENEWAL PERMIT
CONTACT:	CHEVRON USA INC	**PHONE:**	530-666-3155

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*10/01/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*12000*
Installed:	*11/21/95*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*CHEVRON USA INC*
Owner Address:	*PO BOX 5004 SAN RAMON , CA 94583*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*10/01/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*12000*
Installed:	*11/21/95*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*CHEVRON USA INC*
Owner Address:	*PO BOX 5004 SAN RAMON , CA 94583*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*10/01/99*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*12000*
Installed:	*11/21/95*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*CHEVRON USA INC*
Owner Address:	*PO BOX 5004 SAN RAMON , CA 94583*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 167 **DIST/DIR:** NON GC **MAP ID:**

NAME:	GREYHOUND LINES	**REV:**	01/01/2000
ADDRESS:	1874 S RIVER RD AND 15TH ST W SACRAMENTO CA 95691 YOLO	**ID1:** **ID2:** **STATUS:**	YOLO_PERMT_UST0192 RENEWAL PERMIT
CONTACT:	GREYHOUND LINES INC	**PHONE:**	916-372-6502

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*08/28/01*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*DIESEL*
Capacity:	*12000*
Installed:	*05/01/95*
Active:	*2*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*2*
Tank Owner:	*GREYHOUND LINES INC*
Owner Address:	*1874 S RIVER RD DALLAS , TX 75266*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*08/28/01*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*DIESEL*
Capacity:	*12000*
Installed:	*05/01/95*
Active:	*2*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*2*
Tank Owner:	*GREYHOUND LINES INC*
Owner Address:	*1874 S RIVER RD DALLAS , TX 75266*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

UST

SEARCH ID: 166 **DIST/DIR:** NON GC **MAP ID:**

NAME:	SHEFFIELDS PLUG and JUG	**REV:**	01/01/2000
ADDRESS:	9425 LOCUST ST AND 5TH ST	**ID1:**	YOLO_PERMT_UST0344
	KNIGHTS LANDING CA 95645	**ID2:**	
	Yolo	**STATUS:**	RENEWAL PERMIT
CONTACT:	WALLY SHEFFIELD	**PHONE:**	530-735-6519

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*03/31/96*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*8000*
Installed:	*05/21/91*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*WALLY SHEFFIELD*
Owner Address:	*PO BOX 427 KNIGHTS LANDING , CA 956435*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*03/31/96*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*LEADED*
Capacity:	*5000*
Installed:	*05/21/91*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*WALLY SHEFFIELD*
Owner Address:	*PO BOX 427 KNIGHTS LANDING , CA 956435*

INFORMATION FROM THE YOLO COUNTY COMPREHENSIVE UST LIST

Inspected:	*03/31/96*
Status:	*RENEWAL PERMIT*
Tank Status:	*RENEWAL PERMIT*
Last Test:	
Contents:	*UNLEADED*
Capacity:	*3000*
Installed:	*05/21/91*
Active:	*3*
Exempt:	*0*
Inactive:	*0*
Last Tank:	*3*
Tank Owner:	*WALLY SHEFFIELD*
Owner Address:	*PO BOX 427 KNIGHTS LANDING , CA 956435*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

OTHER

SEARCH ID: 165 **DIST/DIR:** NON GC **MAP ID:**

NAME:	SACRAMENTO AIRPORT STATION	**REV:**	08/22/05
ADDRESS:	GARDEN HWY/ELKHORN BLVD	**ID1:**	FA0019743
	SACRAMENTO CA 95837	**ID2:**	
	SACRAMENTO	**STATUS:**	NOT REPORTED
CONTACT:		**PHONE:**	

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT MASTER LIST OF SITES WITH POTENTIALLY HAZARDOUS MATERIALS:

Number of Tanks at Site (where applicable):

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

VCP

SEARCH ID: 185 **DIST/DIR:** NON GC **MAP ID:**

NAME:	SILVER CREEK	**REV:**	08/15/06
ADDRESS:	4300 PFE ROAD AND 9245 WALERGA ROAD (ADJOINING PROPERTIES)		
		ID1:	CAL60000292
	ROSEVILLE CA 95747	**ID2:**	VOLUNTARY CLEANUP
	PLACER	**STATUS:**	NO FURTHER ACTION
CONTACT:		**PHONE:**	

GENERAL SITE INFORMATION

Site Type:	*Voluntary Cleanup*
Status:	*No Further Action*
Status Date:	*2006-06-27 00:00:00*
NPL Site:	*NO*
Funding:	*Responsible Party*
Regulatory Agencies Involved:	*SMBRP*
Lead Agency:	*NONE SPECIFIED*
Project Manager:	*LEONA WINNER*
Supervisor:	*KEVIN SHADDY*
Branch:	*Brownfields Revitalization Unit*
Acres:	*28.6*
Assessor s Parcel Number:	*NONE SPECIFIED*
Past Uses:	*NONE SPECIFIED*
Potential Contaminants:	*NONE SPECIFIED*
Confirmed Contaminants:	*NONE SPECIFIED*
Potential Media Affected:	*NONE SPECIFIED*
Restricted Use:	*NO*
Site Management Required:	*NONE SPECIFIED*
Special Programs Associated with this Site:	*Voluntary Cleanup Program*

OTHER SITE NAMES (blank below = not reported by agency)

101788

60000292

COMPLETED ACTIVITIES AND DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Preliminary Endangerment Assessment Report***
Completion Date:	***2006-06-27 00:00:00***
Comments:	*Pre-existing data was received and no further action was deemed necessary.*

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Voluntary Clean-up Agreement***
Completion Date:	***2006-05-02 00:00:00***
Comments:	*A Voluntary Cleanup Agreement was executed. The agreement calls for the completion of a Preliminary Endangerment Assessment.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 93 **DIST/DIR:** NON GC **MAP ID:**

NAME:	MONROE S LANDFILL	**REV:**	7/10/07
ADDRESS:	8784 N PALLADAY RD	**ID1:**	110013983243
	ELVERTA CA 95626	**ID2:**	
	SACRAMENTO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICALF2570
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:12:53 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110013983243
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/11/2003 5:12:56 PM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI-HAP
LAST REPORTED:	4/11/2003 5:12:56 PM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN
LAST REPORTED:	
POSTED TO DATABASE:	4/11/2003 5:12:56 PM
DATA UPDATED:	5/18/2005 6:31:14 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 116 **DIST/DIR:** NON GC **MAP ID:**

NAME:	USA WASTE OF CALIFORNIA, INC.	**REV:**	9/12/05
ADDRESS:	44090 COUNTY ROAD 28H	**ID1:**	110021144073
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEI2CA351237
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:55:03 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110021144073
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	5/17/2005 6:20:43 PM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:	5/17/2005 6:20:43 PM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	5/17/2005 6:20:43 PM
DATA UPDATED:	6/29/2005 7:38:01 PM
ENTERED PERSON/METHOD:	ESZ
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

OTHER

SEARCH ID: 163 **DIST/DIR:** NON GC **MAP ID:**

NAME: SPRECKLES SUGAR COMPANY
ADDRESS: COUNTY ROAD 18C
WOODLAND CA 95695
YOLO
CONTACT:

REV: 07/18/05
ID1: CAL57200003
ID2:
STATUS: PROPERTY/SITE REFERRED TO ANOT
PHONE:

GENERAL SITE INFORMATION

Site Type: *Historical*
Status: *Refer: Other Agency*
Status Date: *2003-08-28 00:00:00*
NPL Site: *NO*
Funding:
Regulatory Agencies Involved: *YOLO COUNTY*
Lead Agency: *YOLO COUNTY*
Project Manager: *STEVEN BECKER*
Supervisor: *Steven Becker*
Branch: *Central California*
Acres:
Assessor s Parcel Number: *NONE SPECIFIED*
Past Uses: *NONE SPECIFIED*
Potential Contaminants: *ACID SOLUTION 2>PH WITH METALS, UNKNOWN CODE-40001, UNSPECIFIED ORGANIC LIQUID MIXTURE, LIME SLUDGE, Polychlorinated biphenyls (PCBs)*
Confirmed Contaminants: *NONE SPECIFIED*
Potential Media Affected: *NONE SPECIFIED*
Restricted Use: *NO*
Site Management Required: *NONE SPECIFIED*
Special Programs Associated with this Site:

OTHER SITE NAMES (blank below = not reported by agency)

CAT000624767

57200003

AMSTAR CORP

AMSTAR CORP SPRECKELS SUGAR DIVISION F-3

SPRECKELS SUGAR COMPANY

COMPLETED ACTIVITIES AND DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Area Name: ***PROJECT WIDE***
Sub- Area Name:
Document Type: ***Site Screening***
Completion Date: ***1990-12-21***
Comments: *SITE SCREENING DONE. NO APPARENT INTERIM RESPONSE MEASURES NEEDS. RECOMMEND MEDIUM PRIORITY PRELIMINARY ENDANGERMENT ASSESSMENT.*

Area Name: ***PROJECT WIDE***
Sub- Area Name:
Document Type: ***Site Screening***
Completion Date: ***1988-06-02***
Comments: *SITE SCREENING DONE. EPA RECOMMENDS A MEDIUM PRIORITY SI, DHS CONCURS.*

Area Name: ***PROJECT WIDE***
Sub- Area Name:
Document Type: ***Preliminary Assessment Report***

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

OTHER

SEARCH ID: 163 **DIST/DIR:** NON GC **MAP ID:**

NAME:	SPRECKLES SUGAR COMPANY	**REV:**	07/18/05
ADDRESS:	COUNTY ROAD 18C	**ID1:**	CAL57200003
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	PROPERTY/SITE REFERRED TO ANOT
CONTACT:		**PHONE:**	

Completion Date: ***1984-07-01***

Comments: *2 SETTLING PONDS, 2 HOLDING PONDS. WASTE: LEAD ACETATE 200 LBS ASBESTOS. PRIOR TO EARLY 1970S LEAD ACETATE, ASBESTOS and REFUSE WERE DISPOSED IN ON SITE LANDFILL. LANDFILL MATERIALS WERE ROUTINELY BURNED. THEY ARE CURRENTLY DRUMMED AND TRANSPORTED BY HAULER OFFSITE. PCB USED TO BE STORED ON SITE. PROCESS SUGAR BEETS TO MAKE SUGAR. YEARS OF OPERATION 1937 TO PRESENT. SUBMIT TO EPA. PRELIMINARY ASSESSMENT DONE. RCRA 3012.*

Area Name: ***PROJECT WIDE***

Sub- Area Name:

Document Type: ***Discovery***

Completion Date: ***1983-10-11***

Comments: *FACILITY IDENTIFIED FROM ERRIS.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 145 **DIST/DIR:** NON GC **MAP ID:**

NAME: WEST ROSEVILLE HIGH SCHOOL NO. 6
ADDRESS: PHILLIP ROAD/FIDDYMENT ROAD
ROSEVILLE CA 95747
PLACER
CONTACT:

REV: 07/18/05
ID1: CAL31020006
ID2:
STATUS: NO ACTION - FOR CALMORTGAGE
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)

WEST ROSEVILLE HIGH SCHOOL NO. 6

ROSEVILLE JOINT UNION HSD

GENERAL SITE INFORMATION

File Name (if different than site name): *WEST ROSEVILLE HIGH SCHOOL NO. 6*

Status: *NO ACTION - FOR CALMORTGAGE ONLY*
AWP Site Type: *PROPOSED SCHOOL SITE PROPERTY*
NPL Site:
Fund:
Status Date: *06092003*
Lead: *DEPT OF TOXIC SUBSTANCES CONTROL*
Staff: *FLOPEZ2*
DTSC Region and RWQCB : *SACRAMENTO*
Branch: *SCHOOL EVALUATION*
RWQCB:
Site Access:
Groundwater Contamination:
Number of Sources Contributing to Contamination at the Site: *0*

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)

ID SOURCE NAME, and VALUE: *CALSTARS CODE 104343-11*

BACKGROUND INFORMATION (blank below = not reported by agency)

This school site encompasses approximately 54 acres of property. Historically the Site was occupied by a turkey farm which ceased operation in the 1950 s. Since then the Site has been utilized for grazing sheep and cattle.

PROJECTED ACTIVITIES (blank below = not reported by agency)

Activity: ***PHASE 1 - CALMORTGAGE AND SCHOOL SITE PROPERTIES***
Activity Status: *NO ACTION - FOR CALMORTGAGE ONLY*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *06092003*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Comments Date: ***06092003***

: *Phase 1 - Pursuant to an agreement between the Department of Toxic Substances Control (DTSC) and the California Department of Education, DTSC s Site Mitigation Program completed a review of a Phase 1 Environmental Assessment and has made a No Action determination for this Site.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

STATE

SEARCH ID: 144 **DIST/DIR:** NON GC **MAP ID:**

NAME: WEST PLACER ELEM. SCHOOL/MORGAN CREEK
ADDRESS: CROWDER LANE/VINEYAD ROAD
ROSEVILLE CA 95747
PLACER
CONTACT:

REV: 07/18/05
ID1: CAL31010015
ID2:
STATUS: VOLUNTARY CLEANUP PROGRAM
PHONE:

OTHER SITE NAMES (blank below = not reported by agency)
WEST PLACER ELEM. SCHOOL/MORGAN CREEK

MORGAN CREEK

GENERAL SITE INFORMATION
File Name (if different than site name):

Status: *VOLUNTARY CLEANUP PROGRAM*
AWP Site Type: *PROPOSED SCHOOL SITE PROPERTY*
NPL Site:
Fund:
Status Date: *06032004*
Lead: *DEPT OF TOXIC SUBSTANCES CONTROL*
Staff: *JLUEVANO*
DTSC Region and RWQCB : *SACRAMENTO*
Branch: *SCHOOL EVALUATION*
RWQCB:
Site Access:
Groundwater Contamination:
Number of Sources Contributing to Contamination at the Site: *0*

OTHER AGENCY ID NUMBERS (blank below = not reported by agency)
ID SOURCE NAME, and VALUE: *CALSTARS CODE 104394-11*

BACKGROUND INFORMATION (blank below = not reported by agency)
THE SITE HAS BEEN HOSTORICALLY UTILIZED AS DRY-FARMED SINCE THE 1940 S.

PROJECTED ACTIVITIES (blank below = not reported by agency)
Activity: ***PHASE 1 - CALMORTGAGE AND SCHOOL SITE PROPERTIES***
Activity Status: *VOLUNTARY CLEANUP PROGRAM*
Completion Due Date:
Revised Completion Due Date:
Date Activity Actually Completed: *04052004*
Yards of Solids Removed: *0*
Yards of Solids Treated: *0*
Gallons of Liquid Removed: *0*
Gallons of Liquid Treated: *0*

DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)
Comments Date: ***04052004***
: *DTSC reviewed a Phase I Addendum Report and has made a No Action determination for this site.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 143 **DIST/DIR:** NON GC **MAP ID:**

NAME:	SILVER CREEK	**REV:**	08/15/06
ADDRESS:	4300 PFE ROAD AND 9245 WALERGA ROAD (ADJOINING PROPERTIES)		
		ID1:	CAL60000292
	ROSEVILLE CA 95747	**ID2:**	VOLUNTARY CLEANUP
	PLACER	**STATUS:**	NO FURTHER ACTION
CONTACT:		**PHONE:**	

GENERAL SITE INFORMATION

Site Type:	*Voluntary Cleanup*
Status:	*No Further Action*
Status Date:	*2006-06-27 00:00:00*
NPL Site:	*NO*
Funding:	*Responsible Party*
Regulatory Agencies Involved:	*SMBRP*
Lead Agency:	*NONE SPECIFIED*
Project Manager:	*LEONA WINNER*
Supervisor:	*KEVIN SHADDY*
Branch:	*Brownfields Revitalization Unit*
Acres:	*28.6*
Assessor s Parcel Number:	*NONE SPECIFIED*
Past Uses:	*NONE SPECIFIED*
Potential Contaminants:	*NONE SPECIFIED*
Confirmed Contaminants:	*NONE SPECIFIED*
Potential Media Affected:	*NONE SPECIFIED*
Restricted Use:	*NO*
Site Management Required:	*NONE SPECIFIED*
Special Programs Associated with this Site:	*Voluntary Cleanup Program*

OTHER SITE NAMES (blank below = not reported by agency)

101788

60000292

COMPLETED ACTIVITIES AND DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Preliminary Endangerment Assessment Report***
Completion Date:	***2006-06-27 00:00:00***
Comments:	*Pre-existing data was received and no further action was deemed necessary.*

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Voluntary Clean-up Agreement***
Completion Date:	***2006-05-02 00:00:00***
Comments:	*A Voluntary Cleanup Agreement was executed. The agreement calls for the completion of a Preliminary Endangerment Assessment.*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 136 **DIST/DIR:** NON GC **MAP ID:**

NAME:	MERCY HOUSING CALIFORNIA	**REV:**	08/15/06
ADDRESS:	3421 EAST COUNTRY CLUB LANE	**ID1:**	CAL70000126
	SACRAMENTO CA 95691	**ID2:**	VOLUNTARY CLEANUP
	SACRAMENTO	**STATUS:**	NO FURTHER ACTION
CONTACT:		**PHONE:**	

GENERAL SITE INFORMATION

Site Type:	*Voluntary Cleanup*
Status:	*No Further Action*
Status Date:	*2006-07-11 00:00:00*
NPL Site:	*NO*
Funding:	*Responsible Party*
Regulatory Agencies Involved:	*HWMP, SACRAMENTO COUNTY*
Lead Agency:	*SACRAMENTO COUNTY*
Project Manager:	*MARIA GILLETTE*
Supervisor:	*STEVEN BECKER*
Branch:	*Central California*
Acres:	*2*
Assessor s Parcel Number:	*NONE SPECIFIED*
Past Uses:	*PESTICIDE/INSECTIDE/RODENTICIDE STORAGE*
Potential Contaminants:	*Chlordane, Dieldrin*
Confirmed Contaminants:	*Chlordane, Dieldrin*
Potential Media Affected:	*SOIL*
Restricted Use:	*NO*
Site Management Required:	*NONE SPECIFIED*
Special Programs Associated with this Site:	*Voluntary Cleanup Program*

OTHER SITE NAMES (blank below = not reported by agency)

101576-11

70000126

3420 East Country Club Lane (Mercy Housing Site)

COMPLETED ACTIVITIES AND DTSC COMMENTS REGARDING THIS SITE (blank below = not reported by agency)

Area Name: ***PROJECT WIDE***
Sub- Area Name:
Document Type: ***Removal Action Workplan***
Completion Date: ***2005-06-13 00:00:00***
Comments: *The Sacramento County Environmental Management Department (as Lead Regulatory Agency) conditionally approved the Mercy Housing Draft RAW on June 7, 2005. DTSC, as the Responsible Agency, concurred with the SCEMD s conditional approval on June 13, 2005. The 30-day public comment period for the Draft RAW and CEQA NOE began on June 15, 2005 and closed on July 15,2005. The SCEMD received two comments from the community and included a response to comments in their July 22, 2005 RAW approval letter.*

Area Name: ***PROJECT WIDE***
Sub- Area Name:
Document Type: ***Removal Action Workplan***
Completion Date: ***2005-08-18 00:00:00***
Comments: *The SCEMD (Lead Agency) approved the Final RAW on 7/22/2005. DTSC (Responsible Agency) concurred with the SCEMD s determination on 8/18/2005.*

Area Name: ***PROJECT WIDE***
Sub- Area Name:
Document Type: ***Remedial Action Completion Report***
Completion Date: ***2006-04-20 00:00:00***
Comments:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

STATE

SEARCH ID: 136 **DIST/DIR:** NON GC **MAP ID:**

NAME:	MERCY HOUSING CALIFORNIA	**REV:**	08/15/06
ADDRESS:	3421 EAST COUNTRY CLUB LANE	**ID1:**	CAL70000126
	SACRAMENTO CA 95691	**ID2:**	VOLUNTARY CLEANUP
	SACRAMENTO	**STATUS:**	NO FURTHER ACTION
CONTACT:		**PHONE:**	

Area Name:	***PROJECT WIDE***
Sub- Area Name:	
Document Type:	***Voluntary Clean-up Agreement***
Completion Date:	***2003-03-07 00:00:00***
Comments:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 131 **DIST/DIR:** NON GC **MAP ID:**

NAME:	PACIFIC GAS and ELECTRIC/PGandE	**REV:**	7/10/07
ADDRESS:	HERSHEY JUNCTION CR89 N OF DUN	**ID1:**	110013852134
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1135584
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:00:46 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110013852134
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/3/2003 11:40:15 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI99-CRT
LAST REPORTED:	4/3/2003 11:40:16 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	DIRECTION
LAST REPORTED:	
POSTED TO DATABASE:	4/3/2003 11:40:16 AM
DATA UPDATED:	4/10/2003 10:22:58 AM
ENTERED PERSON/METHOD:	TIGERBEE
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 130 **DIST/DIR:** NON GC **MAP ID:**

NAME: PACIFIC BELL
ADDRESS: ROAD 89
DUNNIGAN CA 95937
YOLO
CONTACT:

REV: 7/10/07
ID1: 110008292481
ID2: CAT080017387
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: RCRAINFO
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 9/1/1996
ENFORCEMENT ACT:
REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

PROGRAM ID: CAT080017387
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: EPA INSPECTION
LAST EXTRACTED:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110008292481
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: FRS
LAST EXTRACTED:

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: IRREGULAR
LAST REPORTED:
POSTED TO DATABASE: 3/1/2000
DATA UPDATED: 1/5/2006 9:30:29 PM
ENTERED PERSON/METHOD: REFRESH
PARENT REG ID:
CONFIDENCE IN ADDR: MEDIUM
ENFORCEMENT SENSITIVE: N
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST: 03
LEGISLATIVE DIST: 1
HYDROLOGICAL UNTIS: 18020104
EPA REGION: 09
AIRSHED:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 130 **DIST/DIR:** NON GC **MAP ID:**

NAME: PACIFIC BELL
ADDRESS: ROAD 89
DUNNIGAN CA 95937
YOLO
CONTACT:

REV: 7/10/07
ID1: 110008292481
ID2: CAT080017387
STATUS: FRS
PHONE:

CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 129 **DIST/DIR:** NON GC **MAP ID:**

NAME:	MINKLER ALMONDS	**REV:**	7/10/07
ADDRESS:	24545 COUNTY ROAD 2	**ID1:**	110010458094
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110010458094
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1135512
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:02:26 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	5/18/2005 6:45:41 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	Y
REASON MAN REVIEW:	, NAME MISMATCH-NEI
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 128 **DIST/DIR:** NON GC **MAP ID:**

NAME:	MICHAEL V DOHERTY	**REV:**	7/10/07
ADDRESS:	COUNTY ROAD 5 AT COUNTY ROAD 9	**ID1:**	110010458085
	DUNNIGAN CA 95937	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110010458085
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1135517
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:01:52 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	5/18/2005 5:33:21 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	Y
REASON MAN REVIEW:	, NAME MISMATCH-NEI
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 106 **DIST/DIR:** NON GC **MAP ID:**

NAME: CARGILL INCORPORATED
ADDRESS: STONE BLVD PORT OF SACRAMENTO
WEST SACRAMENTO CA 95691
YOLO
CONTACT:

REV:
ID1: CAD047121983
ID2:
STATUS:
PHONE:

```
RCRIS        :
PCS     :
AFS/AIRS  : 061130023
SSTS  :
CERCLIS      :
NCDB   :
ENF DOCKET    :
CONTR LIST    :
CRIM DOCKET  :
FFIS       :
CICIS    :
STATE  :
PADS      :
TRIS   :
DandB        :
UNKNOWN     :
```

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 122 **DIST/DIR:** NON GC **MAP ID:**

NAME: DELTA AIR LINES SACRAMENTO
ADDRESS: SACRAMENTO AIRPORT
SACRAMENTO CA 95837
SACRAMENTO
CONTACT:

REV:
ID1: CAD982011140
ID2:
STATUS:
PHONE:

```
RCRIS    : CAD982011140
PCS      :
AFS/AIRS   :
SSTS        :
CERCLIS     :
NCDB   :
ENF DOCKET    :
CONTR LIST    :
CRIM DOCKET :
FFIS      :
CICIS   :
STATE        :
PADS     :
TRIS   :
DandB       : 152352365
UNKNOWN      :
```

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 108 **DIST/DIR:** NON GC **MAP ID:**

NAME:	ADAMS GRAIN COMPANY WOODLAND ELEVATOR	**REV:**	7/10/07
ADDRESS:	HIGHWAY 16 AT COUNTY ROAD 102	**ID1:**	110002081648
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1133517
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:12:59 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110002081648
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	4/17/2003 9:41:15 AM
ENTERED PERSON/METHOD:	BEAR
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	NO
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	03
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	18020109
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 112 **DIST/DIR:** NON GC **MAP ID:**

NAME:	MCI WORLDCOM	**REV:**	7/10/07
ADDRESS:	38886 COUNTY ROAD 25	**ID1:**	110013862775
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1135846
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:02:53 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110013862775
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/3/2003 1:27:37 PM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI99-CRT
LAST REPORTED:	4/3/2003 1:27:37 PM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	4/3/2003 1:27:37 PM
DATA UPDATED:	6/30/2003 11:28:05 AM
ENTERED PERSON/METHOD:	ACARTER
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 115 **DIST/DIR:** NON GC **MAP ID:**

NAME:	TEICHERT DAVIS READY MIX PLANTS	**REV:**	7/10/07
ADDRESS:	40060 COUNTY ROAD 29 AT HWY 113	**ID1:**	110010457889
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1135621
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:10:28 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110010457889
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	5/18/2005 6:49:22 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	Y
REASON MAN REVIEW:	, NAME MISMATCH-NEI
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 114 **DIST/DIR:** NON GC **MAP ID:**

NAME: SEEDTEC INTERNATIONAL INC
ADDRESS: STATE HIGHWAY 113andINTERSTATE 5
WOODLAND CA 95695
YOLO
CONTACT:

REV: 7/10/07
ID1: 110008261674
ID2: CAD043258565
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110008261674
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: FRS
LAST EXTRACTED:

PROGRAM: RCRAINFO
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 9/1/1996
ENFORCEMENT ACT:
REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

PROGRAM ID: CAD043258565
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: EPA INSPECTION
LAST EXTRACTED:

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: DIRECTION
LAST REPORTED:
POSTED TO DATABASE: 3/1/2000
DATA UPDATED: 1/5/2006 10:33:42 PM
ENTERED PERSON/METHOD: REFRESH
PARENT REG ID:
CONFIDENCE IN ADDR: MEDIUM
ENFORCEMENT SENSITIVE: N
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST: 03
LEGISLATIVE DIST: 1
HYDROLOGICAL UNTIS: 18020109
EPA REGION: 09
AIRSHED:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 114 **DIST/DIR:** NON GC **MAP ID:**

NAME: SEEDTEC INTERNATIONAL INC
ADDRESS: STATE HIGHWAY 113andINTERSTATE 5
WOODLAND CA 95695
YOLO
CONTACT:

REV: 7/10/07
ID1: 110008261674
ID2: CAD043258565
STATUS: FRS
PHONE:

CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 113 **DIST/DIR:** NON GC **MAP ID:**

NAME:	REIFF FARMS	**REV:**	7/10/07
ADDRESS:	COUNTY ROAD 19	**ID1:**	110013918305
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICALF70
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:08:00 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110013918305
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/11/2003 3:11:15 PM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI-HAP
LAST REPORTED:	4/11/2003 3:11:15 PM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	4/11/2003 3:11:15 PM
DATA UPDATED:	6/30/2003 11:36:34 AM
ENTERED PERSON/METHOD:	ACARTER
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 111 **DIST/DIR:** NON GC **MAP ID:**

NAME: CPN PIPELINE COMPANY
ADDRESS: COUNTY ROADS 35 and 106
YOLO COUNTY CA 95695
CONTACT:

REV: 7/10/07
ID1: 110021332912
ID2:
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 5/19/2005 9:03:39 AM
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110021332912
AGENCY INTERESTED: 5/19/2005 9:03:39 AM
INTEREST ENDED:
SOURCE OF DATA: NEI
LAST EXTRACTED:

PROGRAM: NEI
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED:
ENFORCEMENT ACT:
REG PROGRAM: CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

PROGRAM ID: NEI2CA351064
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: NEI
LAST EXTRACTED: 6/14/2005 10:59:01 AM

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: mOiZ
LOCATION DESC:
ADDRESS TYPE: DIRECTION
LAST REPORTED:
POSTED TO DATABASE: 5/19/2005 9:03:39 AM
DATA UPDATED: 12/15/2005 12:31:17 PM
ENTERED PERSON/METHOD: KGOODWIN
PARENT REG ID:
CONFIDENCE IN ADDR:
ENFORCEMENT SENSITIVE:
REQ MANUAL REVIEW: U
REASON MAN REVIEW: KNOWN TO BE INCOMPLETE
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY:
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST:
LEGISLATIVE DIST:
HYDROLOGICAL UNTIS:
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 110 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CITY OF WOODLAND	**REV:**	7/10/07
ADDRESS:	5TH STREET YARD, WELL 1	**ID1:**	110013852125
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1135853
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 11:08:27 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110013852125
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	4/3/2003 11:40:10 AM
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI99-CRT
LAST REPORTED:	4/3/2003 11:40:11 AM	**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN
LAST REPORTED:	
POSTED TO DATABASE:	4/3/2003 11:40:11 AM
DATA UPDATED:	5/18/2005 6:28:24 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	Y
REASON MAN REVIEW:	, ADDRESS MISMATCH -NEI
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 109 **DIST/DIR:** NON GC **MAP ID:**

NAME:	CENTRAL VALLEY BUILDERS SUPPLY	**REV:**	7/10/07
ADDRESS:	535 NORTH COUNTY ROAD 101	**ID1:**	110010458307
	WOODLAND CA 95695	**ID2:**	
	YOLO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	NEI	**PROGRAM ID:**	NEICA1135470
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	NEI
LAST REPORTED:		**LAST EXTRACTED:**	6/14/2005 10:59:48 AM
ENFORCEMENT ACT:			
REG PROGRAM:	CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY		

PROGRAM:	FRS	**PROGRAM ID:**	110010458307
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	REGULAR URBAN, HWY
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	5/18/2005 5:26:53 PM
ENTERED PERSON/METHOD:	REFRESH
PARENT REG ID:	
CONFIDENCE IN ADDR:	
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	
FEDERAL AGENCY:	
TRIBAL LAND:	NO
TRIBAL LAND NAME:	
CONGRESSIONAL DIST:	
LEGISLATIVE DIST:	
HYDROLOGICAL UNTIS:	
EPA REGION:	09
AIRSHED:	
CENSUS BLOCK:	

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 105 **DIST/DIR:** NON GC **MAP ID:**

NAME: SIERRA MACHINERY SERVICES
ADDRESS: 751 B PACIFIC AVENUE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 7/10/07
ID1: 110020118442
ID2: CAR000157404
STATUS: FRS
PHONE:

FACILITY REGISTRATION INFORMATION:

PROGRAM: RCRAINFO
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 10/15/2004
ENFORCEMENT ACT:
REG PROGRAM: SQG - HAZARDOUS WASTE SMALL QUANTITY GENERATORS GENERATE: (A) MORE THAN 100 AND LESS THAN 1000 KILOGRAMS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH AND ACCUMULATE LESS THAN 6000 KG OF HAZARDOUS WASTE AT ANY TIME; OR (B) 100 KG OR LESS OF HAZARDOUS WASTE DURING ANY CALENDAR MONTH, AND ACCUMULATE MORE THAN 1000 KG OF HAZARDOUS WASTE AT ANY TIME.

PROGRAM ID: CAR000157404
AGENCY INTERESTED:
INTEREST ENDED:
SOURCE OF DATA: RCRAINFO
LAST EXTRACTED: 12/27/2004 2:07:19 PM

PROGRAM: FRS
PROVIDED BY: FEDERAL AGENCY
AGENCY INT QUAL:
INT END QUAL:
LAST REPORTED: 12/27/2004 2:07:19 PM
ENFORCEMENT ACT:
REG PROGRAM: FACILITY -

PROGRAM ID: 110020118442
AGENCY INTERESTED: 12/27/2004 2:07:19 PM
INTEREST ENDED:
SOURCE OF DATA: RCRAINFO
LAST EXTRACTED:

SITE TYPE: STATIONARY
INTEREST STATUS: ACTIVE
DATA QUALITY: V
LOCATION DESC:
ADDRESS TYPE: REGULAR URBAN
LAST REPORTED:
POSTED TO DATABASE: 12/27/2004 2:07:19 PM
DATA UPDATED: 1/6/2006 5:07:15 PM
ENTERED PERSON/METHOD: REFRESH
PARENT REG ID:
CONFIDENCE IN ADDR:
ENFORCEMENT SENSITIVE:
REQ MANUAL REVIEW:
REASON MAN REVIEW:
SMALL BUS POLICY:
ENFORCEMENT ACTION:
DATA PUB ACCESS: YES
INTERNAL SYS ID:

FEDERAL FACILITY: NO
FEDERAL AGENCY:
TRIBAL LAND: NO
TRIBAL LAND NAME:
CONGRESSIONAL DIST:
LEGISLATIVE DIST:
HYDROLOGICAL UNTIS:
EPA REGION: 09
AIRSHED:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 105 **DIST/DIR:** NON GC **MAP ID:**

NAME: SIERRA MACHINERY SERVICES
ADDRESS: 751 B PACIFIC AVENUE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV: 7/10/07
ID1: 110020118442
ID2: CAR000157404
STATUS: FRS
PHONE:

CENSUS BLOCK:

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 104 **DIST/DIR:** NON GC **MAP ID:**

NAME: PACIFIC BELL
ADDRESS: N/W CORNER PLEASANT GROVE
PLEASANT GROVE CA 95668
SUTTER
CONTACT:

REV:
ID1: CAT080015159
ID2:
STATUS:
PHONE:

```
RCRIS        : CAT080015159
PCS   :
AFS/AIRS      :
SSTS    :
CERCLIS :
NCDB      :
ENF DOCKET   :
CONTR LIST    :
CRIM DOCKET   :
FFIS   :
CICIS       :
STATE    :
PADS  :
TRIS      :
DandB    :
UNKNOWN       :
```

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 147 **DIST/DIR:** NON GC **MAP ID:**

NAME: DUNNIGAN
ADDRESS: COUNTY ROAD 2
DUNNIGAN CA 95695
YOLO
CONTACT:

REV: 04/09/08
ID1: SWIS57-CR-0005
ID2:
STATUS: CLOSED
PHONE:

SITE OPERATOR INFORMATION:

Operator: *County Of Yolo Public Works Dept*
Operator Address: *292 West Beamer Street Woodland CA 95695*
Permit Date:
Permit Status:
Land Use Name: *Rural,Residential,Agricultural*
GIS Source for LAT and LONG: *GPS*

SITE ACTIVITY INFORMATION:

Activity: *Solid Waste Disposal Site*
Accepted Waste:
Operational Status: *Closed*
Regulatory Status *Unpermitted*
Program Type *2136*
Closure Date: *10/1/1998*
Closure Type: *Actual*
Permitted Throughput with Units: *0*
Permitted Capacity with Units: *0*
Remaining Capacity with Units (landfills only): *0*
Permitted Total Acreage: *0*
Permitted Disposal Acreage: *0*
Last Tire Inspection Count:
Last Tire Inspection Count Date:
Original Tire Inspection Count:
Last Tire Inspection Count Date:
Inspection Frequency: *Annual*

Activity: *Solid Waste Disposal Site*
Accepted Waste:
Operational Status: *Closed*
Regulatory Status *Unpermitted*
Program Type *2136*
Closure Date: *10/1/1998*
Closure Type: *Actual*
Permitted Throughput with Units: *0*
Permitted Capacity with Units: *0*
Remaining Capacity with Units (landfills only): *0*
Permitted Total Acreage: *0*
Permitted Disposal Acreage: *0*
Last Tire Inspection Count:
Last Tire Inspection Count Date:
Original Tire Inspection Count:
Last Tire Inspection Count Date:
Inspection Frequency: *Annual*

SITE OWNER INFORMATION:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

SWL

SEARCH ID: 147 **DIST/DIR:** NON GC **MAP ID:**

NAME:	DUNNIGAN	**REV:**	04/09/08
ADDRESS:	COUNTY ROAD 2	**ID1:**	SWIS57-CR-0005
	DUNNIGAN CA 95695	**ID2:**	
	YOLO	**STATUS:**	CLOSED
CONTACT:		**PHONE:**	

Owner:	*County Of Yolo Public Works Dept*
Owner Phone:	*5306668852*
Owner Address:	*292 West Beamer Street*

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660 **JOB:** MBA101

FINDS

SEARCH ID: 123 **DIST/DIR:** NON GC **MAP ID:**

NAME:	DELTA AIR LINES SACRAMENTO	**REV:**	7/10/07
ADDRESS:	SACRAMENTO AIRPORT	**ID1:**	110008274624
	SACRAMENTO CA 95837	**ID2:**	CAD982011140
	SACRAMENTO	**STATUS:**	FRS
CONTACT:		**PHONE:**	

FACILITY REGISTRATION INFORMATION:

PROGRAM:	FRS	**PROGRAM ID:**	110008274624
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	FRS
LAST REPORTED:		**LAST EXTRACTED:**	
ENFORCEMENT ACT:			
REG PROGRAM:	FACILITY -		

PROGRAM:	HWTS-DATAMART	**PROGRAM ID:**	CAD982011140
PROVIDED BY:	STATE AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	HWTS-DATAMART
LAST REPORTED:		**LAST EXTRACTED:**	11/18/2004 5:57:01 PM
ENFORCEMENT ACT:			
REG PROGRAM:	STATE MASTER -		

PROGRAM:	RCRAINFO	**PROGRAM ID:**	CAD982011140
PROVIDED BY:	FEDERAL AGENCY	**AGENCY INTERESTED:**	
AGENCY INT QUAL:		**INTEREST ENDED:**	
INT END QUAL:		**SOURCE OF DATA:**	RCRAINFO
LAST REPORTED:	7/6/1987	**LAST EXTRACTED:**	5/18/2004 2:47:38 PM
ENFORCEMENT ACT:			
REG PROGRAM:	NOT IN A UNIVERSE - THE HANDLER IS NOT CURRENTLY IN ANY HAZARDOUS WASTE UNIVERSE.		

SITE TYPE:	STATIONARY
INTEREST STATUS:	ACTIVE
DATA QUALITY:	V
LOCATION DESC:	
ADDRESS TYPE:	IRREGULAR
LAST REPORTED:	
POSTED TO DATABASE:	3/1/2000
DATA UPDATED:	2/3/2005 10:35:16 AM
ENTERED PERSON/METHOD:	ESZ
PARENT REG ID:	
CONFIDENCE IN ADDR:	MEDIUM
ENFORCEMENT SENSITIVE:	N
REQ MANUAL REVIEW:	
REASON MAN REVIEW:	
SMALL BUS POLICY:	
ENFORCEMENT ACTION:	
DATA PUB ACCESS:	YES
INTERNAL SYS ID:	
FEDERAL FACILITY:	NO
FEDERAL AGENCY:	
TRIBAL LAND:	NO

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: NORTH HIGHLANDS CA 95660

JOB: MBA101

FINDS

SEARCH ID: 123 **DIST/DIR:** NON GC **MAP ID:**

NAME: DELTA AIR LINES SACRAMENTO
ADDRESS: SACRAMENTO AIRPORT
SACRAMENTO CA 95837
SACRAMENTO
CONTACT:

REV: 7/10/07
ID1: 110008274624
ID2: CAD982011140
STATUS: FRS
PHONE:

TRIBAL LAND NAME:
CONGRESSIONAL DIST: 03
LEGISLATIVE DIST: 1
HYDROLOGICAL UNTIS: 18020109
EPA REGION: 09
AIRSHED:
CENSUS BLOCK:

Appendix D: Historical Research Documentation

Fire Insurance Maps
Aerial Photographs

FIRE INSURANCE MAP ABSTRACT RESEARCH RESULTS

4/16/2008

MBA101

NORTH HIGHLANDS, CA 95660

Listed below, please find the results of our search for historic fire insurance maps, performed in conjunction with your Environmental FirstSearch® report.

State	City	Date	Volume	Sheet Number(s)
California	Knights Landing	1930	none	1, 2
California	Zamora	1930	none	1
California	Knights Landing	1921	none	1, 2
California	Knights Landing	1907	none	1
California	Knights Landing	1897	none	1
California	Knights Landing	1894	none	1

This abstract is the result of a visual inspection of various Sanborn® Map collections. Supporting documentation follows in the Appendix. Use of this material is meant for research purposes only.

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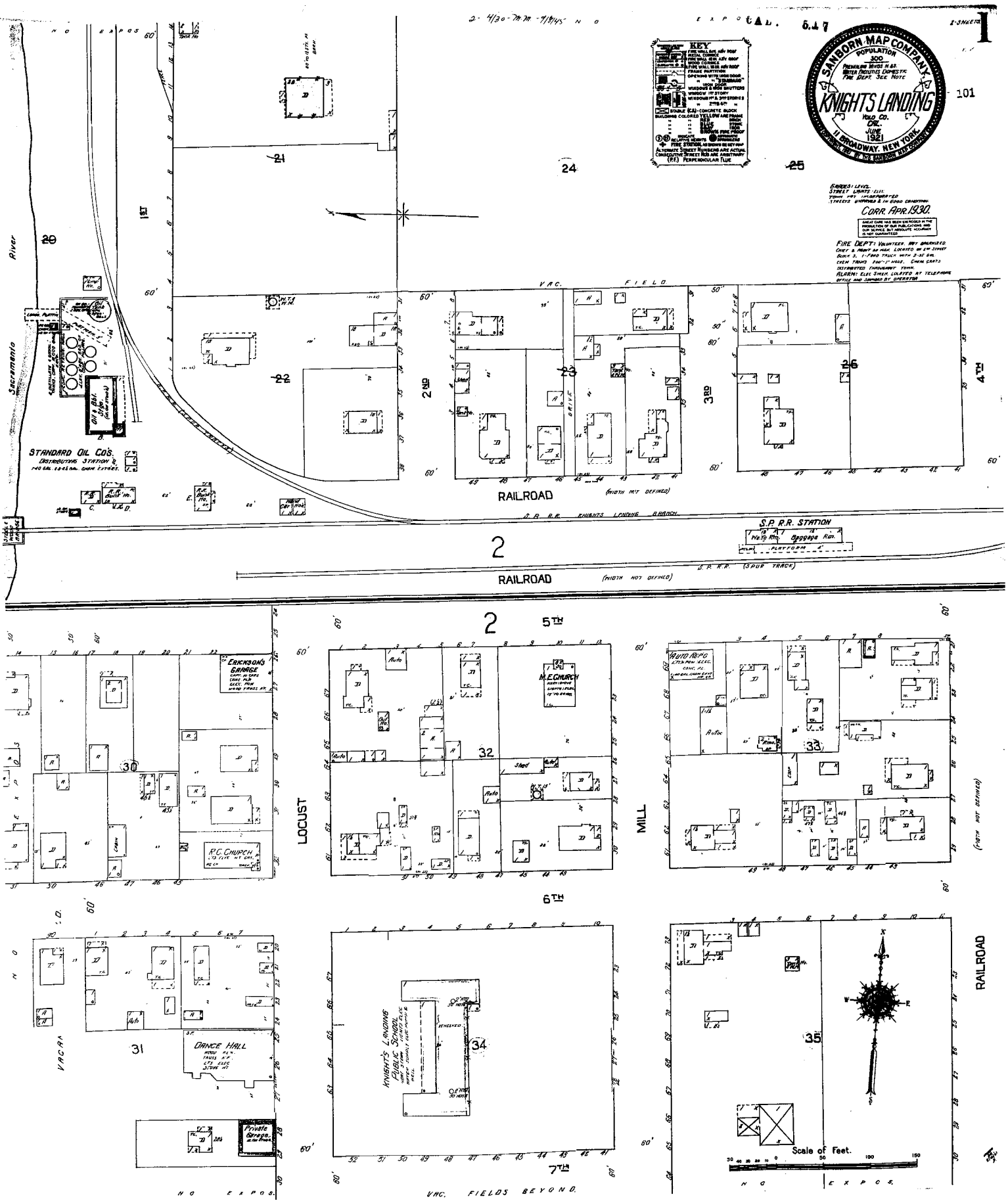
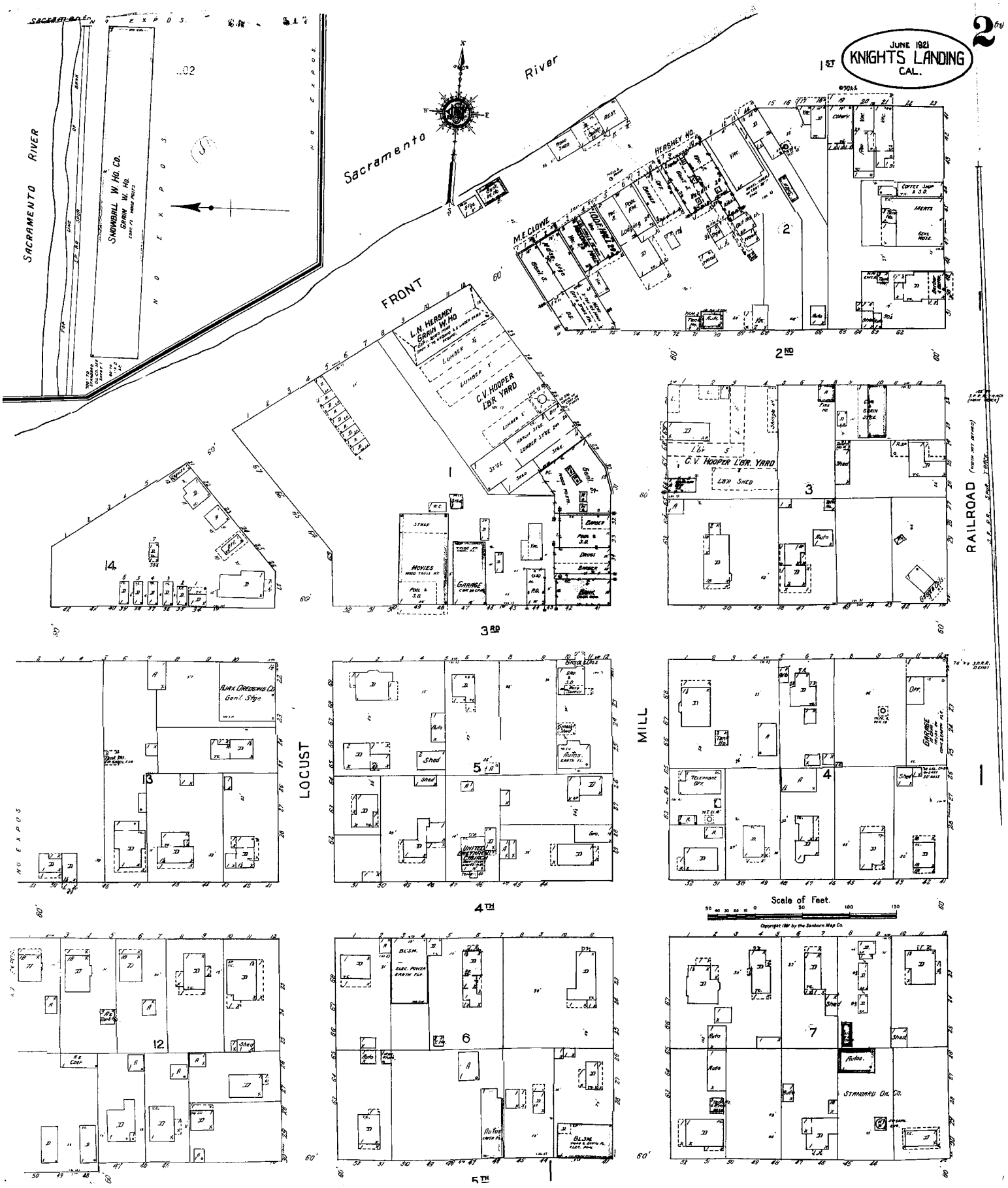
FirstSearch Technology Corporation *10 Cottage Street, Norwood, MA 02062*
Tel: 781-551-0470 Fax: 781-551-0471

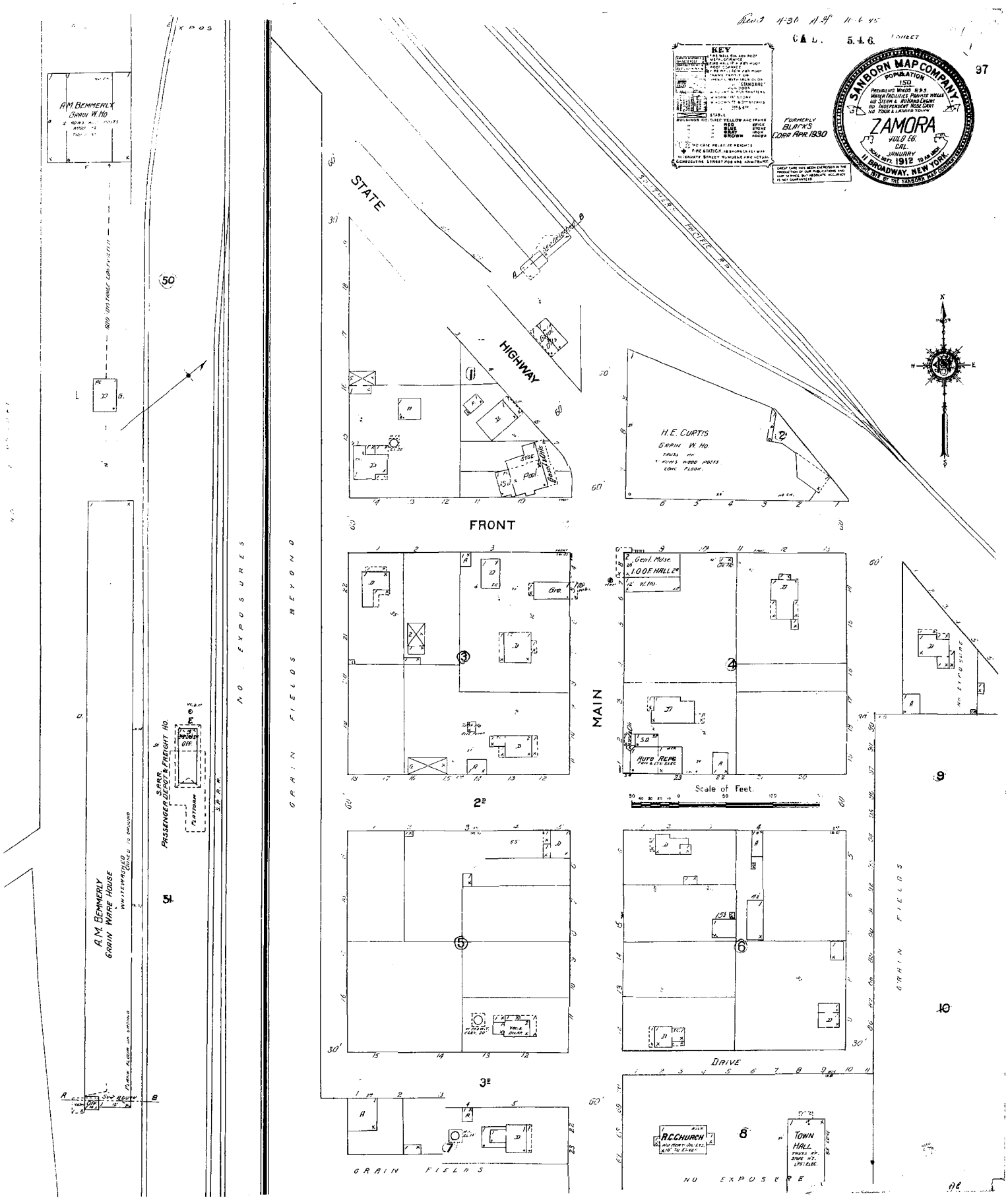
Appendix

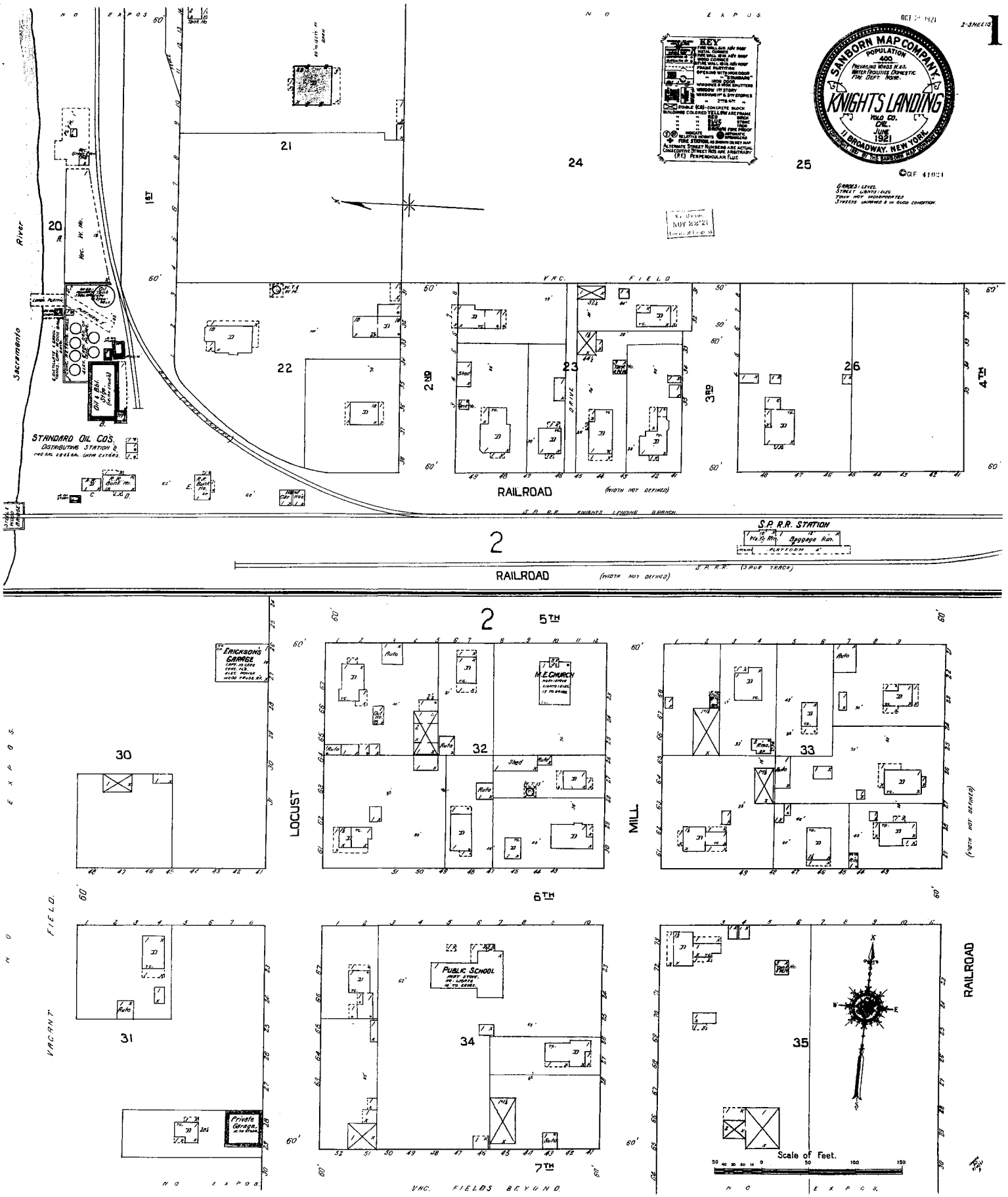
Supporting Documentation

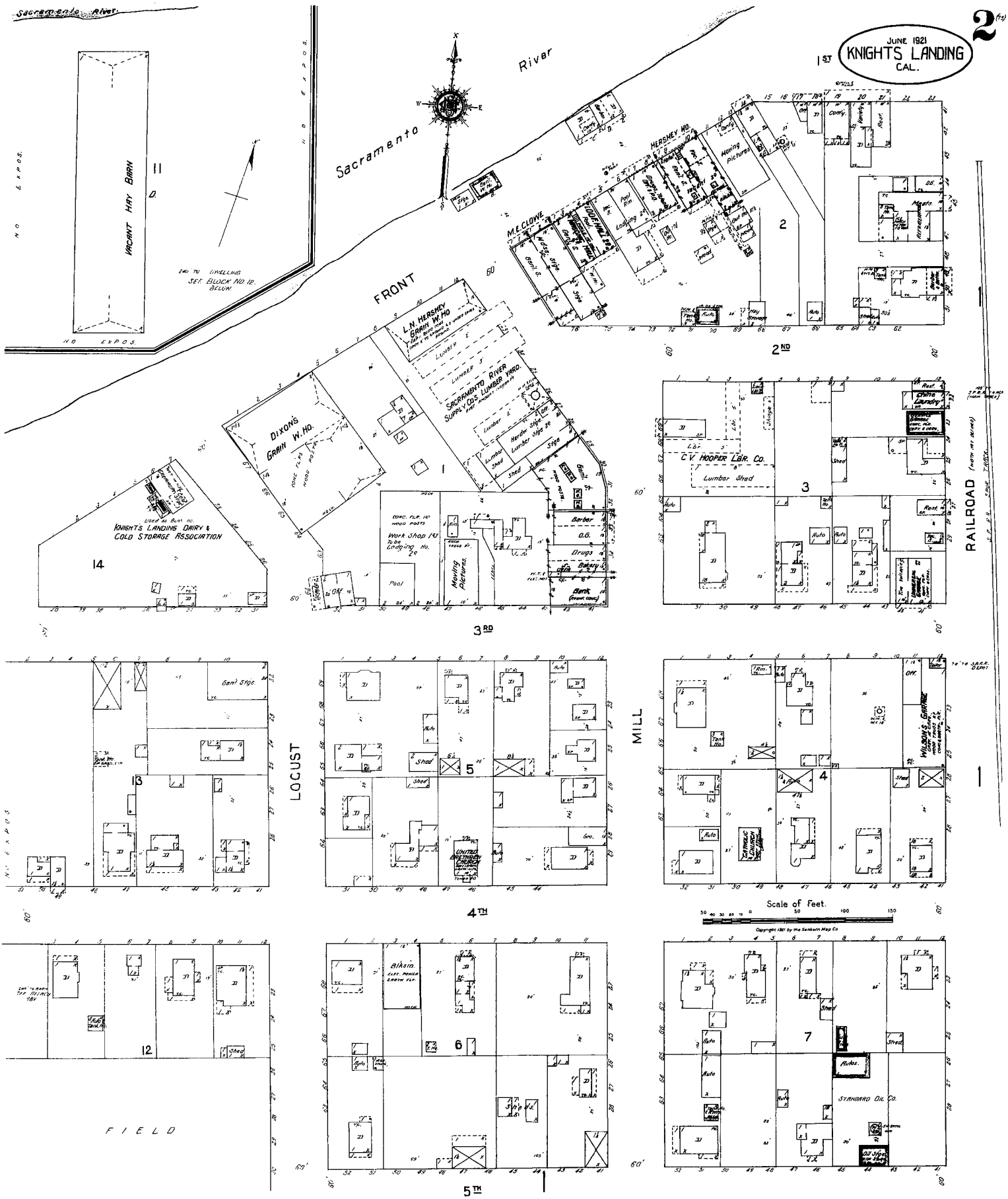

SANBORN MAP COMPANY
POPULATION 300
KNIGHTS LANDING
YOLO CO.
CAL.
JUNE 1921
11 BROADWAY, NEW YORK
KEY
CORR. APR. 1930.
STANDARD OIL CO'S.
DISTRIBUTING STATION
RAILROAD
S.P. R.R. KNIGHTS LANDING BRANCH
S.P. R.R. STATION
S.P. R.R. (SPUR TRACK)
VAC. FIELD
1ST
2ND
3RD
4TH
5TH
6TH
7TH
LOCUST
MILL
River
Sacramento
ERICKSON'S GARAGE
R.C. CHURCH
M.E. CHURCH
AUTO REPG
DANCE HALL
KNIGHT'S LANDING PUBLIC SCHOOL
Private Garage
VAC. FIELDS BEYOND.
NO EXPOS.
Scale of Feet.


JUNE 1921
KNIGHTS LANDING
CAL.
2
1ST
2ND
3RD
4TH
5TH
FRONT
LOCUST
MILL
RAILROAD
Sacramento River
SACRAMENTO RIVER
NO EXPOS.
SNOWBALL W. HO. CO.
GRAIN W. HO.
L. N. HERSHEY GRAIN W. HO
C. V. HOOPER L'BR YARD
M. E. CLOWE
HERSHEY HO.
MOVIES
GARAGE
AJAX DREDGING CO.
Gen'l Stge
UNITED PETROLEUM
STANDARD OIL CO.
Scale of Feet.
Copyright 1921 by the Sanborn Map Co.

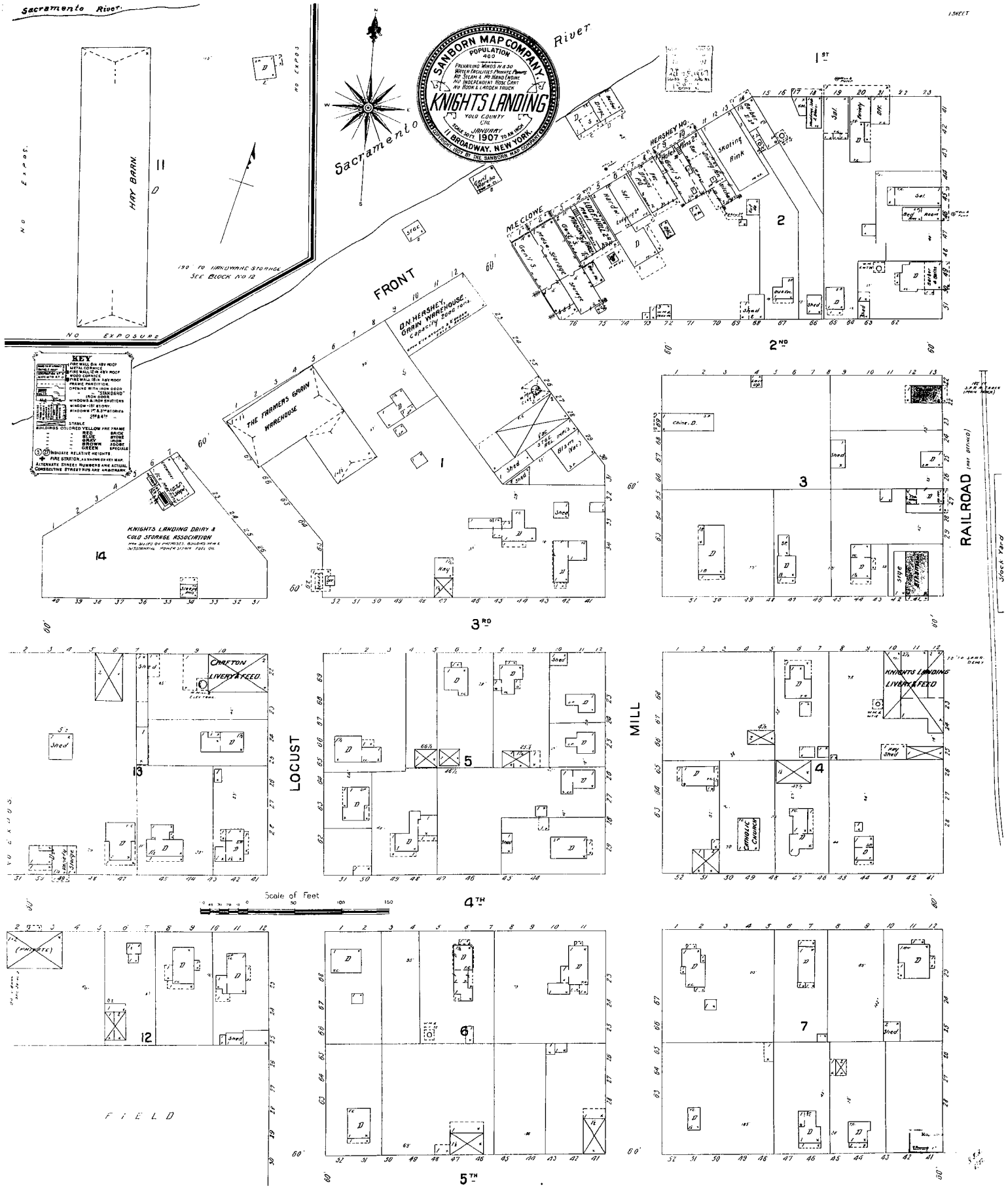
1930


SANBORN MAP COMPANY
POPULATION 150
ZAMORA
YOLO CO.
CAL.
JANUARY 1912
11 BROADWAY, NEW YORK
KEY
FORMERLY BLACK'S CORR APR 1930
STATE
HIGHWAY
FRONT
MAIN
H. E. CURTIS
GRAIN W. HO.
Genl. Mdse.
I.O.O.F. HALL 2d
AUTO REPR.
Scale of Feet.
DRIVE
R.C. CHURCH
TOWN HALL
A.M. BEMMERLY
GRAIN W. HO.
A.M. BEMMERLY
GRAIN WARE HOUSE
PASSENGER DEPOT & FREIGHT HO.
S.P.R.R.
S.R.R.
NO EXPOSURES
GRAIN FIELDS BEYOND
GRAIN FIELDS
NO EXPOSURE

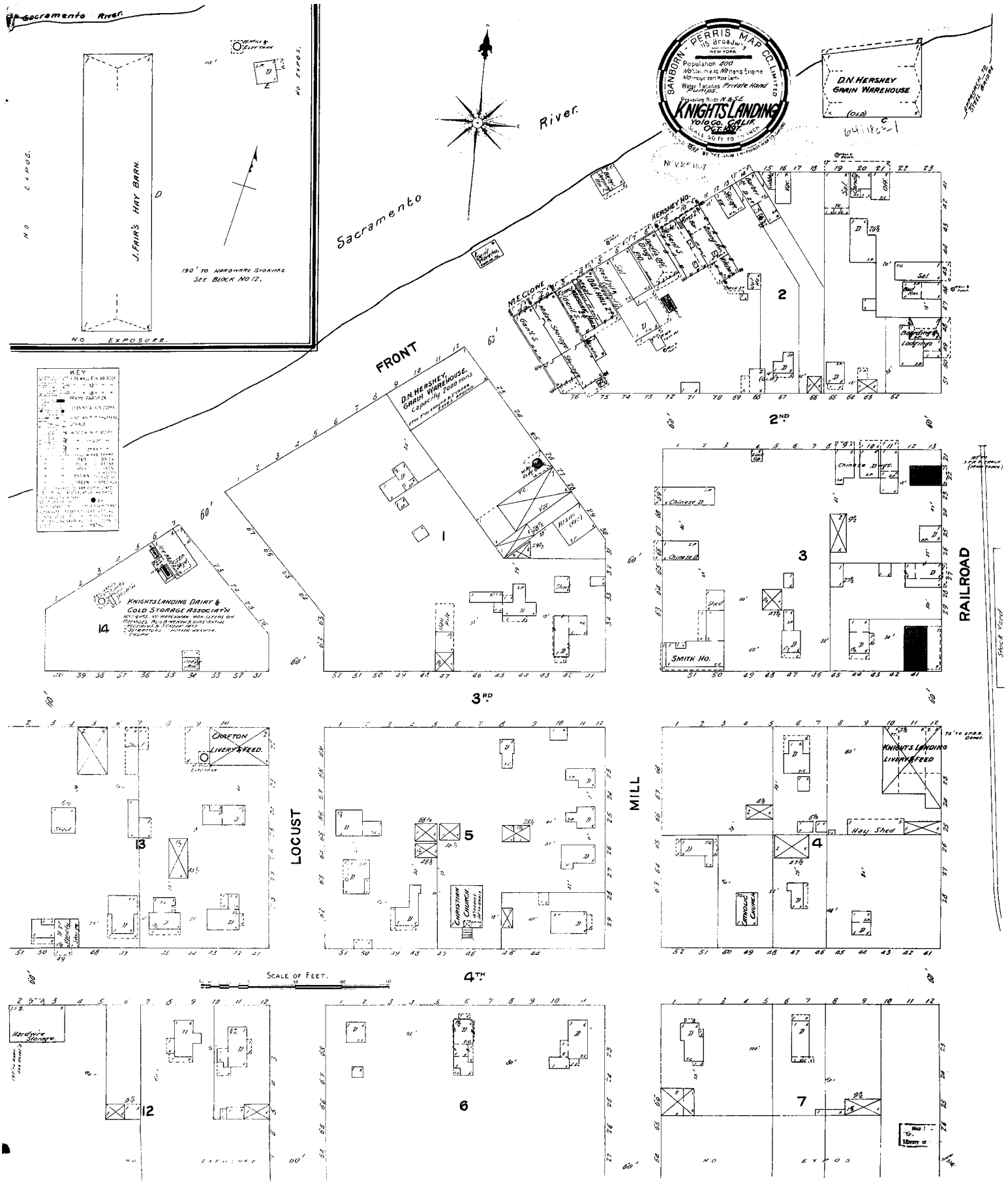

SANBORN MAP COMPANY
POPULATION 400
PREVAILING WINDS W. & S.
WATER INCLUDES DOMESTIC FIRE DEPT. HOSE.
KNIGHTS LANDING
YOLO CO. CAL.
JUNE 1921
11 BROADWAY, NEW YORK.
KEY
STANDARD OIL CO'S.
DISTRIBUTING STATION
RAILROAD
(WIDTH NOT DEFINED)
S.P. R.R. KNIGHTS LANDING BRANCH
S.P. R.R. STATION
S.P. R.R. (SPUR TRACK)
VAC. FIELD
1ST
2ND
3RD
4TH
5TH
6TH
7TH
LOCUST
MILL
DRIVE
Sacramento River
ERICKSON'S GARAGE
M.E. CHURCH
PUBLIC SCHOOL
Private Garage
VACANT FIELD
VAC. FIELDS BEYOND
RAILROAD
Scale of Feet.
NO EXPOS.

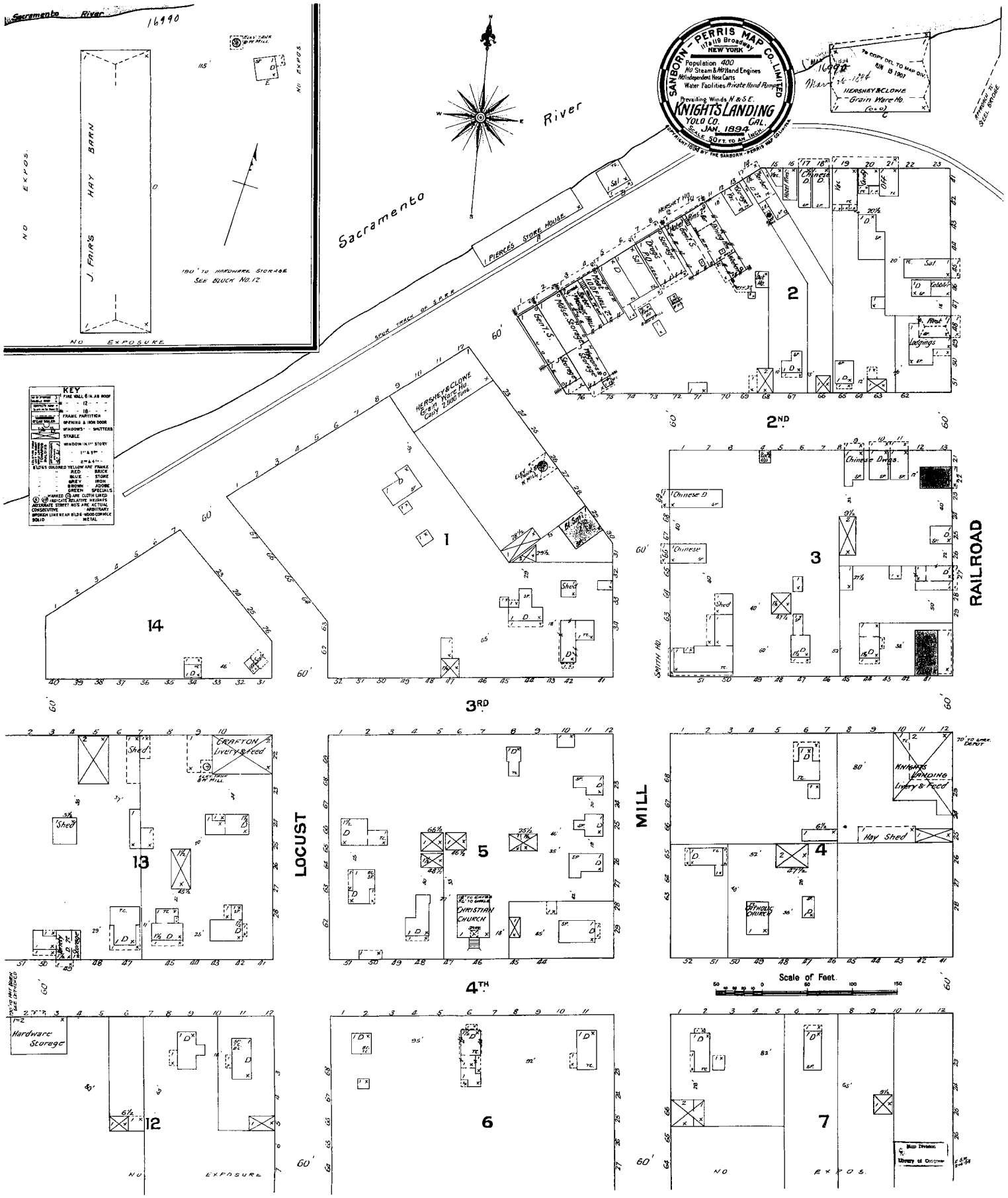

JUNE 1921
KNIGHTS LANDING
CAL.
2
Sacramento River
Sacramento River
VACANT HAY BARN
11
SEE BLOCK NO 12 BELOW
FRONT
1ST
2ND
3RD
4TH
5TH
LOCUST
MILL
RAILROAD
FIELD
L. N. HERSHEY GRAIN W. HO.
DIXON'S GRAIN W. HO.
SACRAMENTO RIVER SUPPLY OLD LUMBER YARD
KNIGHTS LANDING DAIRY & COLD STORAGE ASSOCIATION
M. E. CLOWE
HERSHEY HO.
Moving Pictures
C. V. HOOPER LBR. CO.
Lumber Shed
Barber
O.G.
Drugs
Bakery
Bank
Pool
Work Shop
Gen'l Stge.
UNITED BRETHREN CHURCH
CATHOLIC CHURCH
WILSON'S GARAGE
Bikson
STANDARD OIL CO.
Autos
Scale of Feet.
Copyright 1921 by the Sanborn Map Co.

1921

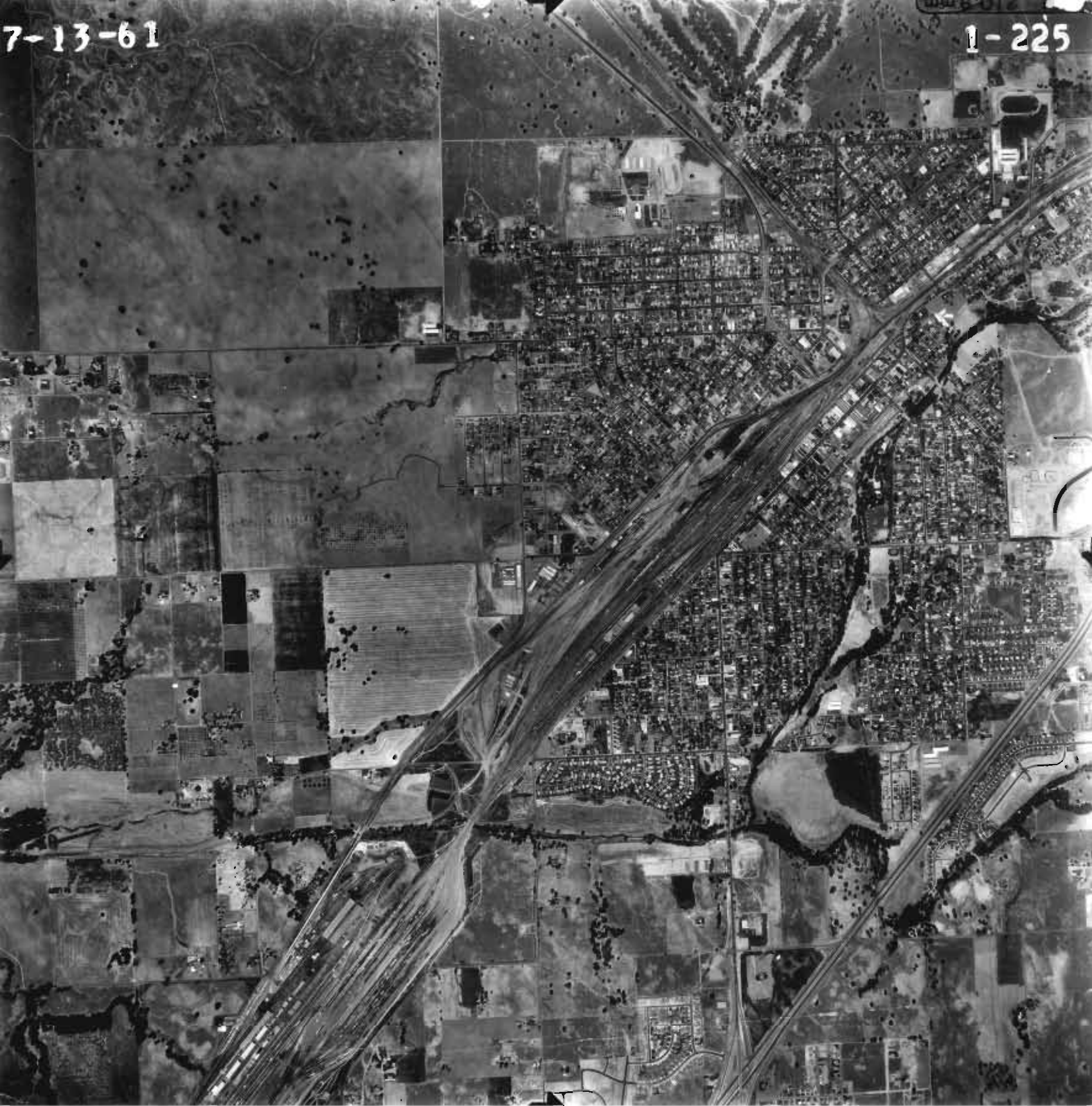

SANBORN MAP COMPANY
POPULATION 400
PREVAILING WINDS N & S
WATER FACILITIES PRIVATE POWER
NO STEAM & NO HAND ENGINE
NO INDEPENDENT HOSE CART
NO HOSE & LADDER TRUCK
KNIGHTS LANDING
YOLO COUNTY
CAL.
SCALE 50 FT. TO AN INCH
JANUARY 1907
11 BROADWAY, NEW YORK.
COPYRIGHTED 1907 BY THE SANBORN MAP COMPANY
Sacramento River
Sacramento River
HAY BARN
NO EXPOSURE
190 TO HARDWARE STORAGE SEE BLOCK NO 12
FRONT
THE FARMERS GRAIN WAREHOUSE
O.N. HERSHEY GRAIN WAREHOUSE
KNIGHTS LANDING DAIRY & COLD STORAGE ASSOCIATION
KEY
1ST
2ND
3RD
4TH
5TH
RAILROAD
LOCUST
MILL
FIELD
CHAFTON LIVERY & FEED
KNIGHTS LANDING LIVERY & FEED
CATHOLIC CHURCH
Skating Rink
Scale of Feet

1907


Sacramento River
Sacramento River
J. FAIR'S HAY BARN
190' TO HARDWARE STORAGE SEE BLOCK NO 12.
NO EXPOS.
NO EXPOSURE.
SANBORN-PERRIS MAP CO. LIMITED
115 Broadway
NEW YORK
Population 400
No Steam and No Hand Engine
No Fire certificate issued
Water Facilities Private Hand Pumps.
Possible Fire Flow N.R.S.E.
KNIGHTS LANDING
Yolo Co. CALIF.
OCT. 1897
SCALE 50 FT TO 1 INCH
D.N. HERSHEY GRAIN WAREHOUSE
(OLD)
FRONT
D.N. HERSHEY GRAIN WAREHOUSE. Capacity 7000 tons
KNIGHTS LANDING DAIRY & COLD STORAGE ASSOCIATION
HERSHEY HO.
W.E. CLONE
COLD HILL
Chinese D.
Chinese D.
Chinese D.
SMITH HO.
RAILROAD
Stock Yard
CRAFTON LIVERY & FEED
LOCUST
CHRISTIAN CHURCH
MILL
KNIGHTS LANDING LIVERY & FEED
Hay Shed
CATHOLIC CHURCH
SCALE OF FEET.
Hardware Storage
NO EXPOSURE
NO EXPOS
1
2
2ND
3
3RD
4
4TH
5
6
7
12
13
14


SANBORN - PERRIS MAP CO. LIMITED
117 & 119 Broadway
NEW YORK
Population 400
No Steam & No Hand Engines
No Independent Hose Carts
Water Facilities Private Hand Pumps
Prevailing Winds N & S.E.
KNIGHTS LANDING
YOLO CO. CAL.
JAN. 1894
SCALE 50 FT. TO AN INCH.
Sacramento River
Sacramento
J. FAIRS HAY BARN
NO EXPOS.
NO EXPOSURE
HERSHEY & CLOWE GRAIN WARE HO.
PIERCE'S STORE HOUSE
SPUR TRACK OF S.P.R.R.
KEY
2ND
3RD
4TH
RAILROAD
LOCUST
MILL
GRAFTON LIVERY & FEED
CHRISTIAN CHURCH
KNIGHTS LANDING LIVERY & FEED
CATHOLIC CHURCH
Hay Shed
Hardware Storage
Scale of Feet.
Map Division
Library of Congress

1894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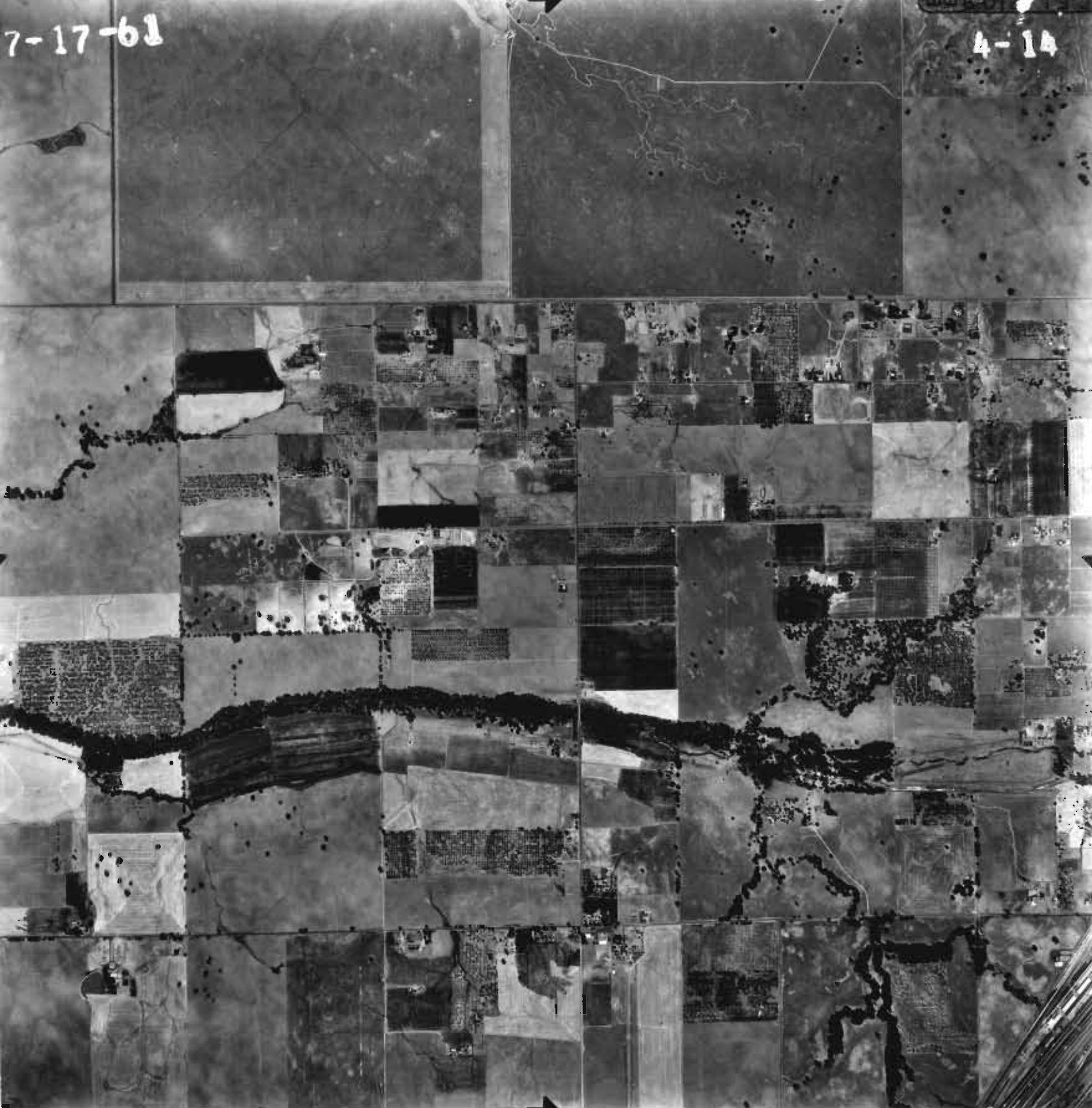
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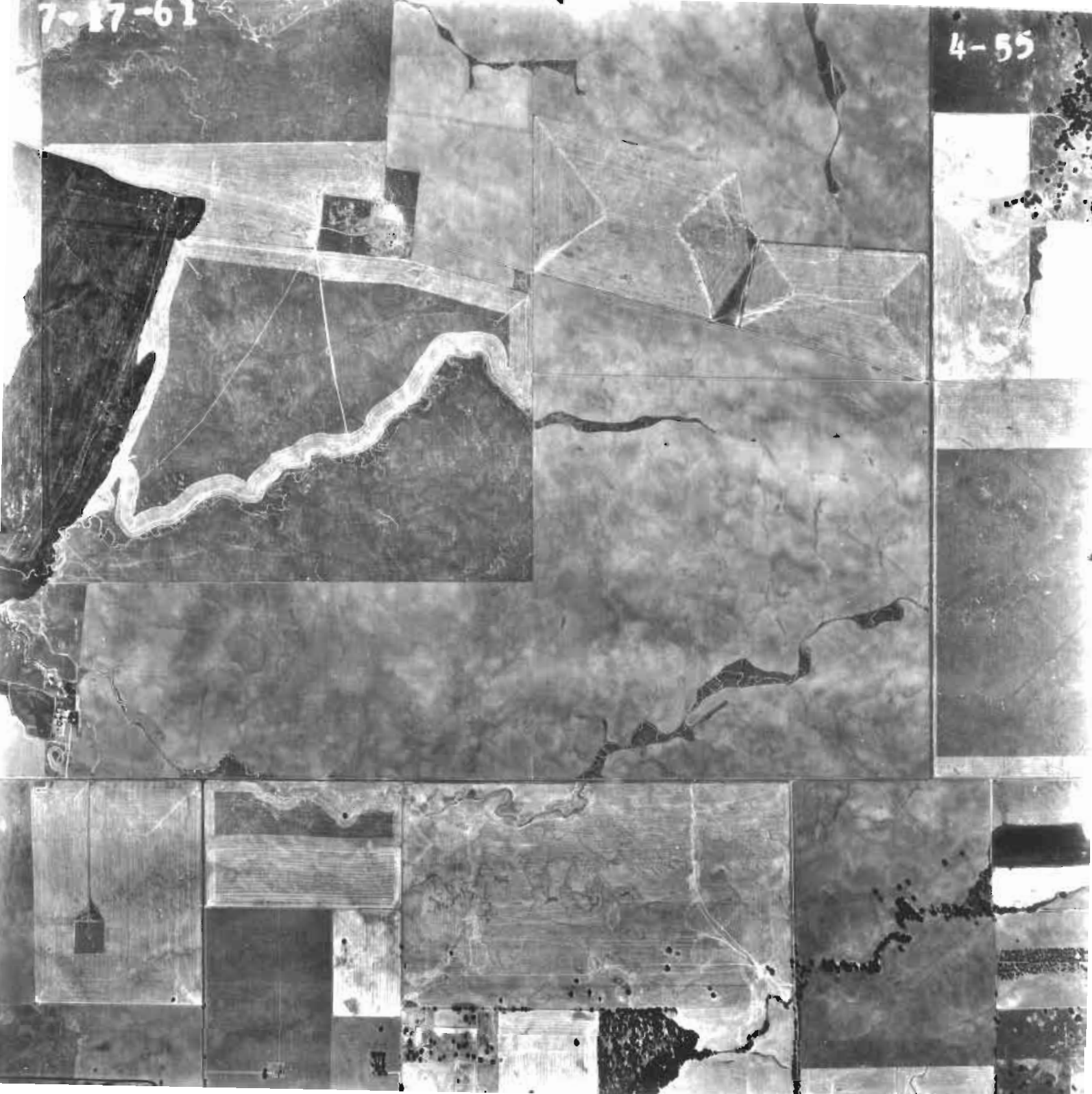
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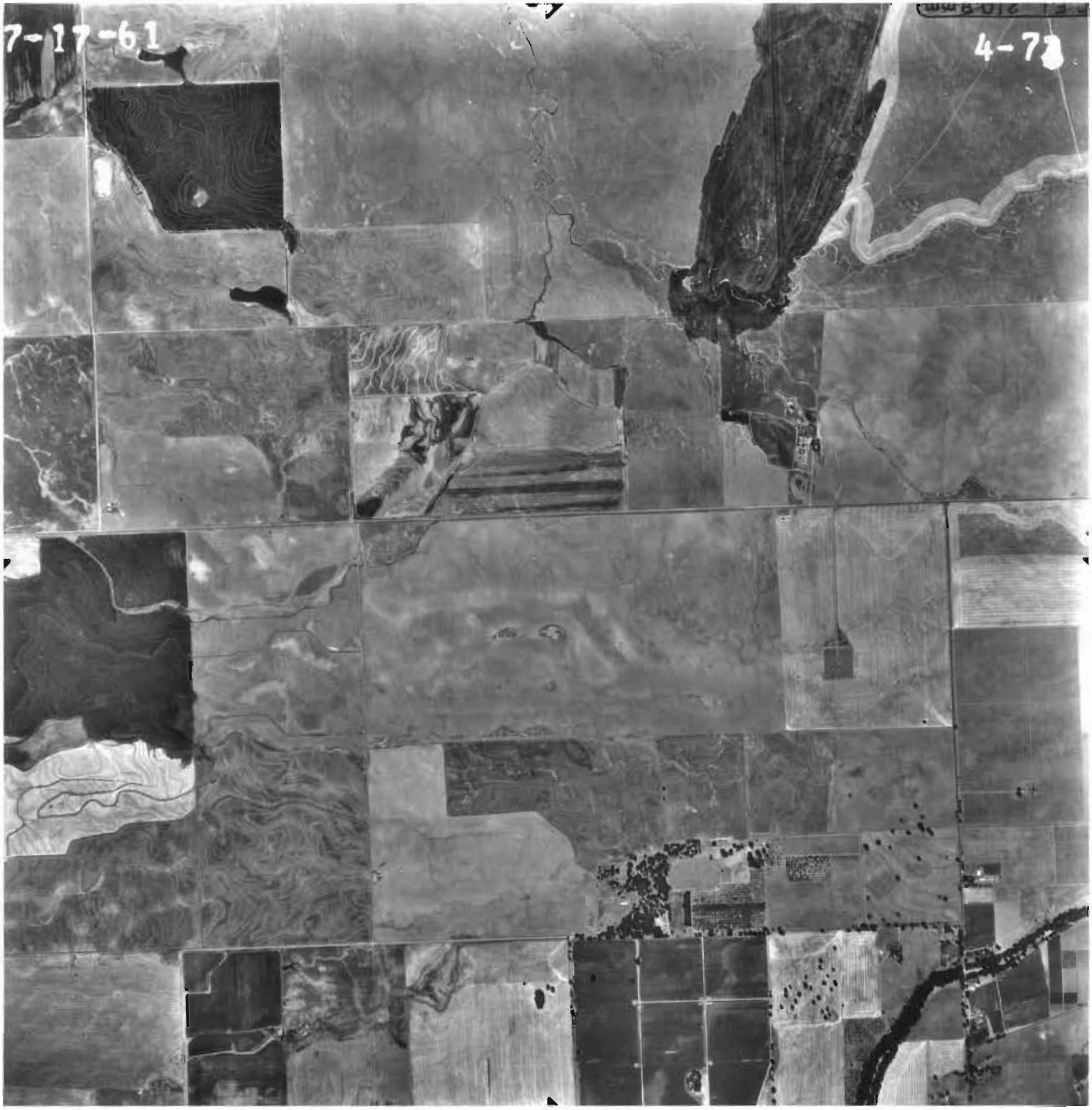
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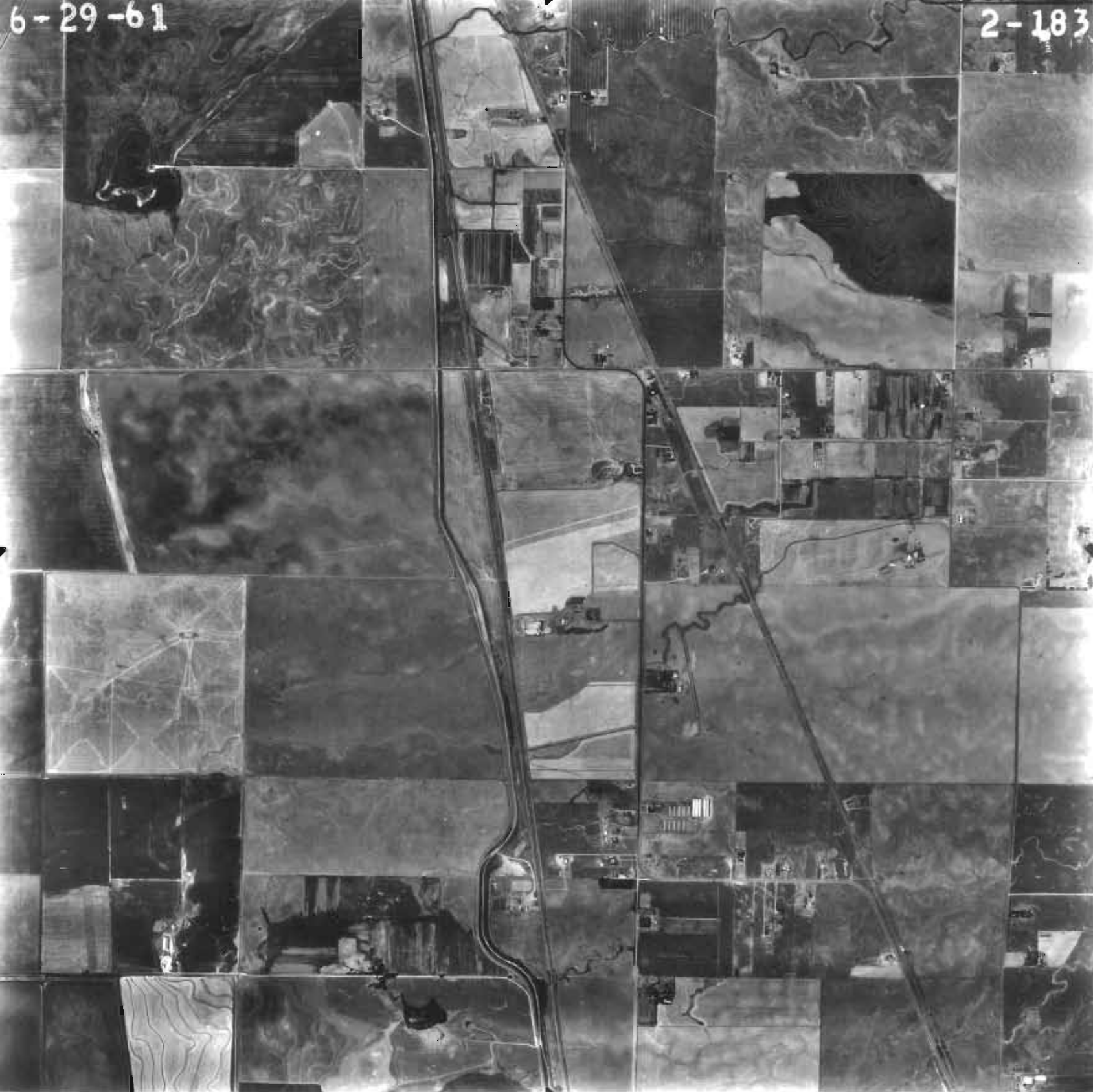
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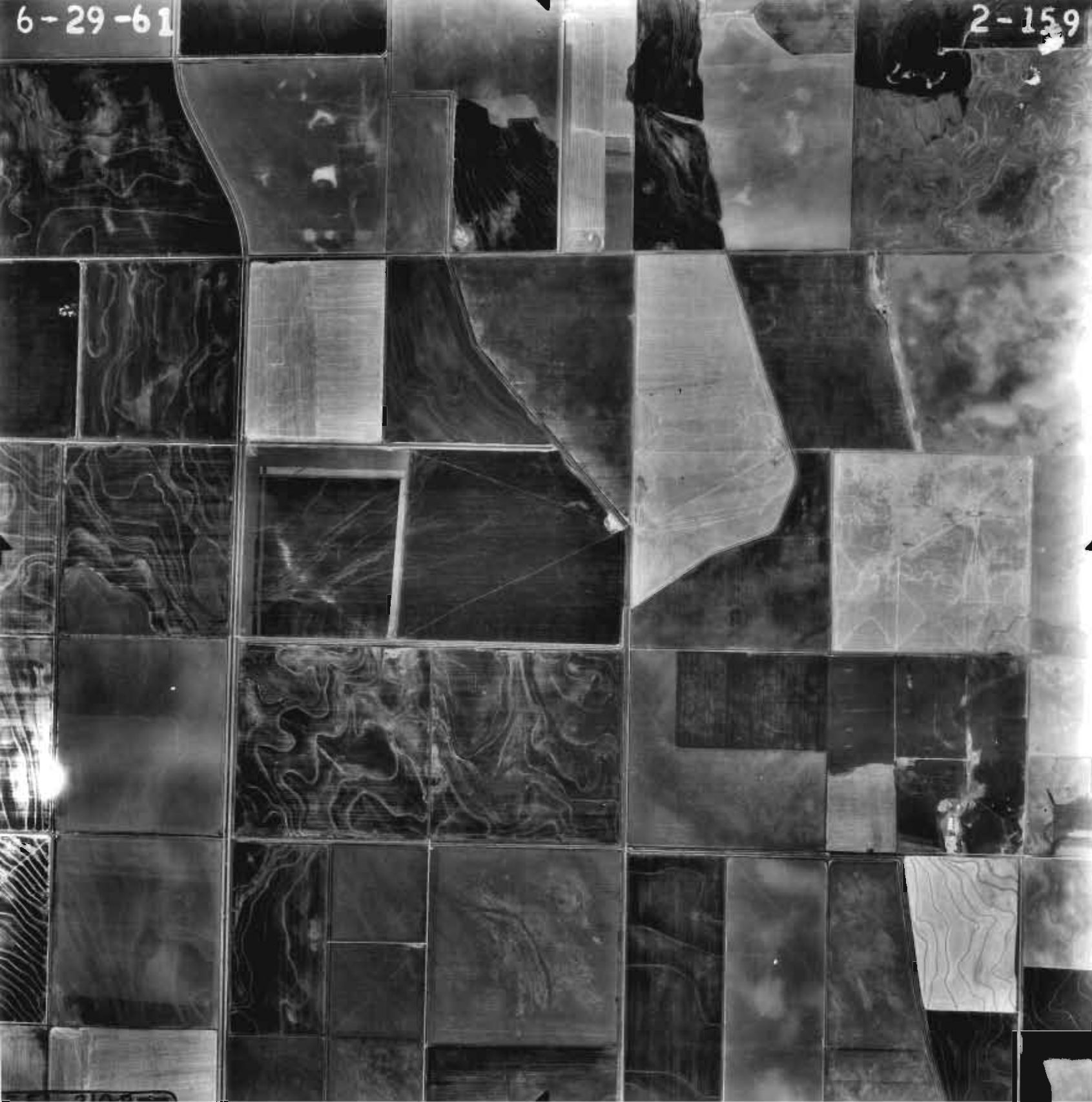
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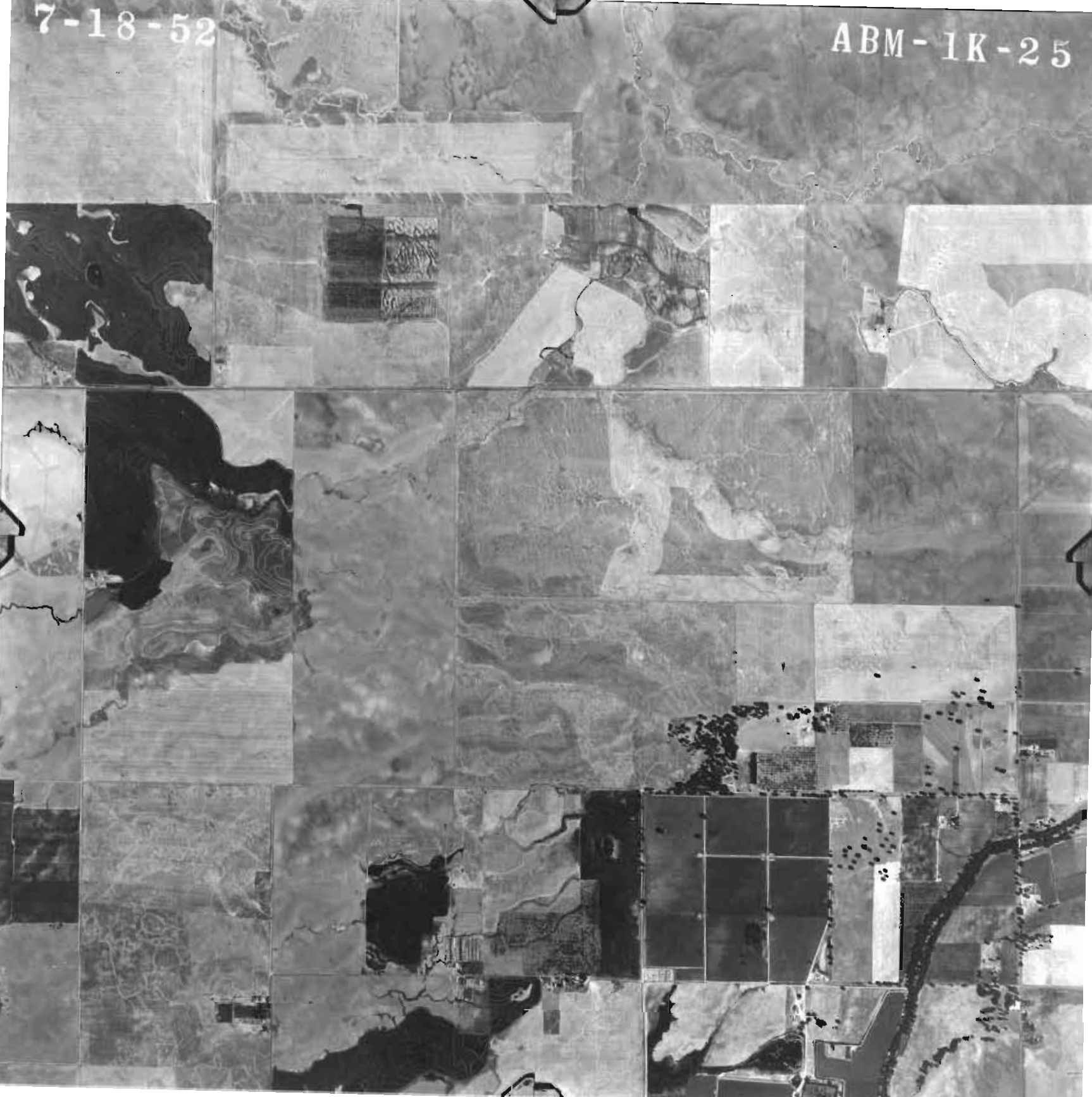
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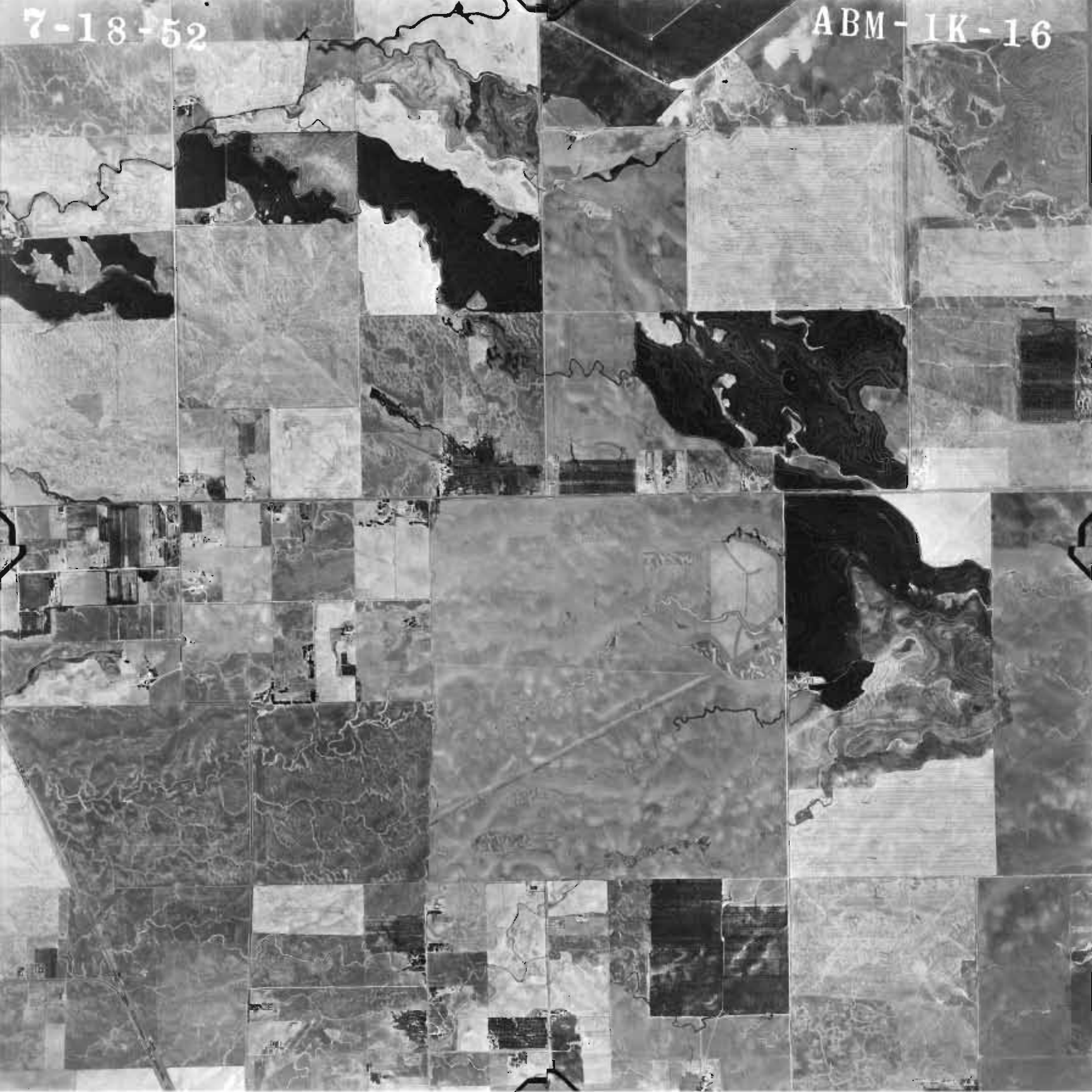
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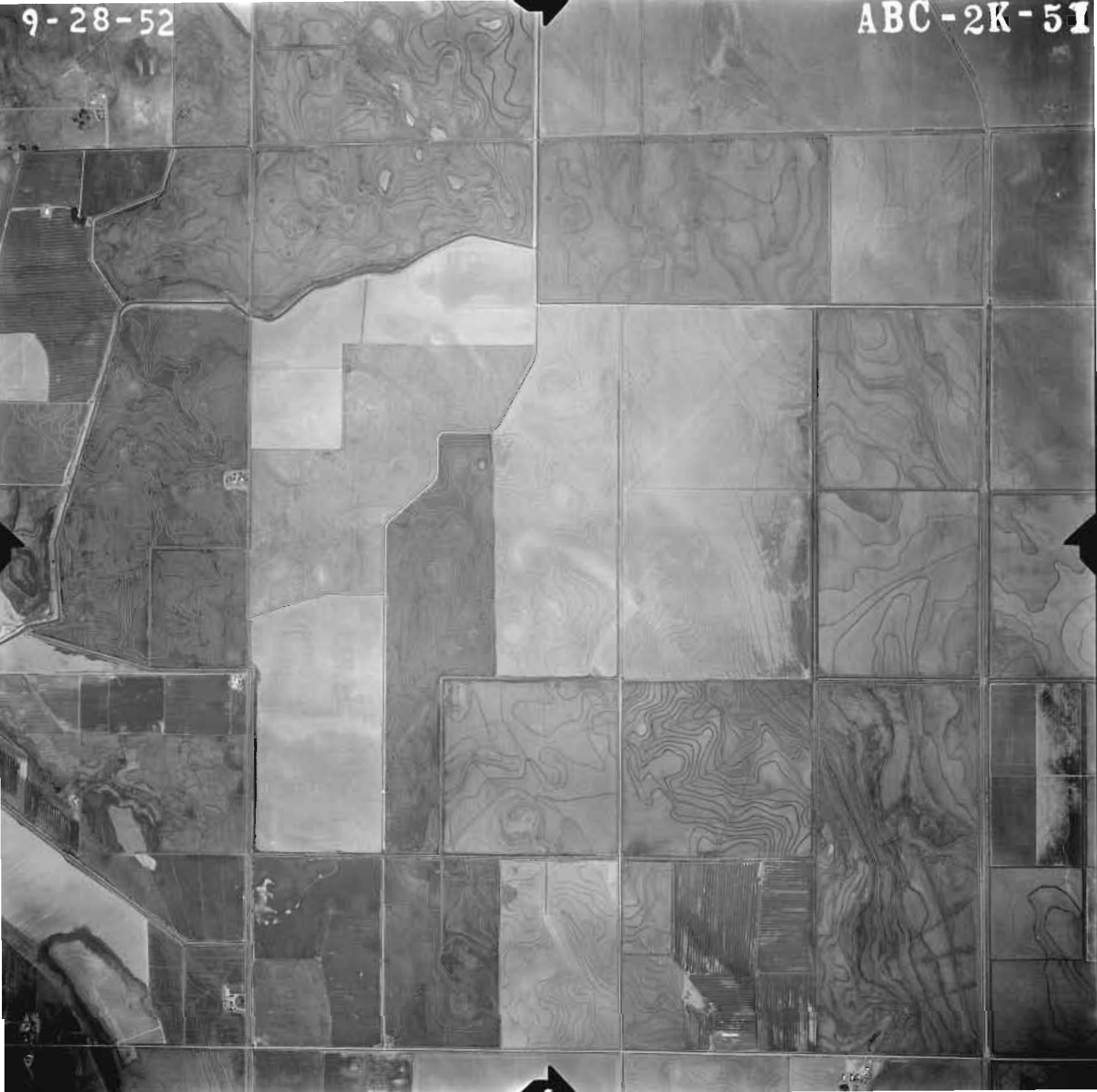
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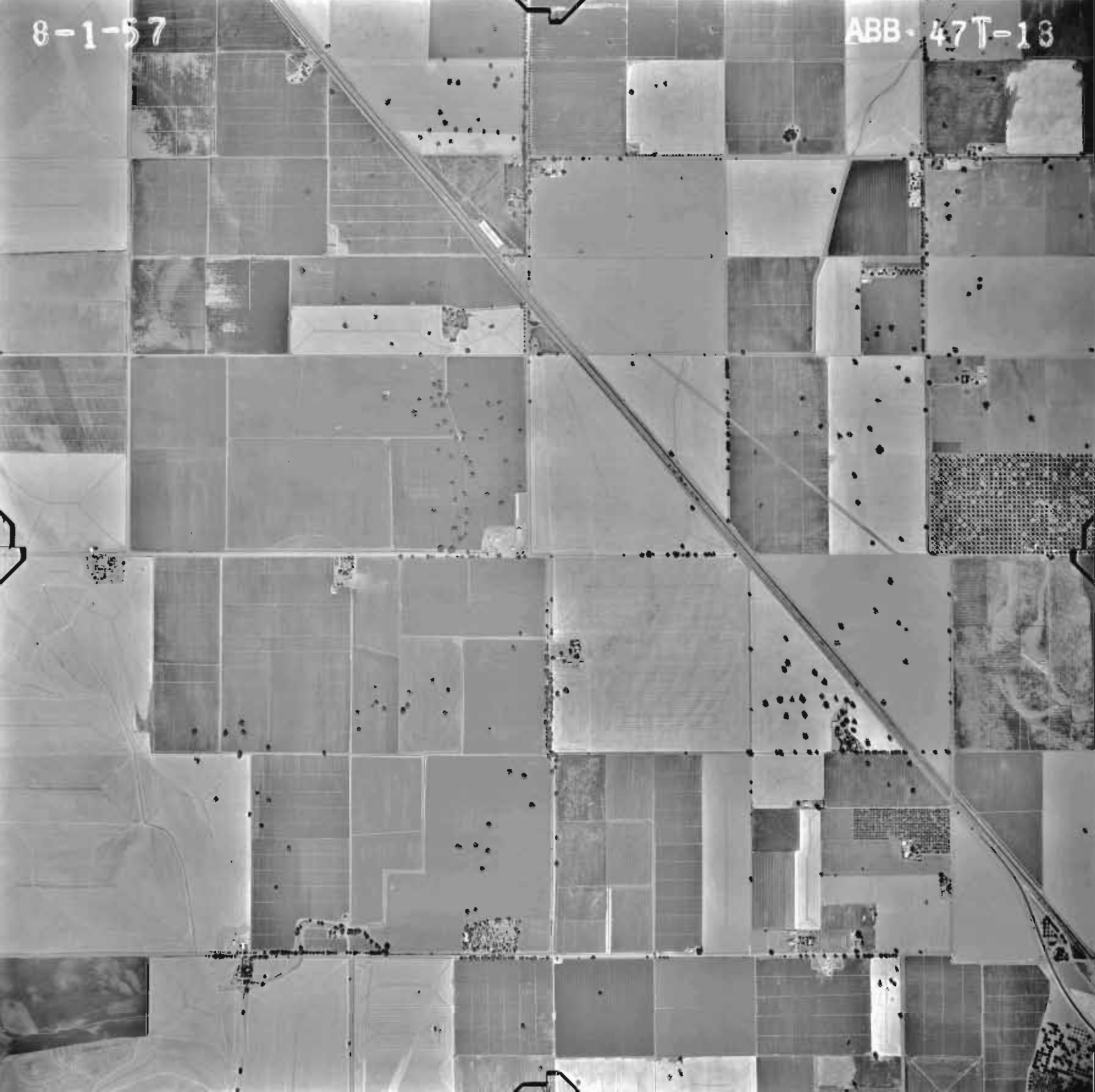
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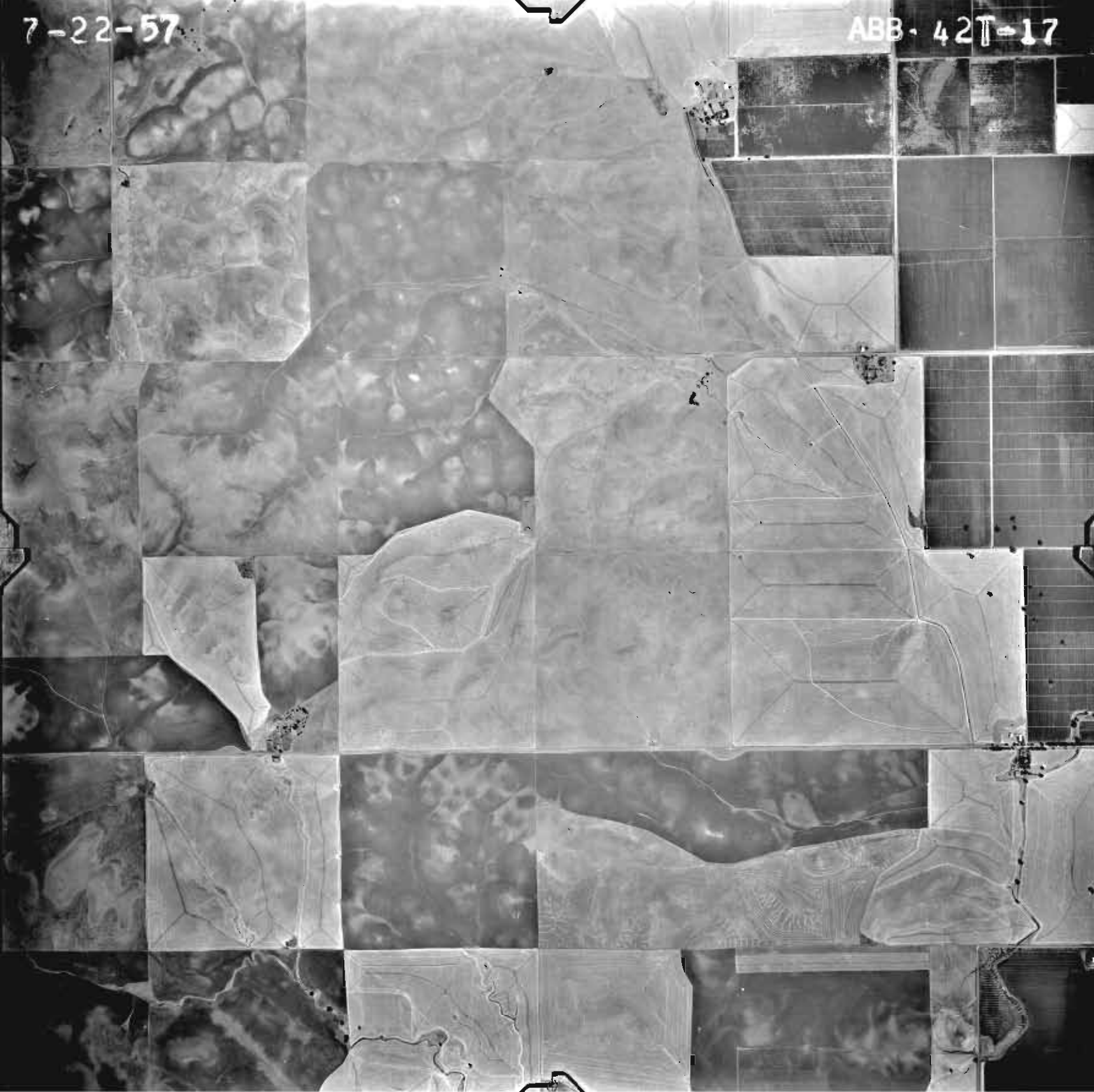
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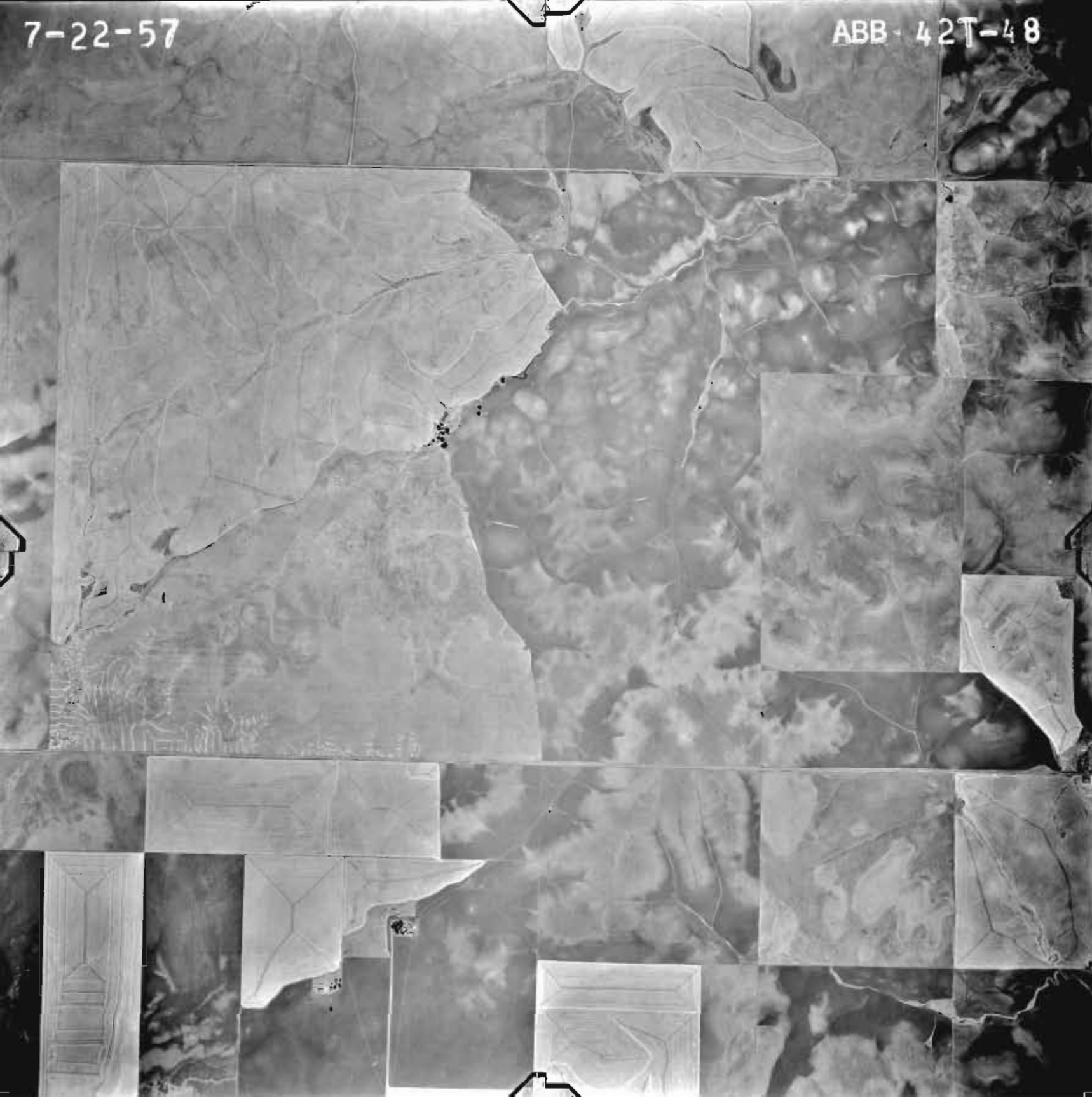
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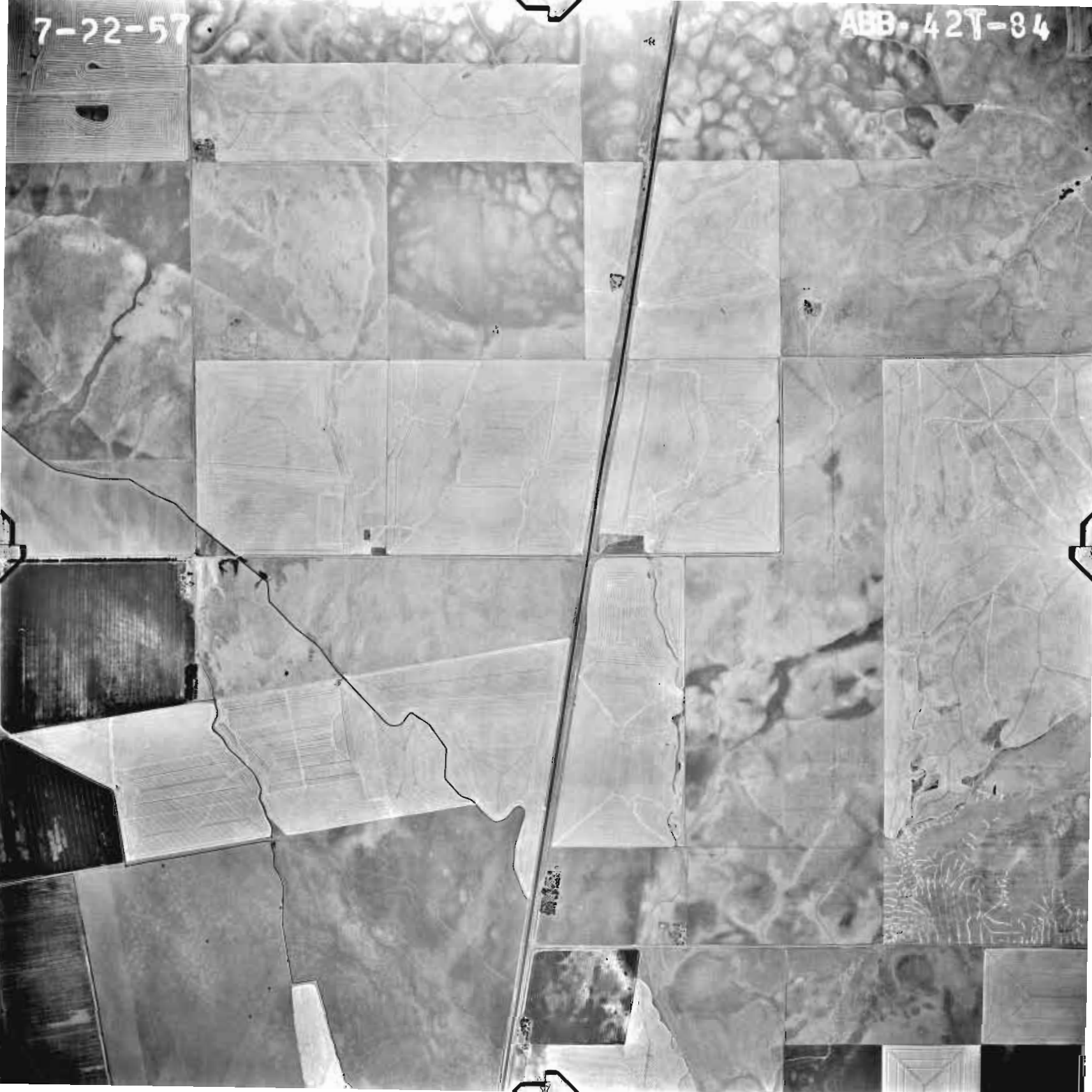
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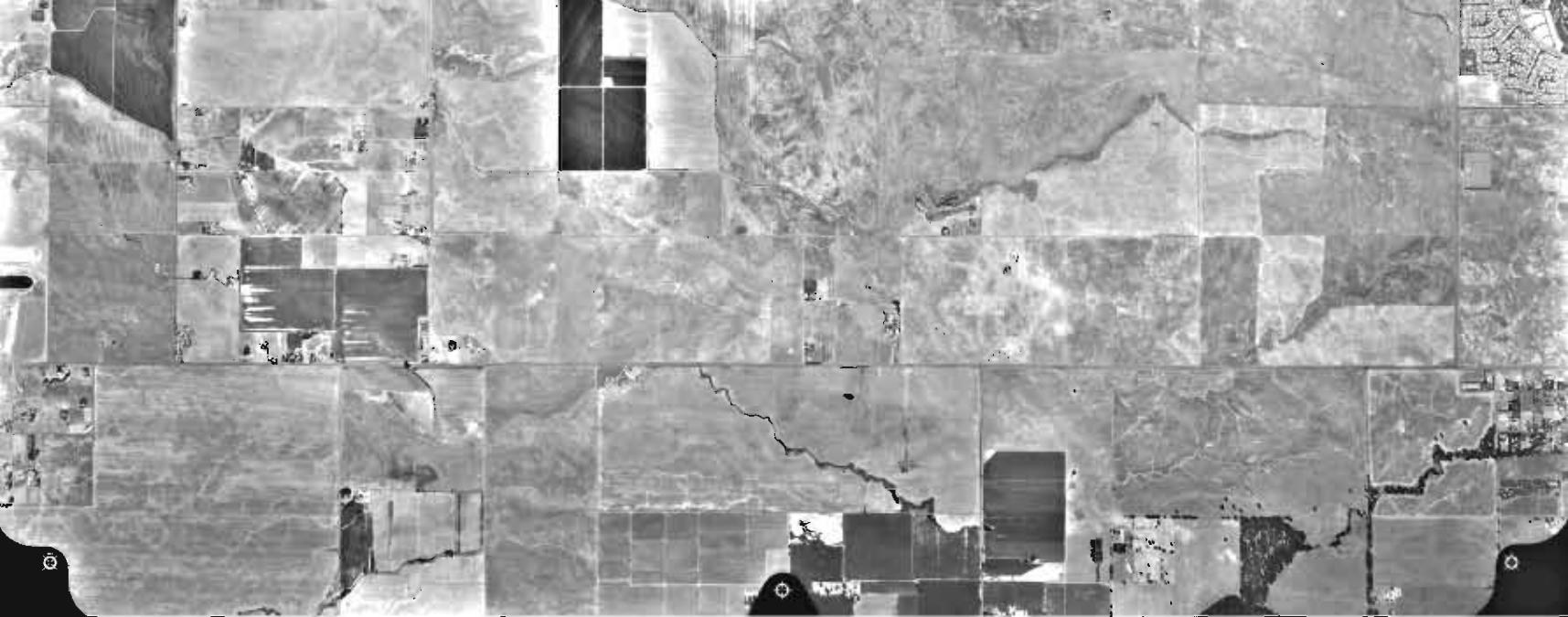

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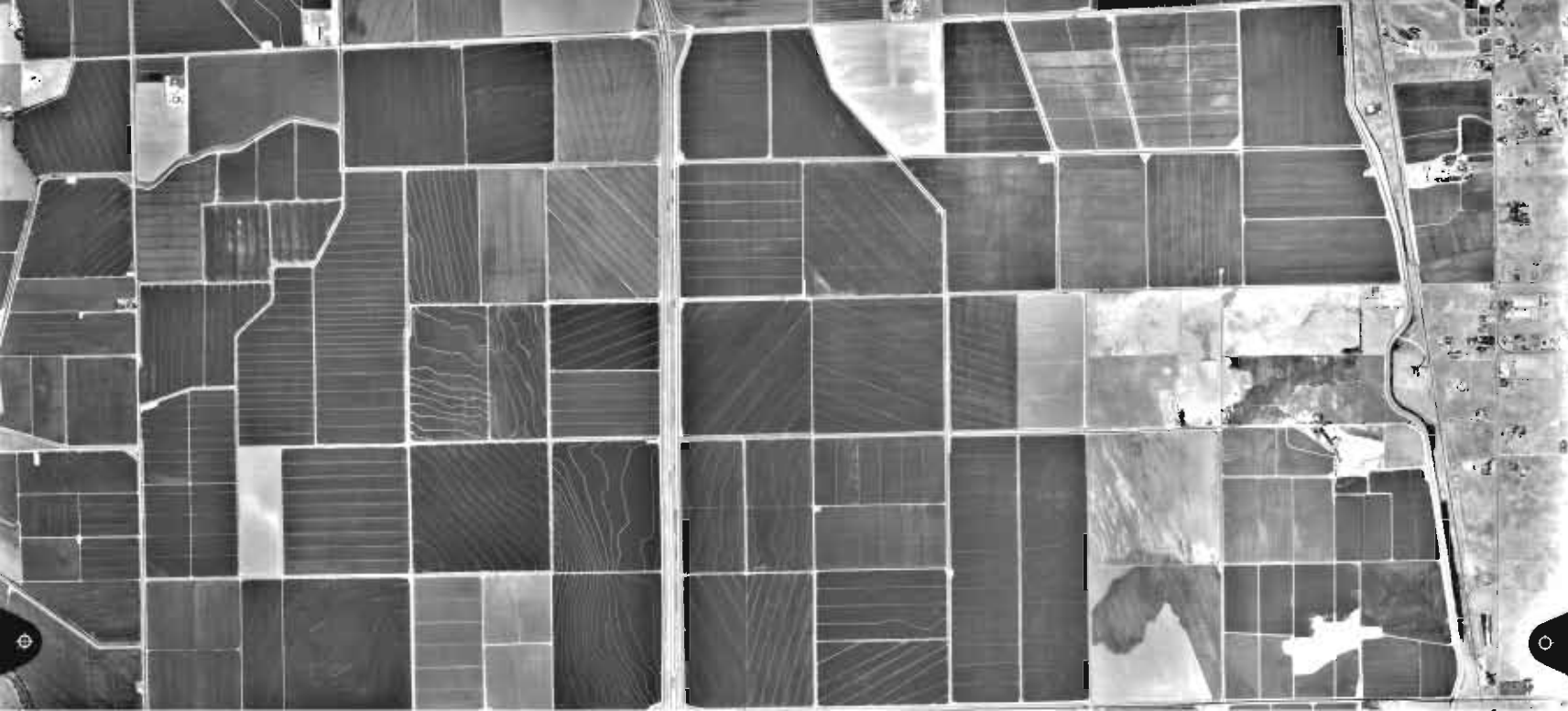

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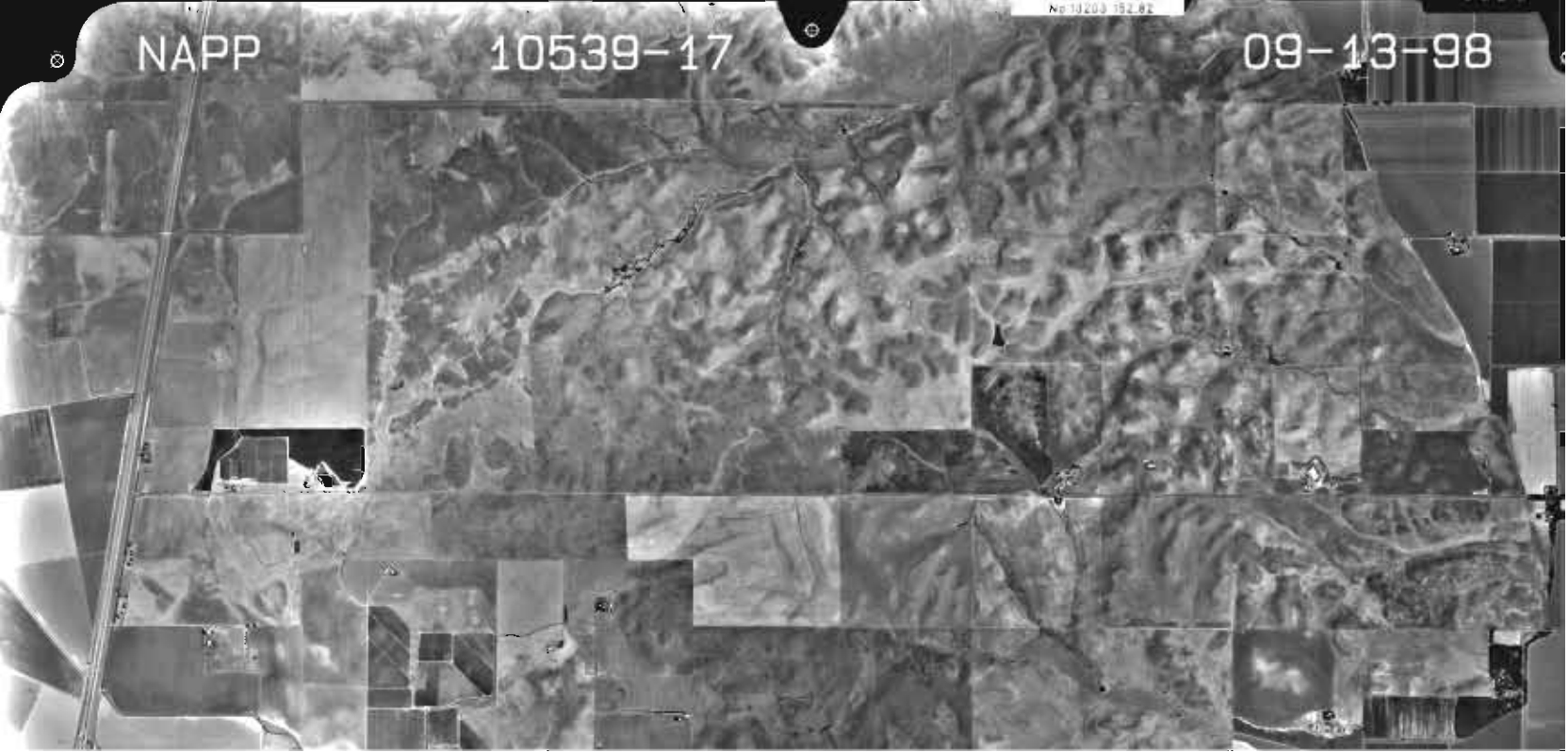
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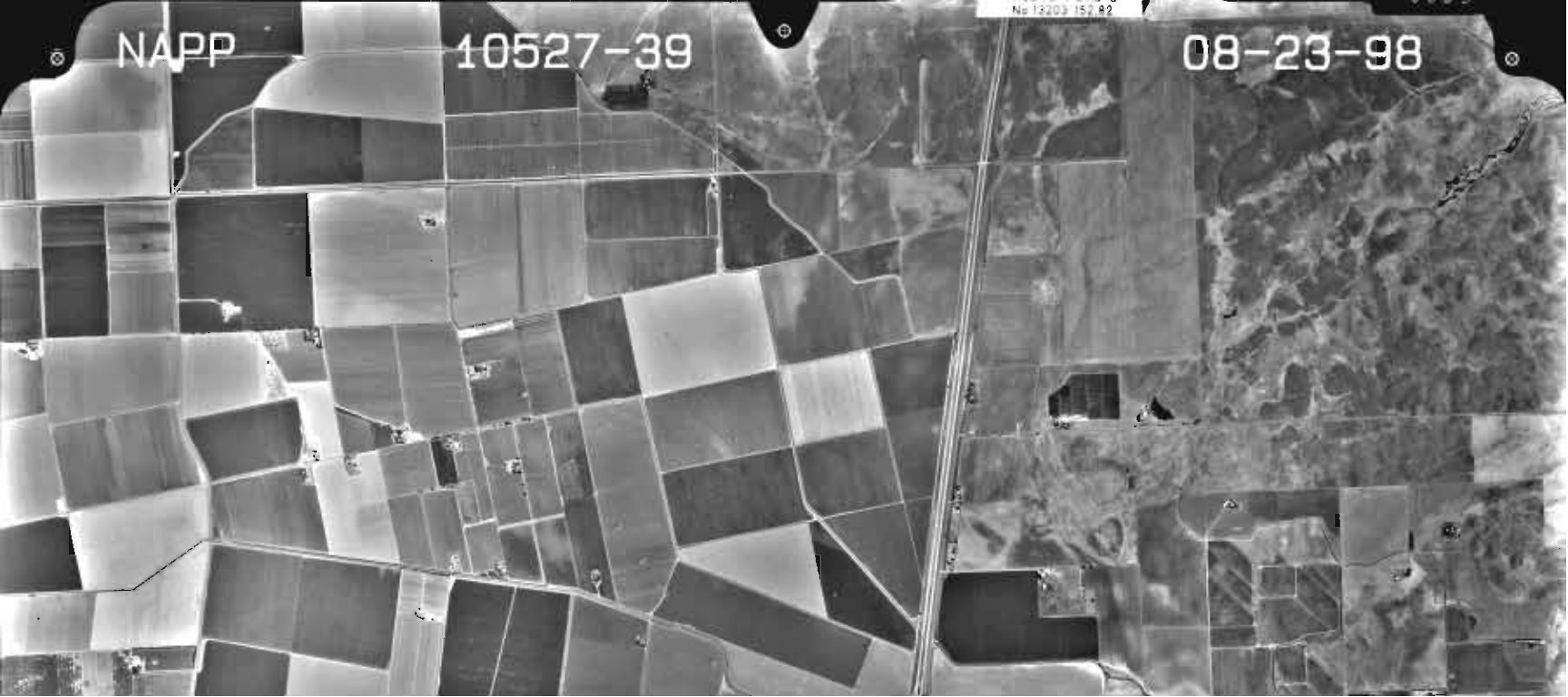
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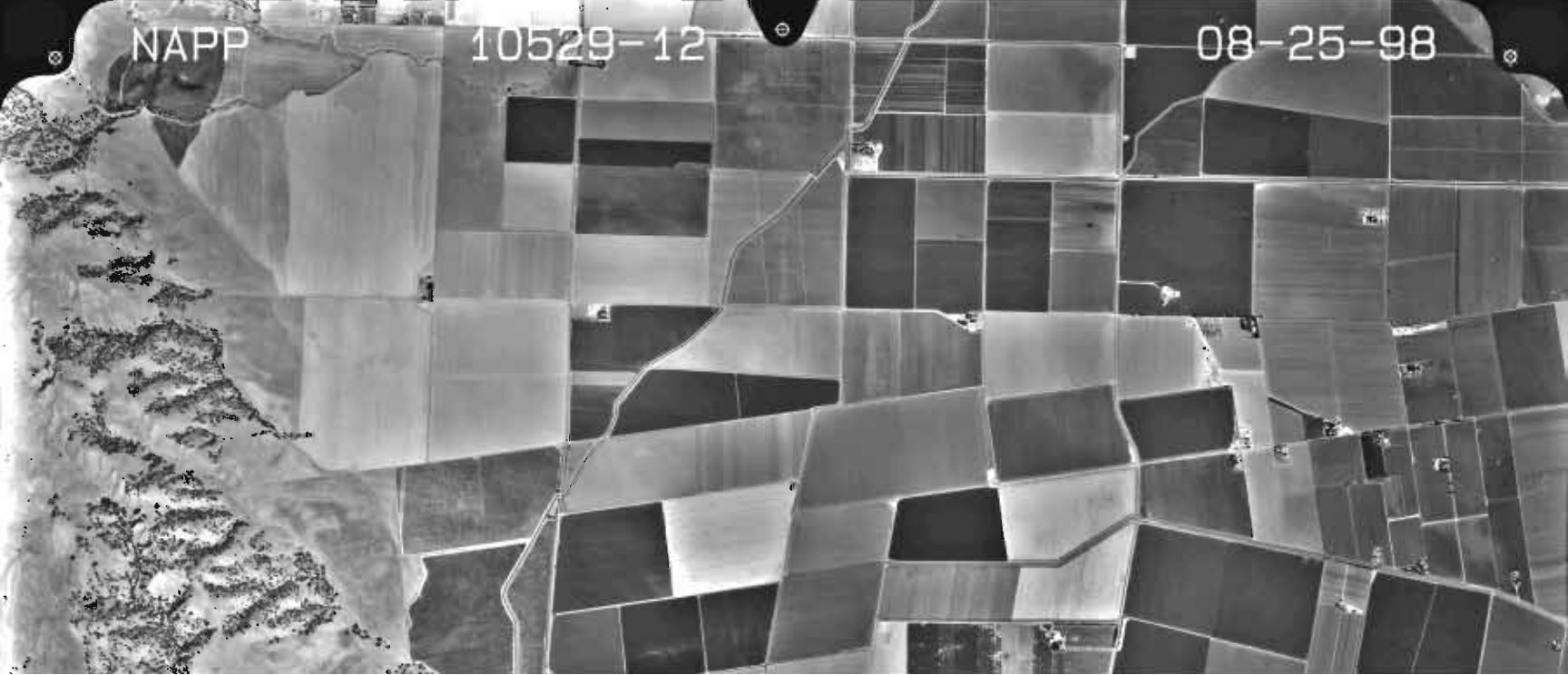
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10529-12
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Appendix E: Qualifications

WILLIAM BONO, R.E.A.

PRESIDENT AND CHIEF OPERATING OFFICER

EDUCATION

- New York State University, Brockport, Liberal Arts program, 1970
- San Mateo College, A&P Certificate program, 1972
- UC Davis Extension, Site Assessment and Remediation Certificate Program
- Health and Safety Training for Hazardous Waste Sites, 40 hours
- OSHA Health and Safety Training Refresher Course, 8 hours

PROFESSIONAL HISTORY

- Will Bono Construction, Marin Co., CA, President 1976-1993
- Will Bono Environmental Services, Chico, CA, 1993-1995
- Hanover Environmental Services, Inc., Chico, CA; President/CEO, 1995 to present

PROFESSIONAL AFFILIATIONS

- California State Contractor License, #323819, Class A, Hazardous Substance Removal
- California State Contractor License, #323819, Class B
- California State Contractor License, #323819, Class C
- Registered Environmental Assessor, Class I REA #04233

REPRESENTATIVE EXPERIENCE

As President and Chief Operating Officer of Hanover, Mr. Bono has managed numerous environmental projects ranging from site assessments to characterization, remediation, and closure. His project experience includes design and construction of commercial buildings, site remediation, commercial fueling system design and construction projects. Since 1976 Mr. Bono has conducted business continuously with annual sales reaching $1.24M in 2001. Currently as Chief Operating Officer of Hanover, Mr. Bono manages over 40 sites in northern California under the auspices of the Regional Water Quality Control Board, the Air Quality Management District, and local county and fire department leads. His duties include allocation of equipment and personnel, billing, collection, and account maintenance.

KAMIE N. LOESER, MRTP

SENIOR PLANNER / PROJECT MANAGER

EDUCATION

- California State University Chico, MRTP., Master of Rural and Town Planning, 1997
- California State University Chico, BA., Geography and Planning, 1993

CONTINUING EDUCATION

- Environmental Review of California Water Projects: Legal Requirements, Approaches and Techniques, UC Davis Extension, 2008

PROFESSIONAL HISTORY

- Hanover Environmental Services, Inc., Chico, CA, Senior Planner, 2008-present
- California State University, Chico, CA, Department of Geography and Planning, Adjunct Faculty for Environmental Impact Analysis Class/GEOG 427, 2008-present
- Foothill Associates., Chico, CA, Senior Planner/Project Manager, 2006-2008
- Community Planning Solutions, Inc., Chico, CA, Principal Planner, 2001-2004
- Pacific Municipal Consultants, Chico, CA; Senior Planner, 1997-2001
- Northern California Planning and Research, Chico, CA, Municipal Planner, 1992-1997
- CSUC Research Foundation, Chico, CA, Planning Assistant and Project Coordinator, 1995-1997
- Wastewater Design Assessment District, Paradise, CA, Research Analyst, 1991-1993

PROFESSIONAL AFFILIATIONS

- American Planning Association
- Association of Environmental Professionals

REPRESENTATIVE EXPERIENCE

Ms. Loeser has over 15 years of experience in community and environmental planning and consulting both in the private and public sectors. Ms. Loeser is the Senior Planner/Project Manager for Environmental Planning and Land Management Services for Hanover and is responsible for overseeing and managing CEQA environmental projects and community planning projects for the company. Ms. Loeser has managed dozens of CEQA projects from Initial Studies/Environmental Checklists and Mitigated Negative Declarations to Environmental Impact Reports (EIRs) for planned developments and specific plans. In addition, she has worked on a variety of planning projects including general plan updates, specific plans, zoning ordinance amendments, recreation master plans, watershed management plans, visual resource assessments, community action plans, and economic development plans. Her educational background emphasizes community and rural development with particular focus on land use planning, community enhancement, visual design, natural resource management, recreation planning and environmental impact analysis. In addition, Ms. Loeser is the Instructor for the Environmental Impact Analysis course for the Department of Geography and Planning at California State University, Chico. Ms. Loeser has managed complex planning and environmental projects and values strong company and client relationships and is known for her organizational skills and personable project management style.

REPRESENTATIVE LIST OF PROJECTS

Community Planning Projects:

- City of Colfax General Plan Update, 1997, City of Colfax
- City of Corning General Plan Update, 1994, City of Corning
- Community Action Plan for the Town of Washington, Nevada County
- Economic Development Plan for the Town of Washington, Nevada County
- Highway 99W Corridor Specific Plan, Initial Study/Mitigated Negative Declaration, and Zoning Ordinance Update for Mixed-Use Overlay Zone, City of Corning
- Indian Springs Vineyard Subdivision Pre-Application Submittal, Nevada County
- NWPs 12, 14, and 39 for DR Horton Home Builders, El Dorado County
- Sierra Buttes/Lakes Basin Recreation Master Plan, Sierra County
- Visual Design Guidelines for the Highway 99W Corridor, City of Corning

Environmental Documentation:

- Lake Front at Walker Ranch Administrative Draft EIR, Plumas County
- Cedar Grove Church Draft EIR, City of Livermore
- Daugherty Hill Wildlife Area Land Management Plan Initial Study/Mitigated Negative Declaration, Department of Fish and Game
- Garcia Ranch Single-Family Residential Unit Initial Study/Mitigated Negative Declaration, Department of Water Resources, State Reclamation Board
- Greenback Road Widening Project Draft EIR/EIS, City of Citrus Heights
- Manzanita Avenue Road Widening Project Administrative Draft EIR, City of Chico
- North Star Annexation Project Draft EIR, City of Grass Valley
- Northstar Village Draft EIR, Placer County
- Neal Road Landfill Expansion Draft EIR, Butte County
- New Westside Interceptor Eastside Road Alignment Initial Study/Mitigated Negative Declaration, City of Redding
- PG&E Hydrodivestiture EIR, California Public Utilities Commission
- Planned Community-2 (PC-2) Specific Plan EIR, Town of Truckee
- Pilot Hill Ranch Specific Plan Draft EIR, El Dorado County
- Presidio PUD and Community Park Draft EIR, City of Tracy
- Quail Lake Estates Draft EIR, Nevada County
- Rosamond Recreation Master Plan Initial Study/Mitigated Negative Declaration, City of Rosamond
- Roseburg Commerce Park Draft Development Plan and Draft EIR, City of Mount Shasta
- Salmon Falls Preserve Draft EIR, El Dorado County
- Shasta Valley Asphalt and Aggregate Project Draft EIR, City of Yreka
- Sierra Sky Ranch Subdivision and General Plan Amendment Draft EIR, Madera County
- Temple Beth El Draft EIR, City of Berkeley
- Village at Northstar Administrative Draft EIR, Northstar, California
- Wolf Creek Ranch Estates Draft EIR, Nevada County

LUKE A. SMITH, B.S., CPESC

ENVIRONMENTAL SCIENTIST

EDUCATION AND CERTIFICATIONS

- California State University, Chico, B.S., Agricultural Science, 2002
- Certified Professional in Erosion and Sediment Control, 2008

SPECIALIZED TRAINING & REGISTRATIONS

- Health and Safety Training for Hazardous Waste Sites, 40 hours
- OSHA Health and Safety Training Refresher Course, 8 hours

PROFESSIONAL HISTORY

- Hanover Environmental Services, Inc., Chico, CA; Environmental Scientist, 2004-present

REPRESENTATIVE EXPERIENCE

Mr. Smith has a diversity of practical experience that allows him to engage in projects that deal with a variety of environmental situations. As Environmental Scientist for Hanover, Mr. Smith is responsible for the research, analysis and preparation of environmental science based projects including environmental permit facilitation, Spill Prevention Control and Countermeasure (SPCC) Plans, Phase I Environmental Site Assessments (ESA), Transactional Screen Assessments (TSA), Water Pollution Control Program (WPCP) Plans, and Storm Water Pollution Prevention Plans (SWPPP). Mr. Smith has completed SPCC(s), Phase I & II ESA(s), TSA(s), WPCP(s), and SWPPP(s) in their entirety.

REPRESENTATIVE LIST OF PROJECTS

Phase I Environmental Site Assessments:

- Battle Creek Conservation Easement (The Nature Conservancy), Battle Creek, Tehama County CA
- Smith Dairy Farm, Elk Grove, Sacramento County CA
- Mount Shasta Spring Water, Chico, Butte County CA
- Bidwell Ranch Project, Chico, Butte County CA
- City of Chico Sewer Extension, Chico, Butte County 95928
- Truckee River Canyon Property (The Nature Conservancy), Sierra and Nevada Counties
- Ishi Wilderness Augmentation Project, Mineral, Tehama County, CA 96063
- Paradise Irrigation District, Paradise, Butte County, CA
- Point Reyes Affordable Housing, Point Reyes Station, Marin County, CA
- Sloughhouse Westerberg Farms Conservation Easements (Sacramento Valley Conservancy), Elk Grove, Sacramento County, CA

SWPPP - Stormwater Pollution Prevention Plans:

- Centerville Road Estates, Chico, Butte County CA
- Linkside Subdivision, Oroville, Butte County CA

- Del Vista Oro Subdivision, Oroville, Butte County CA
- Calle Vista Subdivision, Oroville, Butte County CA

SPCC - Spill Prevention Countermeasure and Control Plans:

- Guy Rents, Chico, Butte County CA
- Chambers Oil, Chico, Butte County CA
- Feather River Hospital, Oroville, Butte County CA
- Northgate Petroleum, Chico, Butte County CA
- Warner Petroleum, Chico, Butte County
- Squaw Creek Inn, Stoneyford, Colusa County CA
- Youth With A Mission, Chico, Butte County CA

MIKE ANDRES, B.S.

SENIOR GIS ANALYST

EDUCATION

- California State University, Chico, B.S. in Geological Sciences
- California State University, Chico, Certificate in Geographical Information Systems

PROFESSIONAL HISTORY

- Hanover Environmental Services, Inc., Chico, CA; GIS Analyst, 2007-present
- Gallaway Consulting, Inc., Chico, CA; GIS Analyst, 2005-2007
- City of Pleasanton, Pleasanton, CA; GIS Internship, 2005
- Zone 7 Water Agency, Pleasanton, CA; Water Resources Internship, 2004-2005
- Alameda County Public Works, Hayward, CA; Planning Internship, 2000-2004

REPRESENTATIVE EXPERIENCE

As the Senior GIS Analyst for Hanover, Mr. Andres' responsibilities include GIS support for Hanover's Planners, Biologists, and Geologists. Specifically, Mr. Andres conducts the following tasks: cartographic design, spatial analysis, geostatistical analysis, digitizing, biological and environmental base map production, site assessments using remote sensing and sub-meter GPS data, vegetation and habitat mapping, historical photo site assessment, impact analysis, aerial and satellite image acquisition, geodatabase design and management, surface and subsurface 3D modeling, sub meter GPS surveys, watershed modeling, AutoCAD manipulation, digital printing of large format high resolution wall maps and CAD/GIS drawings, and web based internet mapping systems (IMS). Mr. Andres uses both integrated field data from a survey grade GPS unit as well as acquired data from various planning agencies. Mr. Andres utilizes multiple GIS, statistical, and graphics programs to produce a high quality product.

H-2: Supplemental Environmental Site Assessment

SUPPLEMENTAL
SCREENING LEVEL
ENVIRONMENTAL SITE ASSESSMENT

California State Lands Commission, PG&E Line Alternative Routes A – H
Yolo and Placer Counties

Project Number: MBA101-1A

Prepared for:

Michael Brandman Associates (MBA)
Attn: Ms. Chelsea Ayala
Bishop Ranch 3
2633 Camino Ramon, Suite 460
San Ramon, CA 94583

Prepared by:

HANOVER ENVIRONMENTAL SERVICES, INC.
1072 Marauder St., Suite 220
Chico, CA 95973

28 August 2008

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1 Summary

Hanover Environmental Services, Inc. (Hanover) has performed a supplemental "screening level" Environmental Site Assessment (ESA) for the Pacific Gas & Electric Company's (PG&E) Natural Gas Pipelines 406 and 407 alternatives analysis, which is being prepared pursuant to the California Environmental Quality Act (CEQA). Specifically, this assessment examines the potential for recognized environmental conditions that may occur along the proposed alternative pipeline routes, identified as Options A through H. This analysis follows the format outline of the Environmental Protection Agency's (EPA) Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and American Society for Testing and Materials (ASTM) Standard Practices for Environmental Site Assessments E 1527-05. All exceptions to, or deletions from standard practices are described in Section 2.4 of this report.

While no environmental site assessment can fully eliminate the uncertainty regarding the potential for recognized environmental conditions, the ASTM standard does cite the balance between appropriate levels of inquiry and the cost of such exhaustive investigations. The information contained in this report would lead one to the opinion that the probability of recognized environmental conditions in association with the proposed alternative routes *is not s*ignificant enough to warrant further investigation at this time.

2 Introduction

2.1 Purpose

Hanover has prepared this supplemental "screening level" ESA under the direction of a State of California Registered Environmental Assessor. Per CEQA Guidelines standards of significance, this document serves to identify recognized environmental conditions that may create a significant hazard to the public or the environment through the reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment in association with the construction of the proposed project along the alternative routes.

The term recognized environmental conditions means the presence or the likely presence of any hazardous substances or petroleum products on a subject property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous material or petroleum product into structures on a subject property or into the ground, groundwater, or surface water of a subject property. The term includes hazardous substances or petroleum products even under conditions in compliance with existing laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. This report has been prepared in an objective and unbiased manner and, where practicable, in accordance with EPA AAI 40 CFR Part 312 and ASTM Practice E 1527-05 with all limitations and exceptions described in Section 2.4 of this report.

The proposed project's alternative pipeline alignments, identified as Options A through H, are alternative locations to the proposed PG&E Pipelines 406 and 407. This document has been prepared to assist in the preparation of the alternatives analysis for the Environmental Impact Report (EIR) being prepared pursuant to CEQA (Guidelines Section 15126.6). This document is for the use of Michael Brandman Associates (MBA/Client) and their assignees.

2.2 Detailed Scope-of-Services

This "screening level" assessment generally follows the format of the EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and ASTM Standard Practice for Environmental Site Assessments E 1527-05. The use of standard practices assists in providing an "all appropriate inquiry" into the previous uses of a property. However, all exceptions to, or deletions from standard practices are described in Section 2.4 of this report. This assessment included a review and analysis of available data pertaining to the alternative route Options. All data was provided by MBA. A site reconnaissance of the alternative route Options was performed to determine the potential existence or non-existence of recognized environmental conditions, now and in the past, and any potential contamination arising therefrom.

2.3 Significant Assumptions

Hanover believes the results, specifications, conclusions and professional opinions to be accurate and relevant but cannot accept responsibility for the accuracy or completeness of public documentation or accuracy, completeness, or possible withholding of information by interviewees or other private parties. We make no other warranty, either expressed or implied.

2.4 Limitations, Exceptions, and Data Gaps

The scope of services performed to complete this "screening level" ESA is limited in nature. Site conditions can change over time, and this assessment is not intended to predict future site conditions. Because of the limited scope and nature of this assessment, site history was developed based on information obtained during the site reconnaissance of the proposed alternative alignments as well as information provided by MBA, including aerial photos detailing the location of proposed alternative alignments. The site reconnaissance conducted for this assessment was limited to publicly accessible areas and roadways. Reconnaissance of the portions of the proposed alternative alignments that are located on private property was not conducted.

This report does not include a complete determination of the extent of, nor the environmental or public health impact of, known or suspected hazardous materials or wastes.

This "screening level" assessment did not include air, soil or water sampling, or laboratory analysis. Therefore, the results of this investigation do not preclude the possibility of hazardous substances being present on the subject properties, currently or in the future. This report does not purport to address all safety problems, if any, associated with the subject properties and alternative alignments.

In addition, this "screening level" assessment did not include a local government records research (including Title Reports and Historic Use Information obtained from, although not limited to, the following: Assessor's Office, Building Department, Environmental Health Department, Agricultural Department, Water Districts or Associations, Fire Department).

Interviews with property owners, occupants, local government officials, and others were not conducted as part of this assessment.

The following are several non-scope considerations that persons may want to assess in connection with commercial real estate. No implication is intended as to the relative importance of inquiry into such non-scope considerations, and this list is not intended to be all-inclusive:

Asbestos
Radon
Lead-based paint
Lead in drinking water
Wetlands
Regulatory compliance
Cultural and historic resources
Health and safety
Ecological resources
Endangered species
Air quality
Water quality

While the Hanover representative collected reasonably ascertainable historical information, gaps in evidence of historic and some existing property uses exist.

Despite these limitations it is the opinion of Will Bono, Registered Environmental Assessor #04233, that this "screening level" assessment provides an appropriate degree of inquiry to determine if potential recognized environmental conditions exist along the proposed alternative alignment Options consistent with the thresholds of significance identified by CEQA as they pertain to the "reasonably foreseeable upset…involving the release

of hazardous materials…" as well as for the evaluation of project alternatives, per CEQA Guidelines Section 15126.6, which requires that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project.

However, given the limited access to the alternative alignments and the limitations and exceptions to this assessment described above, a site specific evaluation and complete Phase 1 Environmental Site Assessment that meets the requirements of applicable standards and practices should be conducted once a final alignment has been identified and prior to construction activities; thereby providing an "all appropriate inquiry" into the previous uses of applicable properties and the potential for risk of upset to hazardous materials.

2.5 Environmental Personnel

This assessment was conducted under the supervision of Will Bono, Registered Environmental Assessor #04233. The following Hanover Environmental Services, Inc. personnel contributed to the assessment:

- Will Bono, REA#04233, provided supervision, review, and opinions/conclusions.
- Kamie Loeser, Senior Planner, provided review, and opinions/conclusions.
- Luke Smith, Environmental Scientist, reviewed existing and available data, performed site reconnaissance and prepared the report.

3 Site Description

The Hanover representative performed a site reconnaissance of the proposed alternative alignments on August 19th and 21st 2008.

3.1 Location and Legal Description

Alternative routes A, B, C, D, E, F, G, H (no physical address recorded). Refer to the Appendix A Project Alternatives Map.

3.2 Site and Vicinity Characteristics

The alternative pipeline routes, designated A through H, are located in the Sacramento Valley that extends from Esparta in Yolo County to Roseville in Placer County. The Sacramento Valley encompasses the northern one-third of the Central Valley of California, which extends approximately 400 miles from the Tehachapi Mountains in the south to the Klamath-Siskiyou Mountains in the north. The Sacramento Valley trough is strongly asymmetric with the deepest part of the trough west of the apparent surface axis of the valley. The valley is bordered to the east by the Sierra Nevada, to the north by the Cascade Range, and to the west by the Coast Ranges. The Sacramento River is the north-south drainage that extends from the northern portion of the Central Valley south to the Sacramento-San Joaquin Delta.

The project area varies in elevation. Topography of the corridor is relatively flat, sloping in a various directions. Regional topography in the vicinity slopes toward the Sacramento River, which the project corridor crosses over.

3.3 Current Land Uses

At the time of the August 19 and 21, 2008 site inspections the project area was structurally undeveloped. Land uses within the project area consist of undeveloped natural land associated with drainages and waterways as well as agricultural uses and associated facilities and residences.

3.4 Descriptions of Structures, Roads, Other Improvements Within the Project Area

Portions of the alternative routes follow existing utility right-of-ways that cross agricultural fields, streets, highways and waterways. Sections parallel roads and overhead power lines with pole-mounted transformers. During the site reconnaissance the Hanover representative inspected transformers for any visual signs of leaks. For areas that could be accessed, there were no structural developments observed within the subject corridors at the time of inspection.

3.5 Current Uses of the Adjoining Properties

Properties adjacent to the alternative routes were used for agricultural and residential purposes.

3.6 Summary of Historical Use of the Subject Property

The project corridor is primarily undeveloped. Historical uses of the alternative alignments include public utilities with surrounding properties used for agriculture.

4 User Provided Information

Provided below is a discussion of information provided by Michael Brandman Associates (MBA/client).

4.1 Title Records

A Preliminary Title Report was not supplied by MBA. Title Reports would allow for the determination if environmental liens or activity and use limitations exist on subject properties.

4.2 Environmental Liens or Activity and Use Limitations

MBA did not report environmental liens or activity and use limitations due to hazardous material issues on the subject properties.

4.3 Specialized Knowledge

There was no specialized knowledge of any recognized environmental conditions recorded, reported or discussed on the subject or surrounding properties.

4.4 Commonly Known or Reasonably Ascertainable Information

There was no commonly known or reasonably ascertainable information on the subject properties pertaining to any recognized environmental conditions recorded, reported or discussed on the subject or surrounding properties.

4.5 Valuation Reduction for Environmental Issues

MBA did not indicate as to whether or not there is a known valuation reduction for the subject properties due to environmental issues.

4.6 Owner, Property Manager, and Occupant Information

Property Owners:	Not applicable
Property Occupant:	Not applicable
Key Site/EIR Project Manager:	Ms. Chelsea Ayala, Michael Brandman Associates (MBA), was identified as the CEQA Project Manager

4.7 Reason for Performing Screening Level Environmental Analysis

PG&E plans to install an underground natural gas pipeline from Esparta in Yolo County to Roseville in Placer County. These pipelines are identified as Line 406 and Line 407. The purpose of this supplemental "screening level" ESA is to assist in identifying any potential hazardous materials that could exist within the proposed project's alternative alignments, as part of the EIR's Alternatives Analysis, and the risk of upset of hazardous materials that could occur during implementation and construction of the project (per CEQA significance criteria).

4.8 Other

Ms. Chelsea Ayala, MBA affiliate, supplied Hanover with supplemental information regarding the alternative alignments, including alternative alignment descriptions and aerial photos depicting their locations. Background data was utilized to distinguish project boundaries and landscape details. No known recognized environmental conditions were reported or recorded by MBA or their affiliates.

5 Site Reconnaissance

5.1 Methodology and Limiting Conditions

A Hanover representative performed a site reconnaissance of the alternative alignments on August 19 and 21, 2008, the purpose of which was to obtain information indicating the likelihood of identifying recognized environmental conditions.

The periphery of each alternative alignment was visually and/or physically observed. Parcels within the alternative routes were viewed from all adjacent public thoroughfares and right-of-ways. For general information about the subject properties, Hanover relied on information provided by MBA, which included a summary of each alternative and aerial location maps.

While the Hanover representative collected reasonably ascertainable historical information, gaps in evidence of individual property uses exists; please refer to Section 2.4, Limitations, Exceptions and Data Gaps, of this report.

5.2 General Site Setting

Weather conditions during the August 19 and 21, 2008 site inspections were dry and cloudy with temperatures in the 90°F range. With the exception of a portion of alternative alignment Option G, the alternative routes were primarily undeveloped. Adjoining properties were agricultural residential in nature. Please refer to Appendix A-Project Alternatives, Appendix B-Alternate Routes Maps 1 through 6, and Appendix C-Site Reconnaissance Photographs.

5.3 Alternative Route Options and Observations

5.3.1 Option A

5.3.1.1 Description

From existing Lines 400 and 401, this alternative would follow CR 16 to I-505, then head north through a grape vineyard to align with CR 15B on the west side of I-505. The route would continue east on CR 15B through the Dunnigan Hills and across Smith Creek until CR 15B it becomes CR 93. From this juncture, this alternative would continue east from the intersection of CR 15B and CR 93, and proceed cross-country to Line 172A just south of the town of Dufour. It would then parallel Line 172A south to the tie-in point with Line 172A and Line 407, north of the town of Yolo.

5.3.1.2 Exterior Observations

- Option A (Photos 1-5)
    - County Road (CR) 16 was not accessible west of CR 85. An organic farm was located to the north and east.
    - At CR 87 an abandoned, empty steel diesel tank was located near an irrigation canal. There was no visual evidence of staining around the tank, nor odors in the surrounding vicinity. Based upon the observations around the location of the tank it was not considered as a recognized environmental condition. Refer to Photo 5.
    - East of Highway 505, Option A followed CR 15B. North of CR 15B a wine processing facility was being constructed. Option A was not accessible east of CR 93.
    - Based upon the observations made and review of current aerial photos identifying the proposed alignment, no recognized environmental conditions were observed.

5.3.2 Option B

5.3.2.1 Description

Option B starts 1.5 miles north of the preferred L-400/401/406 connection point, and travels east along farm roads, crossing CR 86 and aligning with CR 16. The route would continue along the south side of CR 16 for approximately three miles to CR 86, and then turn south along farm roads to a point intercepting the proposed I-505 crossing.

5.3.2.2 Exterior Observations

- Option B (Photos 6-7)
  - County Road (CR) 16 was not accessible west of CR 85.
  - Based upon the observations made from public thoroughfares and review of current aerial photos identifying the proposed alignment there were no recognized environmental conditions in association with this alternative route.

5.3.3 Option C

5.3.3.1 Description

Option C follows the proposed alignment of Line 406 from the Capay Metering Station to the Hungry Hollow Canal, which it parallels northeast until crossing to line up with an unnamed farm road to the east. This alternative crosses CR 85 and runs east along the farm road and the northern edge of Microp Limited Property, APN # 048-140-140-191. At the end of the property, the route turns south along another unnamed farm road until it intersects the proposed Line 406 route, which it then follows to the Yolo Junction Station. This option would increase the overall pipeline length by roughly 1,150 feet.

5.3.3.2 Exterior Observations

- Option C
  - Not accessible due to a private drive.
  - Aerial maps were used to supplement a physical inspection of this route.
  - Based upon the observations made from the aerial photographs, there are no recognized environmental condition in association with this alternative.

5.3.4 Option D

5.3.4.1 Description

This alternative would involve a minor variation to the proposed Line 406 in the vicinity of the Hungry Hollow area in north-central Yolo County, but it would maintain Line 406 within CR 17 east of CR 87, and then travel south after crossing an unnamed irrigation lateral where it would realign with the proposed Line 406 route, just west of the I-505 HDD crossing. East of I-505, this alternative would follow the same alignment as the proposed Project.

5.3.4.2 Exterior Observations

- Option D (Photos 9-11)
  - An empty 1,000-gallon poly aboveground storage tank (AST) was located on the eastern portion of the route.
  - Ten (10) transformers are located along this alignment; no leaks were observed.
  - Based upon the observations made from public thoroughfares there are no recognized environmental condition in association with the subject route.

5.3.5 Option E

5.3.5.1 Description

Option E would involve a minor realignment of the proposed Line 406 route. This would position the route to follow CR 19, east of CR 87. At CR 19A, it would extend back to the north via an existing dirt road and underneath a large electrical transmission corridor. This variation would then cross an irrigation lateral and continue north where it would converge back with the proposed Line 406 route, just west of I-505. From here this alternative would follow the same route as the proposed Project east of I-505.

5.3.5.2 Exterior Observations

- Option E (Photos 12-14)
    - Two (2) transformers are located along this alignment; no leaks were observed.
    - One (1) agricultural pump facility is located along this alignment; no leaks were observed.
    - Based upon the observations made from public thoroughfares there are no recognized environmental condition in association with the subject route.

5.3.6 Option F

5.3.6.1 Description

Option F follows the preferred alignment for Line 406 from Lines 400 and 401 to the eastern end of the Dunnigan Hills, where it turns north off CR 17 approximately 5,000 feet west of CR 95A in order to avoid segmenting a row crop field. This alternative would not alter the length of the segment, but would align with the I-5 crossing further west of the proposed alignment.

5.3.6.2 Exterior Observations

- Option F
    - Not accessible due to a private drive.
    - Aerial maps were used to supplement a physical inspection of this route.
    - Based upon the observations made from the aerial photographs there are no recognized environmental condition in association with the subject route.

5.3.7 Option G

5.3.7.1 Description

Option G is located at the western end of Line 407 West, just east of the Yolo Junction Station and existing Line 172A. This alternative leaves the proposed Yolo Junction station and aligns with an un-named farm road, which it follows along a field edge until the intersection of CR 16A and CR 98. This alternative would not alter the length of the segment.

5.3.7.2 Exterior Observations

- Option G
    - This alignment was not accessible from a public roadway or right-of-way.
    - Aerial maps were used to supplement a physical inspection of this route.
    - Structural development is observed on the eastern portion of this route.
    - Based upon the observations made from the aerial photographs there is not enough information to determine if recognized environmental conditions exist.

5.3.8 Option H

5.3.8.1 Description

Near the western levee of the Yolo Bypass, this option would head southeast through agricultural fields within the Yolo Bypass to a point on the Sacramento River directly across from West Elverta Road. It would then cross the Sacramento River and parallel West Elverta Road to Powerline Road. The route would head north paralleling Powerline Road to Riego Road and would then parallel Riego Road through the Natomas Basin Conservancy to Steelhead Creek. The route would parallel the northern border of the Placer Vineyards Specific Plan area along Baseline Road (Riego Road becomes Baseline Road in Placer County) until the tie-in with Line 123 at the intersection of Baseline and Fiddyment Roads.

5.3.8.2 Exterior Observations

- Option H
  - Portions of this route were not accessible due to the lack of roads and private property.
  - Aerial maps were used to supplement a physical inspection of this route.
  - Based upon the observations made from the aerial photographs there are no recognized environmental conditions in association with the subject route.

5.4 Interior Observations

Per the scope of work for this "screening level" analysis, access to areas where the proposed pipeline alternative alignments crossed private property was not available. Therefore, evaluation of the interior portions of the alternative alignments (areas not accessible from public roadways and right-of-ways) was not conducted. The determinations for the potential for recognized environmental conditions were based upon review of aerial maps provided by the Client and consideration of the historic land uses of the area.

6 Interviews

Interview with Property Owner Representative

Interviews were not conducted as a part of this "screening level" assessment.

Interviews with Local Government Officials

Interviews were not conducted as a part of this "screening level" assessment.

7 Findings, Opinions, and Conclusions

Hanover Environmental Services, Inc. (Hanover) has performed a "screening level" ESA. This "screening level" assessment follows the format outline of the EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and ASTM Standard Practice for Environmental Site Assessments E 1527-05 for the subject properties described as alternative routes Options A though H. Any exceptions to, or deletions from standard practices are described in Section 2.4 of this report.

While no environmental site assessment can fully eliminate the uncertainty regarding the potential for recognized environmental conditions, the ASTM standard does cite the balance between appropriate levels of inquiry and the cost of such exhaustive investigations.

Using the information provided by MBA, including aerial photos depicting the locations of each alternative alignment Option, and site reconnaissance, this assessment has revealed no evidence of recognized environmental conditions in connection with the alternative alignment Options A through H at this time.

However, given the limited access to the alternative alignments Options, particularly Option G, a site specific evaluation and complete Phase 1 Environmental Site Assessment that meets the requirements of

applicable standards and practices should be conducted once a final alignment has been identified and prior to construction activities; thereby providing an "all appropriate inquiry" into the previous uses of applicable properties and the potential for risk of upset to hazardous materials.

8 Qualification and Signature

Hanover Environmental Services, Inc. has performed this supplemental "screening level" assessment under my supervision. Where applicable, this assessment has been conducted in accordance with generally accepted environmental practices and procedures, as of the date of this report. However, all Limitations, Exceptions, and Data Gaps are described in Section 2.4 of this report. Because this is a "screening level" assessment, it is not the intention of this evaluation to meet the criteria and standards of the Environmental Protection Agency's (EPA) Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and American Society for Testing and Materials (ASTM) Standard Practices for Environmental Site Assessments E 1527-05.

I declare that, to the best of my professional knowledge and belief, I meet the definition of environmental professional as defined in §312.10 of 40 CFR 312. I have employed the degree of care and skill ordinarily exercised under similar circumstances by reputable environmental professionals practicing in this area. The conclusions contained within this assessment are based upon site conditions readily observed or were reasonably ascertainable and present at the time of the site inspections.

The conclusions and recommendations stated in this report are based upon personal observations made by employees of Hanover Environmental Services, Inc. and upon information provided by others. I have no reason to suspect or believe that the information provided is inaccurate.

Signature of Senior Environmental Assessor - *Will Bono, REA #04233*

Signature/Seal of Senior Environmental Assessor

28 August 2008
Date

Appendix A-Project Alternatives Map

Line 406 and Line 407 Pipeline Project
Project Alternatives to Evaluate

PG&E

Preferred Route

Options

A — B — C — D — E — F — G — H — Alternatives to Evaluate

Existing Gas Pipeline

Highway

Roads

Incorporated Area

County Boundary

Hydrology

N S W E

0 1 2 3 4 5 10 Miles

Scale 1: 80,000 when printed on 24x36 paper

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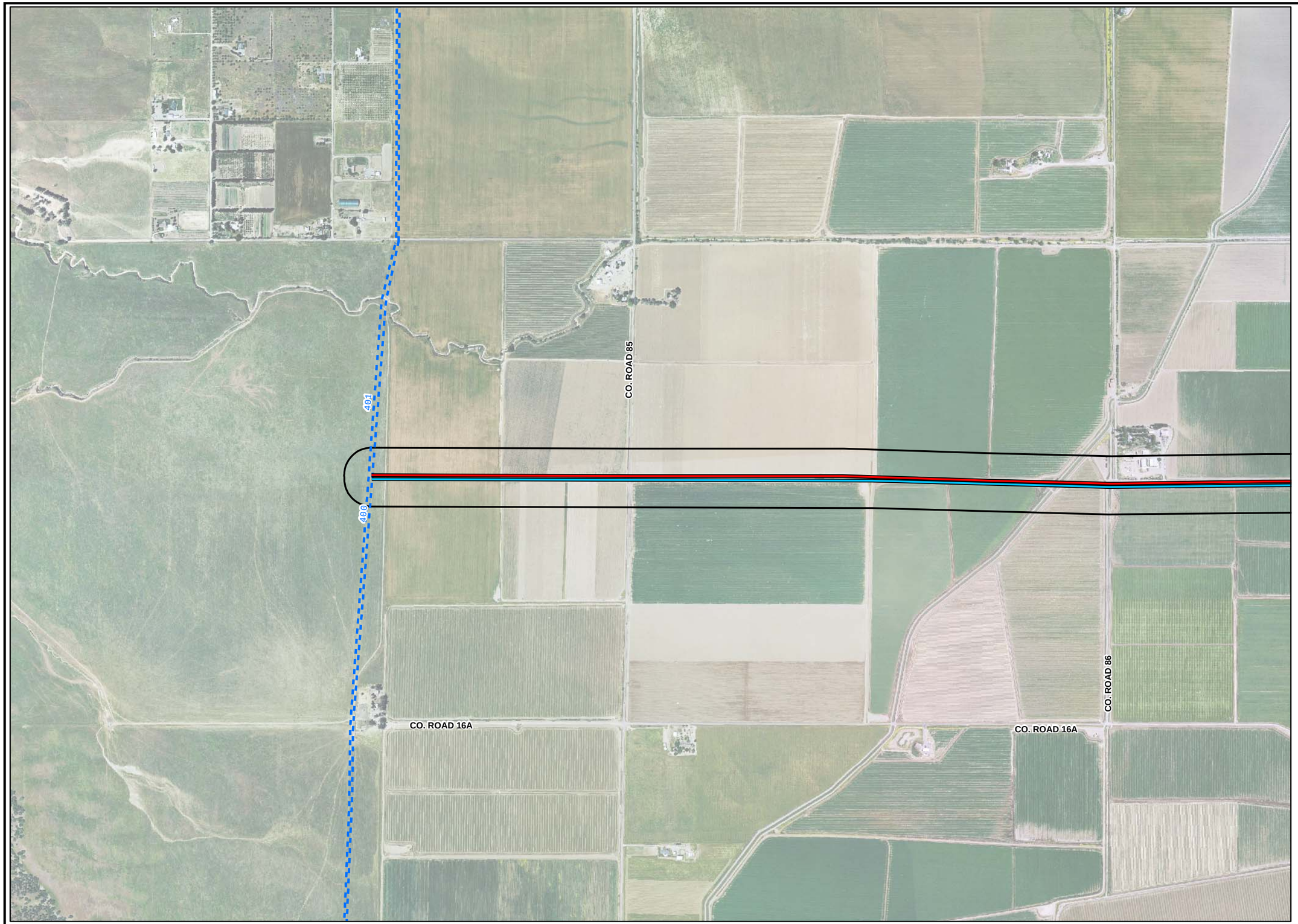
Appendix B-Alternate Routes



Line 406 and Line 407 Pipeline Project Alternate Routes

Map 1 of 6

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
S

0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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Line 406 and Line 407 Pipeline Project Alternate Routes

Map 2 of 6

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
S

0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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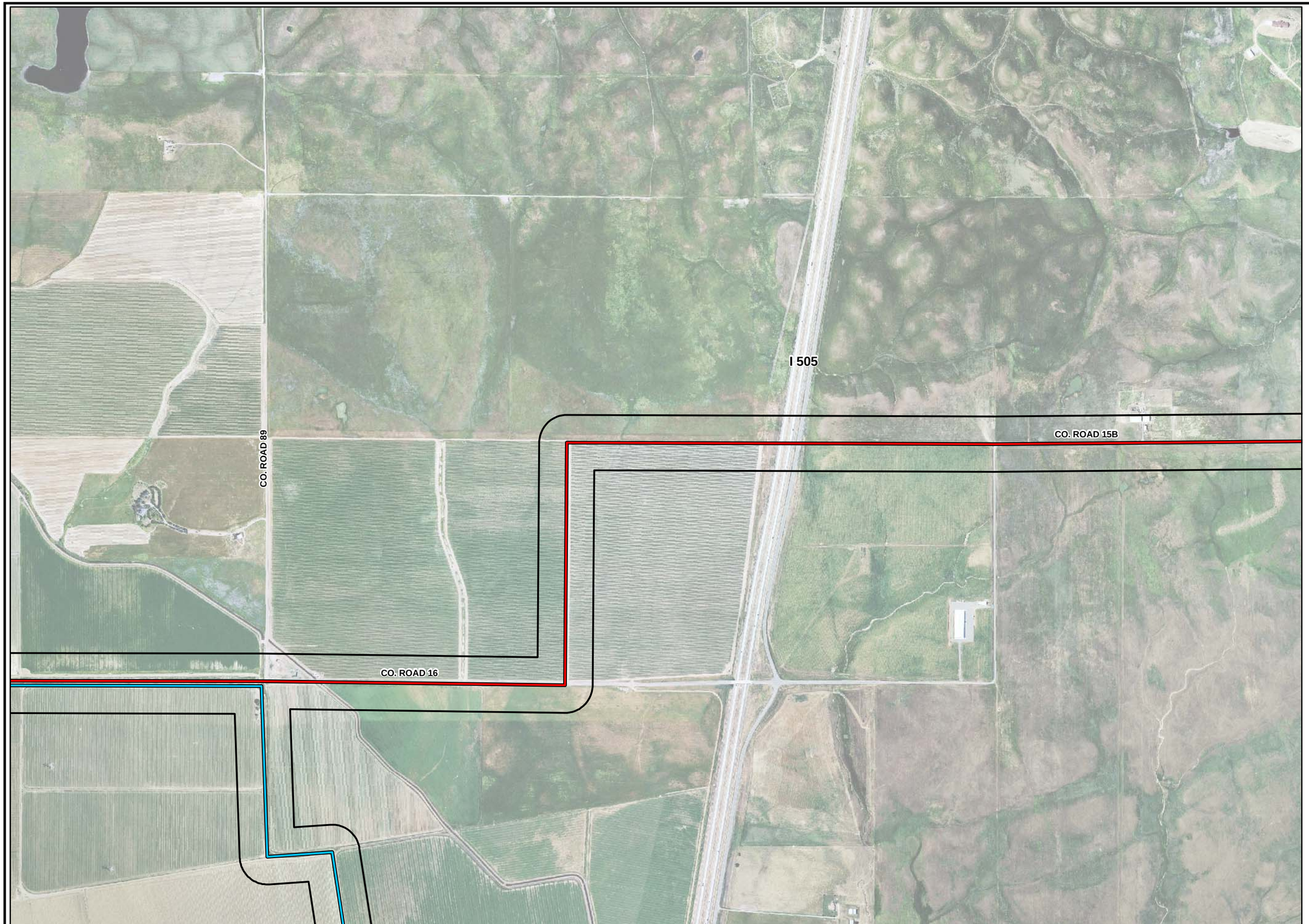

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 3 of 6

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
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0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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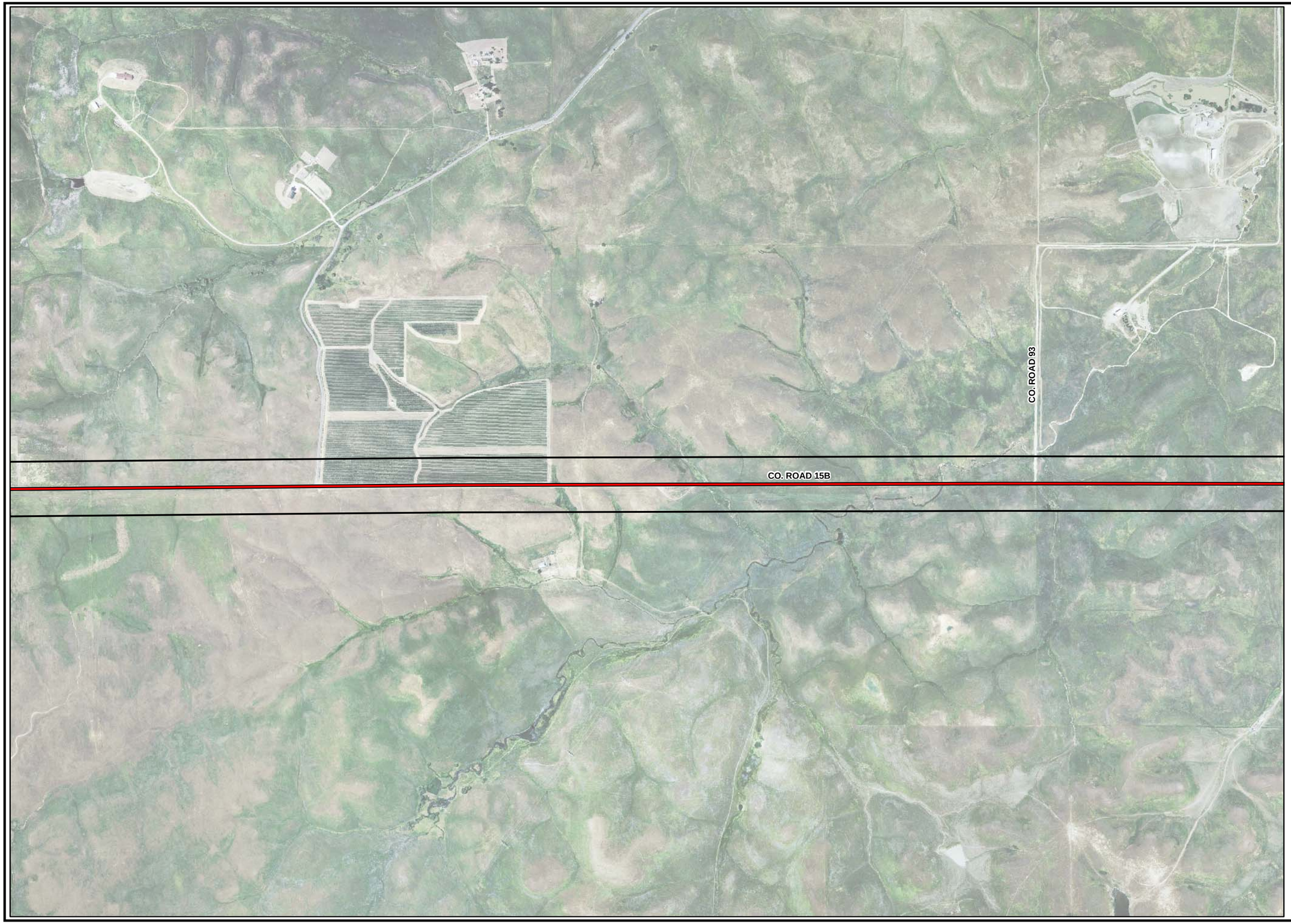

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 4 of 6

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
S

0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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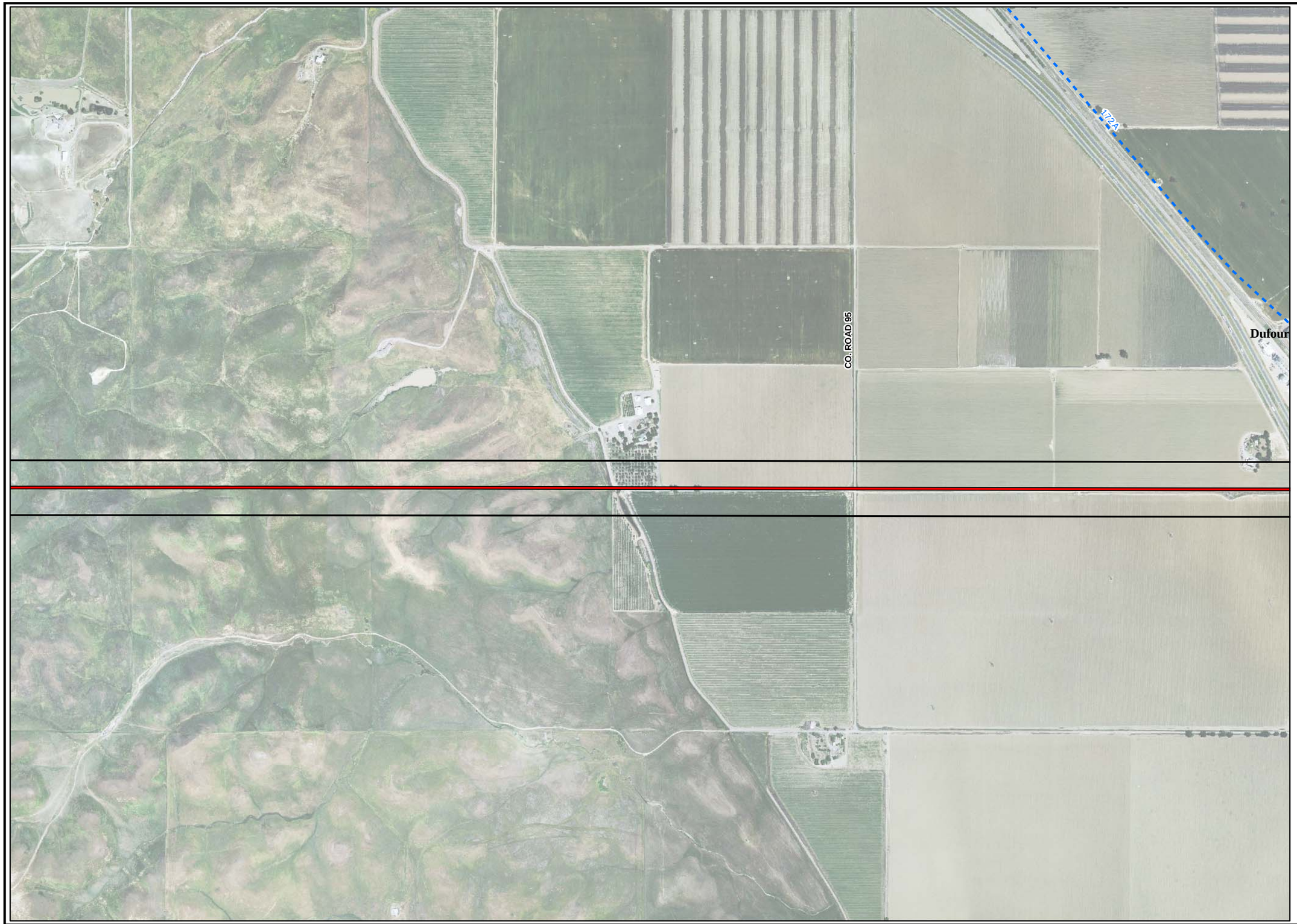

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 5 of 6

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
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0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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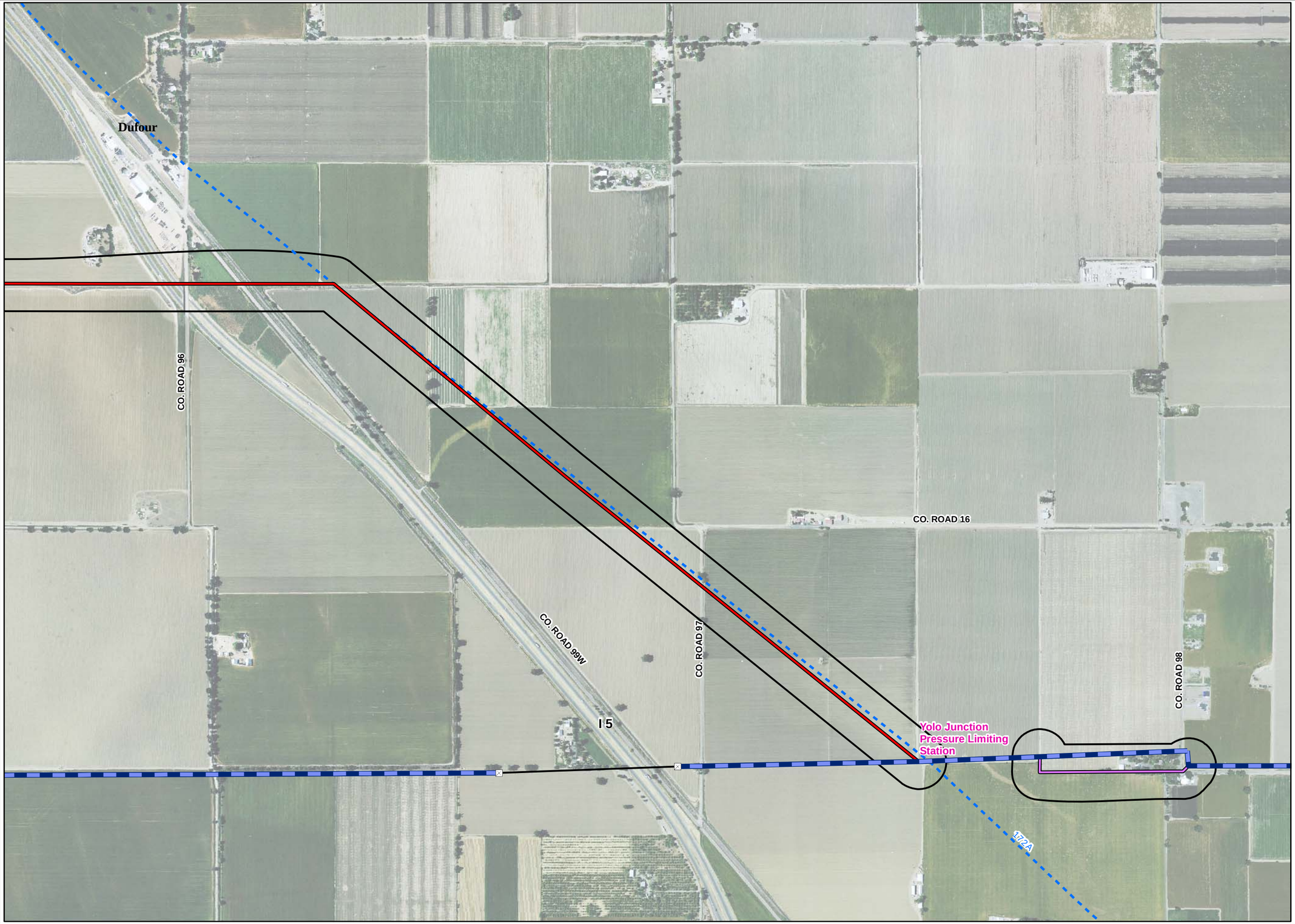

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 6 of 6

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
S

0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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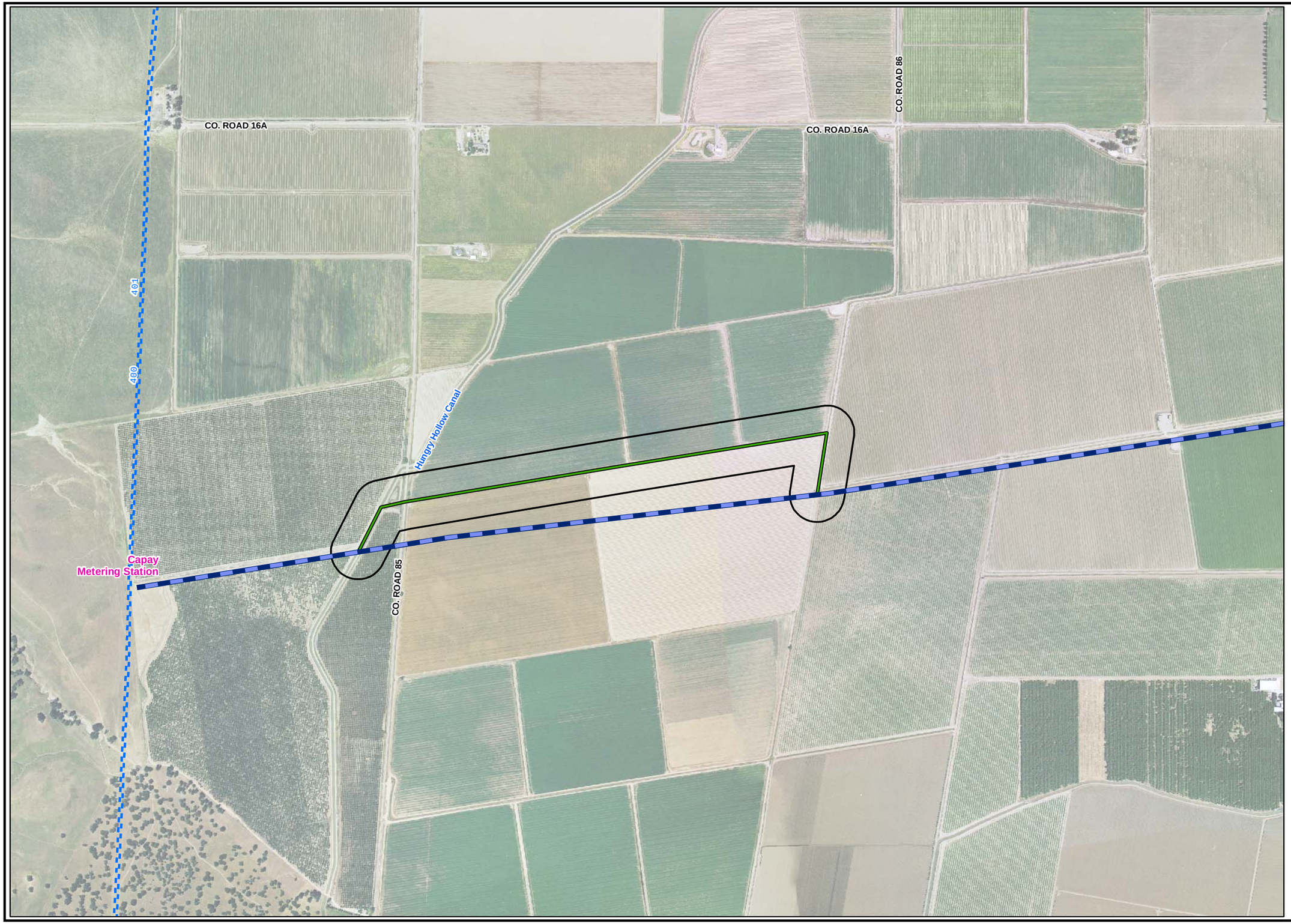

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 1 of 1

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
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0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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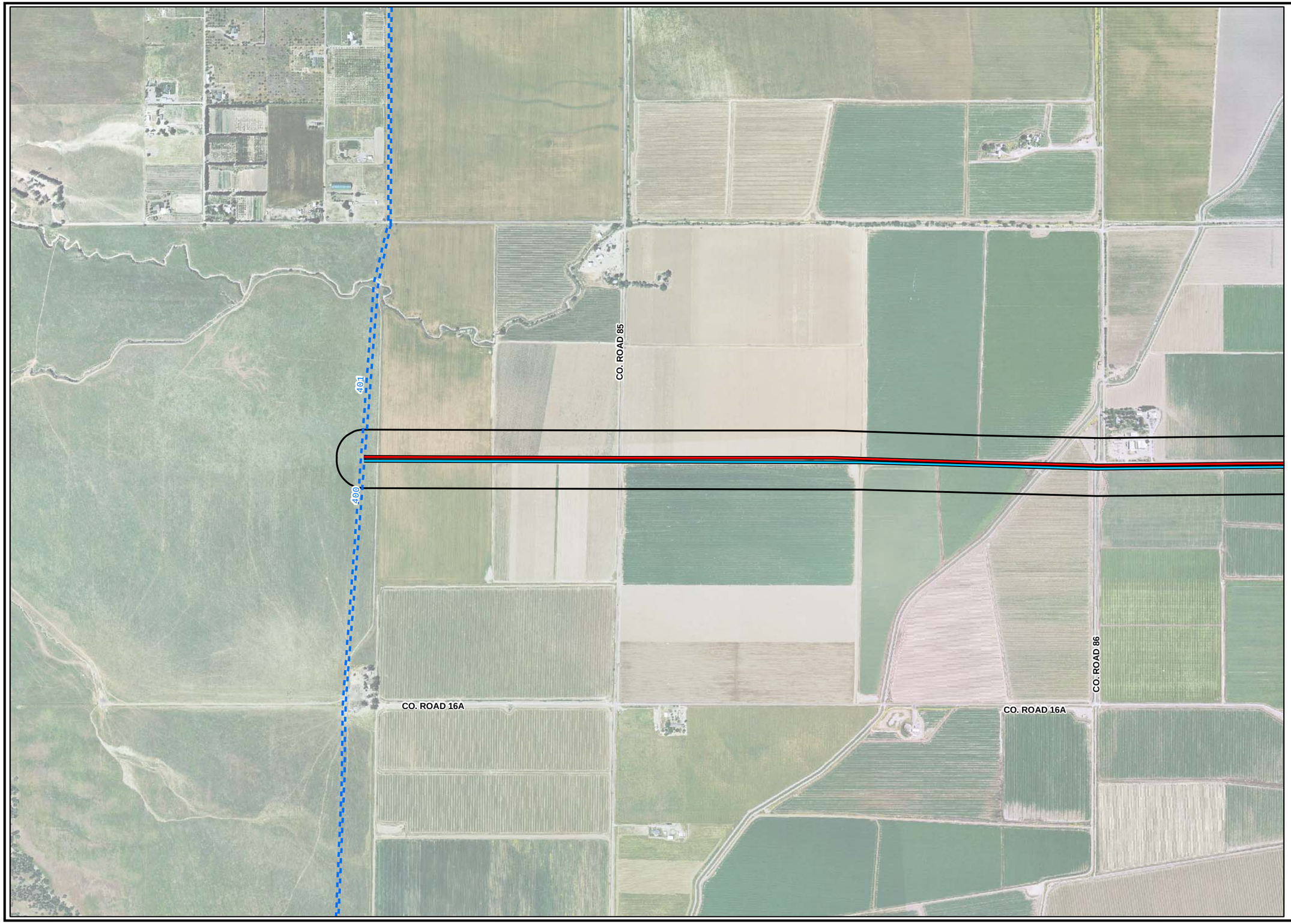

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 1 of 3

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
S

0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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Line 406 and Line 407 Pipeline Project Alternate Routes

Map 2 of 3

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
S

0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

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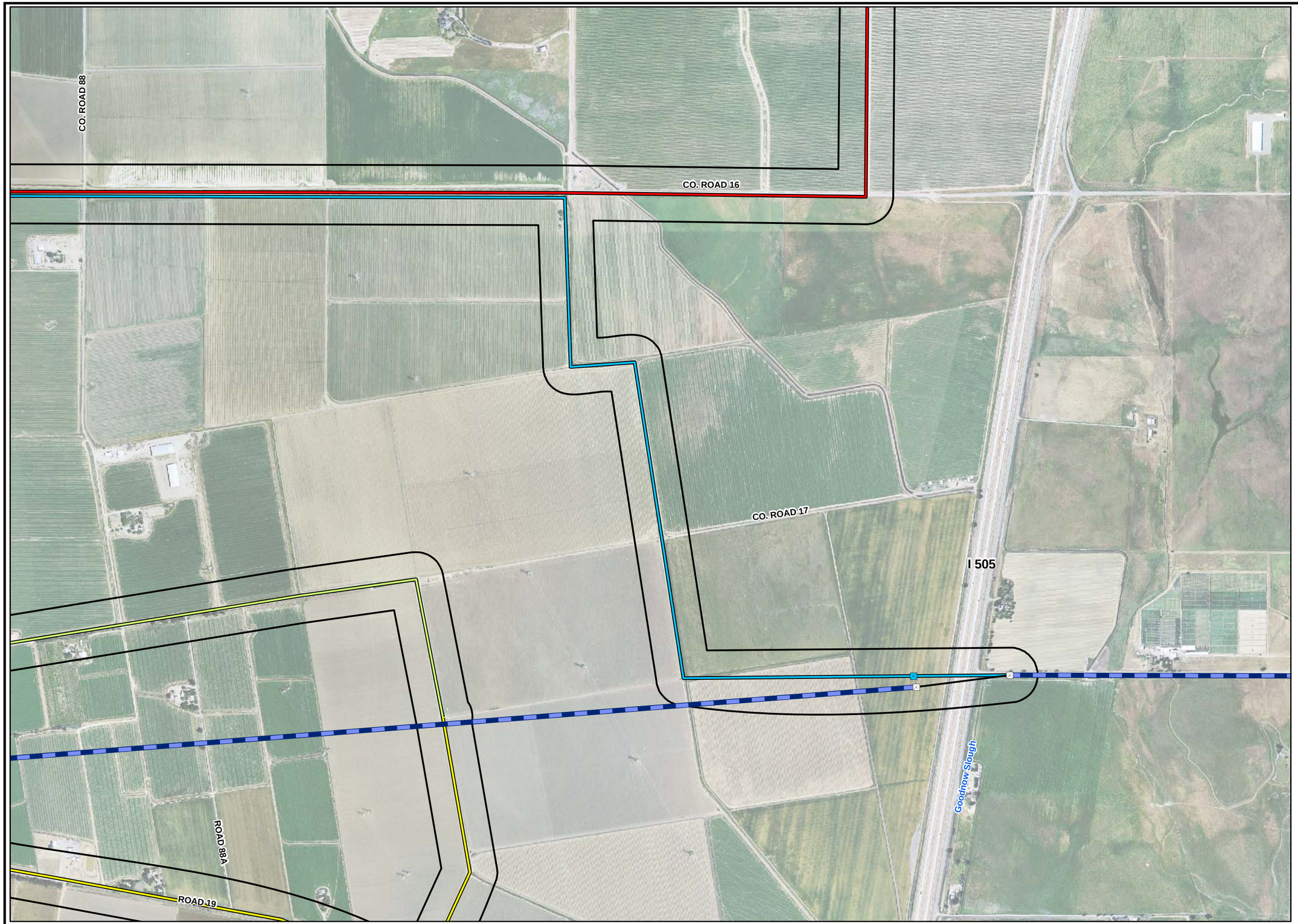

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 3 of 3

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
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0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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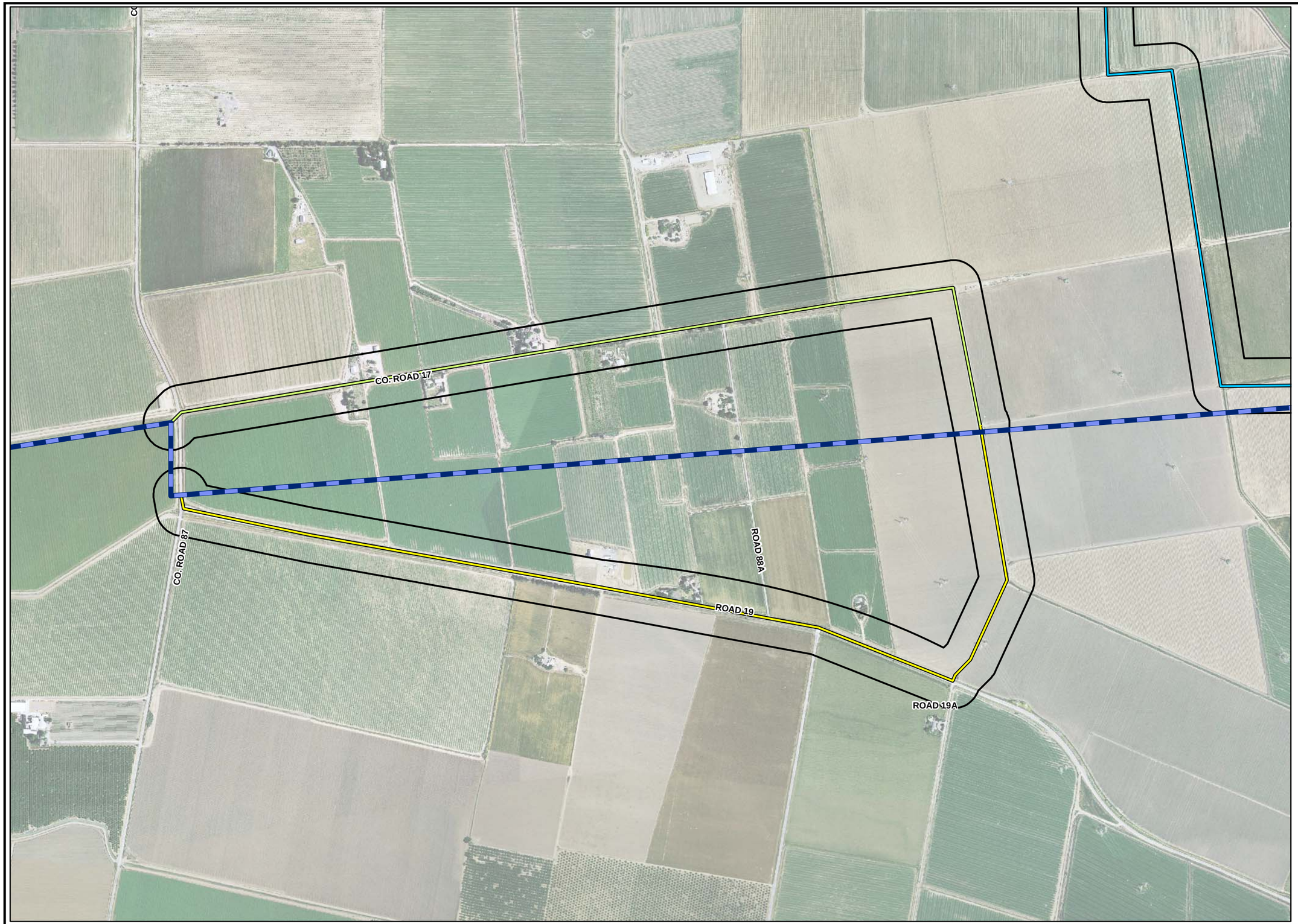

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 1 of 1

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

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Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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Line 406 and Line 407 Pipeline Project Alternate Routes

Map 1 of 3

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
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0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

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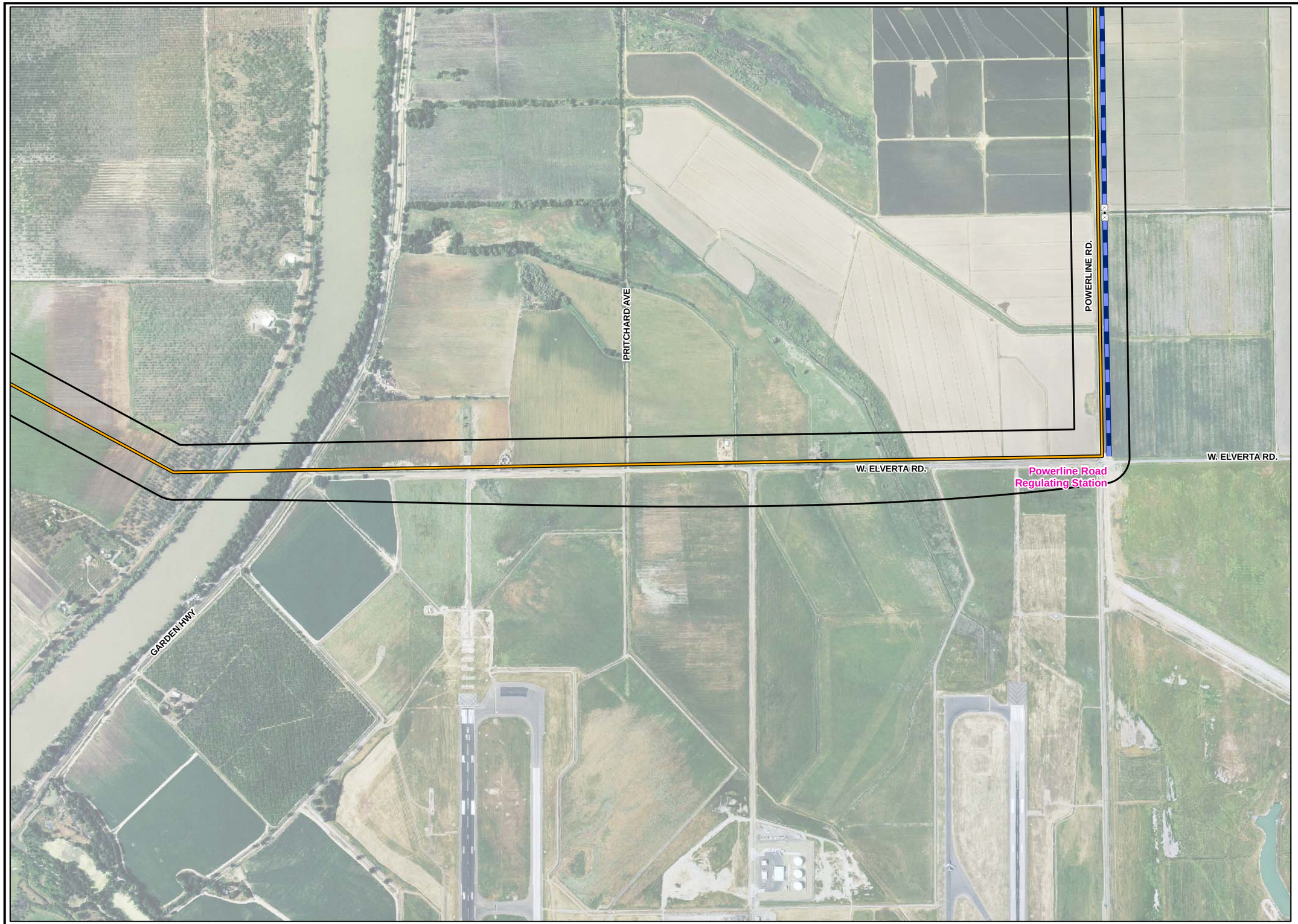

Line 406 and Line 407 Pipeline Project Alternate Routes

Map 2 of 3

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
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0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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Line 406 and Line 407 Pipeline Project Alternate Routes

Map 3 of 3

Alternatives to Evaluate

300 ft Buffer

Preferred Route

Bore/ HDD

Alternate Bore/HDD

Existing Gas Pipeline of Interest

N
W E
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0 250 500 1,000 feet

Scale 1: 12,000
1 inch equals 1,000 feet
when printed size 11x17

PG&E

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Appendix C-Site Reconnaissance Photographs

Photo 1: Option A viewing in a westerly direction from CR 15B.

Photo 2: Option A viewing in a easterly direction from CR 15B.

Photo 3: Option A viewing west from CR 15B.

Photo 4: Option A viewing east from CR 15B.

Photo 5: Empty steel diesel tank near Option A & B next to an irrigation canal adjacent to CR 87

Photo 6: Option A & B viewing in a westerly direction from CR 86.

Photo 7: Option A & B viewing in a easterly direction from the corner of CR 86 & CR 16.

Photo 8: Agricultural pumping facility north of CR 16, west of CR 89 viewing in a northerly direction.

Photo 9: Option D viewing in an easterly direction along CR 17

Photo 10: 3 pole-mounted transformers near Option D viewing east.

Photo 11: AST between Option D and E near the preferred route viewing east.

Photo 12: Option E viewing in an easterly direction along CR 19

Photo 13: A pole-mounted transformer on the southeast corner of Option E viewing in a northerly direction.

Photo 14: Option E viewing in a southerly direction from CR 17.

Appendix D: Qualifications

WILLIAM BONO, R.E.A.

PRESIDENT AND CHIEF OPERATING OFFICER

EDUCATION

- New York State University, Brockport, Liberal Arts program, 1970
- San Mateo College, A&P Certificate program, 1972
- UC Davis Extension, Site Assessment and Remediation Certificate Program
- Health and Safety Training for Hazardous Waste Sites, 40 hours
- OSHA Health and Safety Training Refresher Course, 8 hours

PROFESSIONAL HISTORY

- Will Bono Construction, Marin Co., CA, President 1976-1993
- Will Bono Environmental Services, Chico, CA, 1993-1995
- Hanover Environmental Services, Inc., Chico, CA; President/CEO, 1995 to present

PROFESSIONAL AFFILIATIONS

- California State Contractor License, #323819, Class A, Hazardous Substance Removal
- California State Contractor License, #323819, Class B
- California State Contractor License, #323819, Class C
- Registered Environmental Assessor, Class I REA #04233

REPRESENTATIVE EXPERIENCE

As President and Chief Operating Officer of Hanover, Mr. Bono has managed numerous environmental projects ranging from site assessments to characterization, remediation, and closure. His project experience includes design and construction of commercial buildings, site remediation, commercial fueling system design and construction projects. Since 1976 Mr. Bono has conducted business continuously with annual sales reaching $1.24M in 2001. Currently as Chief Operating Officer of Hanover, Mr. Bono manages over 40 sites in northern California under the auspices of the Regional Water Quality Control Board, the Air Quality Management District, and local county and fire department leads. His duties include allocation of equipment and personnel, billing, collection, and account maintenance.

KAMIE N. LOESER, MRTP

SENIOR PLANNER / PROJECT MANAGER

EDUCATION

- California State University Chico, Master of Rural and Town Planning (MRTP), 1997
- California State University Chico, BA., Geography and Planning, 1993

CONTINUING EDUCATION / ADVANCED STUDIES

- Environmental Review of California Water Projects: Legal Requirements, Approaches and Techniques, UC Davis Extension, 2008

PROFESSIONAL HISTORY

- Hanover Environmental Services, Inc., Chico, CA, Senior Planner, 2008-present
- California State University, Chico, CA, Department of Geography and Planning, Adjunct Faculty, Instructor for Environmental Impact Analysis Class/GEOG 427, Spring 2008
- Foothill Associates, Chico, CA, Senior Planner/Project Manager, 2006-2008
- Community Planning Solutions, Inc., Chico, CA, Principal Planner, 2001-2004
- Pacific Municipal Consultants, Chico, CA; Senior Planner, 1997-2001
- Northern California Planning and Research, Chico, CA, Municipal Planner, 1992-1997
- California State University Chico, Research Foundation, Chico, CA, Planning Assistant and Project Coordinator, 1995-1997
- Wastewater Design Assessment District, Paradise, CA, Research Analyst, 1991-1993

PROFESSIONAL AFFILIATIONS

- American Planning Association
- Association of Environmental Professionals

REPRESENTATIVE EXPERIENCE

Ms. Loeser has over 15 years of experience in community and environmental planning and consulting both in the private and public sectors. Ms. Loeser is the Senior Planner/Project Manager for the Environmental Planning and CEQA/NEPA Service Area for Hanover and is responsible for overseeing and managing environmental and community planning projects and subsequent regulatory permitting. Ms. Loeser has managed dozens of CEQA projects from Initial Studies/Environmental Checklists and Mitigated Negative Declarations to Environmental Impact Reports (EIRs) for planned developments and specific plans. Ms. Loeser has prepared several Clean Water Act Section 404 Nationwide Permits and Section 401 Water Quality Certification applications, Fish and Game Code Section 1600 Notification of Streambed Alteration applications and state agency encroachment permits. In addition, she has worked on a variety of planning projects including general plan updates, specific plans, zoning ordinance amendments, recreation master plans, watershed management plans, visual resource assessments, community

action plans, and economic development plans. Her educational background emphasizes community and rural development with particular focus on land use planning, community enhancement, visual design, natural resource management, recreation planning and environmental impact analysis. In addition, Ms. Loeser is the Instructor for the Environmental Impact Analysis course for the Department of Geography and Planning at California State University, Chico. Ms. Loeser has managed complex planning and environmental projects and values strong company and client relationships and is known for her organizational skills and personable project management style.

REPRESENTATIVE LIST OF PROJECTS

Community Planning Projects:

- City of Colfax General Plan Update, 1997, City of Colfax
- City of Corning General Plan Update, 1994, City of Corning
- Community Action Plan for the Town of Washington, Nevada County
- Economic Development Plan for the Town of Washington, Nevada County
- Highway 99W Corridor Specific Plan, Initial Study/Mitigated Negative Declaration, and Zoning Ordinance Update for Mixed-Use Overlay Zone, City of Corning
- Indian Springs Vineyard Subdivision Pre-Application Submittal, Nevada County
- NWPs 12, 14, and 39 for DR Horton Home Builders, El Dorado County
- Sierra Buttes/Lakes Basin Recreation Master Plan, Sierra County
- Visual Design Guidelines for the Highway 99W Corridor, City of Corning

Regulatory Permitting:

- Bass Lake Road Improvements, El Dorado County, DR Horton Company: Nationwide Permit 14 – Linear Transportation Projects, Water Quality Certification and Notification of Streambed Alteration
- Bell Woods, El Dorado County, DR Horton Company: Nationwide Permit 39 – Residential, Commercial and Institutional Developments, Water Quality Certification and Notification of Streambed Alteration
- Bidwell Park/One-Mile Dam, City of Chico, Capital Project Services Department: Nationwide Permit 3-Maintenance
- Hawk View Ridge, El Dorado County, DR Horton Company: Post Construction Notification and Water Quality Certification
- Little Chico Creek Bridge Crossing and Bike Path, City of Chico: Notification of Streambed Alteration, Application for a Central Valley Flood Protection Board Encroachment Permit and Request for Technical Assistance from USFWS
- Pentz Rock Mine, Butte County, Granite Construction Company: Nationwide Permit 44 – Mining Activities, Water Quality Certification and Notification of Streambed Alteration

CEQA/NEPA Environmental Documentation:

- Butte County – Palmdale Water District Emergency Table A Water Transfer Initial Study/Negative Declaration, City of Palmdale
- Cedar Grove Church Draft EIR, City of Livermore
- Daugherty Hill Wildlife Area Land Management Plan Initial Study/Mitigated Negative Declaration, Department of Fish and Game
- Garcia Ranch Single-Family Residential Unit Initial Study/Mitigated Negative Declaration, Department of Water Resources, State Reclamation Board
- Greenback Road Widening Project Draft EIR/EIS, City of Citrus Heights
- Lake Front at Walker Ranch Administrative Draft EIR, Plumas County
- Little Chico Creek Bike Path Initial Study/Mitigated Negative Declaration, City of Chico
- Manzanita Avenue Road Widening Project Administrative Draft EIR, City of Chico
- North Fork Ranch Planned Development Administrative Draft EIR, Shasta County
- North Star Annexation Project Draft EIR, City of Grass Valley
- Northstar Village Draft EIR, Placer County
- Neal Road Landfill Expansion Draft EIR, Butte County
- New Westside Interceptor Eastside Road Alignment Initial Study/Mitigated Negative Declaration, City of Redding
- PG&E Hydrodivestiture EIR, California Public Utilities Commission
- Planned Community-2 (PC-2) Specific Plan EIR, Town of Truckee
- Pilot Hill Ranch Specific Plan Draft EIR, El Dorado County
- Presidio PUD and Community Park Draft EIR, City of Tracy
- Quail Lake Estates Draft EIR, Nevada County
- Rosamond Recreation Master Plan Initial Study/Mitigated Negative Declaration, City of Rosamond
- Roseburg Commerce Park Draft Development Plan and Draft EIR, City of Mount Shasta
- Salmon Falls Preserve Draft EIR, El Dorado County
- Shasta Valley Asphalt and Aggregate Project Draft EIR, City of Yreka
- Sierra Sky Ranch Subdivision and General Plan Amendment Draft EIR, Madera County
- Temple Beth El Draft EIR, City of Berkeley
- Village at Northstar Administrative Draft EIR, Northstar, California
- Wolf Creek Ranch Estates Draft EIR, Nevada County

LUKE A. SMITH, B.S., CPESC

ENVIRONMENTAL SCIENTIST

EDUCATION AND CERTIFICATIONS

- California State University, Chico, B.S., Agricultural Science, 2002
- Certified Professional in Erosion and Sediment Control, 2008

SPECIALIZED TRAINING & REGISTRATIONS

- Health and Safety Training for Hazardous Waste Sites, 40 hours
- OSHA Health and Safety Training Refresher Course, 8 hours

PROFESSIONAL HISTORY

- Hanover Environmental Services, Inc., Chico, CA; Environmental Scientist, 2004-present

REPRESENTATIVE EXPERIENCE

Mr. Smith has a diversity of practical experience that allows him to engage in projects that deal with a variety of environmental situations. As Environmental Scientist for Hanover, Mr. Smith is responsible for the research, analysis and preparation of environmental science based projects including environmental permit facilitation, Spill Prevention Control and Countermeasure (SPCC) Plans, Phase I Environmental Site Assessments (ESA), Transactional Screen Assessments (TSA), Water Pollution Control Program (WPCP) Plans, and Storm Water Pollution Prevention Plans (SWPPP). Mr. Smith has completed SPCC(s), Phase I & II ESA(s), TSA(s), WPCP(s), and SWPPP(s) in their entirety.

REPRESENTATIVE LIST OF PROJECTS

Phase I Environmental Site Assessments:

- Battle Creek Conservation Easement (The Nature Conservancy), Battle Creek, Tehama County CA
- Smith Dairy Farm, Elk Grove, Sacramento County CA
- Mount Shasta Spring Water, Chico, Butte County CA
- Bidwell Ranch Project, Chico, Butte County CA
- City of Chico Sewer Extension, Chico, Butte County 95928
- Truckee River Canyon Property (The Nature Conservancy), Sierra and Nevada Counties
- Ishi Wilderness Augmentation Project, Mineral, Tehama County, CA 96063
- Paradise Irrigation District, Paradise, Butte County, CA
- Point Reyes Affordable Housing, Point Reyes Station, Marin County, CA
- Sloughhouse Westerberg Farms Conservation Easements (Sacramento Valley Conservancy), Elk Grove, Sacramento County, CA

SWPPP - Stormwater Pollution Prevention Plans:

- Centerville Road Estates, Chico, Butte County CA
- Linkside Subdivision, Oroville, Butte County CA
- Del Vista Oro Subdivision, Oroville, Butte County CA
- Calle Vista Subdivision, Oroville, Butte County CA

REPRESENTATIVE LIST OF PROJECTS (CONTINUED)

SPCC - Spill Prevention Countermeasure and Control Plans

- Guy Rents, Chico, Butte County CA
- Chambers Oil, Chico, Butte County CA
- Feather River Hospital, Oroville, Butte County CA
- Northgate Petroleum, Chico, Butte County CA
- Warner Petroleum, Chico, Butte County
- Squaw Creek Inn, Stoneyford, Colusa County CA
- Youth With A Mission, Chico, Butte County CA

H-3: System Safety and Risk of Upset Report

PG&E Line 406/407
Natural Gas Pipeline Project

System Safety and Risk of Upset

October 21, 2008

Revised April 13, 2009

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Appendix D

System Safety and Risk of Upset

This appendix D presents the potential risks to the public from the proposed PG&E Line 406/407 Natural Gas Pipeline Project. These risks would primarily result from unintentional releases of natural gas and the possibility of subsequent fires and/or explosions which could cause injuries and fatalities.

1.0 ENVIRONMENTAL SETTING

1.1 NATURAL GAS RISKS

Unintentional releases of natural gas from the proposed pipelines and related facilities could pose risks to human health and safety. For example, natural gas could be released from a leak or rupture in one of the pipe segments. If the natural gas was to reach a combustible mixture and an ignition source was present, a fire and/or explosion could occur, resulting in possible injuries and/or deaths.

1.2 NATURAL GAS CHARACTERISTICS

Natural gas is comprised primarily of methane. It is colorless, odorless, and tasteless. Methane is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

Methane has an ignition temperature of 1,000°F and is flammable at concentrations between 5 percent and 15 percent in air. Unconfined mixtures of methane in air are not explosive. However, a flammable concentration within an enclosed space in the presence of an ignition source can explode. Methane is buoyant at atmospheric temperatures and disperses rapidly in air.

2.0 REGULATORY SETTING

2.1 FEDERAL

The United States Department of Transportation (USDOT) provides oversight for the nation's natural gas pipeline transportation system. Its responsibilities are promulgated under Title 49, United States Code (USC) Chapter 601. The Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), administers the national regulatory program to ensure the safe transportation of gas and other hazardous materials by pipeline.

2.1.1 Regulatory Framework

Two statutes provide the framework for the Federal pipeline safety program. The Natural Gas Pipeline Safety Act of 1968 as amended (NGPSA) authorizes the OPS to regulate pipeline transportation of natural (flammable, toxic, or corrosive) gas and other gases as well as the transportation and storage of liquefied natural gas (LNG). Similarly, the Hazardous Liquid Pipeline Safety Act of 1979 as amended (HLPSA) authorizes the OPS to regulate pipeline transportation of hazardous liquids (crude oil, petroleum products, anhydrous ammonia, and carbon dioxide). Both of these Acts have been recodified as 49 USC Chapter 601.

The OPS shares portions of this responsibility with state agency partners and others at the Federal, state, and local level. The State of California is certified under 49 USC Subtitle VIII, Chapter 601, §60105. The State has the authority to regulate intrastate natural and other gas pipeline facilities. The California Public Utilities Commission (CPUC) is the agency authorized to oversee intrastate gas pipeline facilities, including those proposed by the Applicant. (The California State Fire Marshal has jurisdiction for hazardous liquid pipelines.)

2.1.2 Pipeline Regulations

The Federal pipeline regulations are published in Title 49 of the Code of Federal Regulations (CFR), Parts 190 through 199. 49 CFR 192 specifically addresses natural and other gas pipelines. Many of these pipeline regulations are written as performance standards. These regulations set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve the desired result.

The proposed pipeline segments and ancillary facilities would all be designed, constructed, operated, and maintained in accordance with 49 CFR 192. Since these are intrastate facilities, the CPUC would have the responsibility for enforcing the Federal and State requirements. 49 CFR 192 is comprised of 15 subparts, which are summarized below:

- Subpart A, General – This subpart provides definitions, a description of the class locations used within the regulations, documents incorporated into the regulation by reference, conversion of service requirements, and other items of a general nature.
- Subpart B, Materials – This subpart provides the requirements for the selection and qualification of pipe and other pipeline components. Generally, it covers the manufacture, marking, and transportation of steel, plastic, and copper pipe used in gas pipelines and distribution systems.
- Subpart C, Pipe Design – This subpart covers the design (primarily minimum wall thickness determination) for steel, plastic, and copper pipe.
- Subpart D, Design of Pipeline Components – This subpart provides the minimum requirements for the design and qualification of various components (e.g. valves, flanges, fittings, passage of internal inspection devices, taps, fabricated components, branch connections, extruded outlets, supports and anchors, compressor stations, vaults, overpressure protection, pressure regulators and relief devices, instrumentation and controls, etc.
- Subpart E, Welding of Steel Pipelines – This subpart provides the minimum requirements for welding procedures, welder qualification, inspection and repair/replacement of welds in steel pipeline systems.
- Subpart F, Joining of Materials Other Than By Welding – This subpart covers the requirements for joining, personnel and procedure qualification, and inspection of cast iron, ductile iron, copper, and plastic pipe joints.
- Subpart G, General Construction Requirements for Transmission Lines and Mains – This subpart provides the minimum construction requirements, including, but not limited to: inspection of materials, pipe repairs, bends and elbows, protection from hazards, installation in the ditch, installation in casings, underground clearances from other substructures, and minimum depth of cover.
- Subpart H, Customer Meters, Service Regulators and Service Lines – This subpart prescribes the minimum requirements for these components.
- Subpart I, Requirements for Corrosion Control – This subpart provides the minimum requirements for cathodic protection systems, required inspections and monitoring, remedial measures, and records maintenance.
- Subpart J, Testing Requirements – This subpart prescribes the minimum leak and strength test requirements.

- Subpart K, Uprating – This subpart provides the minimum requirements for increasing the maximum allowable operating pressure.
- Subpart L, Operations – This subpart prescribes the minimum requirements for pipeline operation, including: procedure manuals, change in class locations, damage prevention programs, emergency plans, public awareness programs, failure investigations, maximum allowable operating pressures, odorization, tapping, and purging.
- Subpart M, Maintenance – This subpart prescribes the minimum requirements for pipeline maintenance, including: line patrols, leakage surveys, line markers, record keeping, repair procedures and testing, compressor station pressure relief device inspection and testing, compressor station storage of combustible materials, compressor station gas detection, inspection and testing of pressure limiting and regulating devices, valve maintenance, prevention of ignition, etc.
- Subpart N, Qualification of Pipeline Personnel – This subpart prescribes the minimum requirements for operator qualification of individuals performing covered tasks on a pipeline facility.
- Subpart O, Pipeline Integrity Management – This subpart was promulgated on December 15, 2003. It requires operators to implement pipeline integrity management programs on the gas pipeline systems.

In general, the requirements of the Federal regulations become more stringent as the human population density increases. To this end, 49 CFR 192 defines area classifications, based on population density in the vicinity of a pipeline and specifies more rigorous safety requirements for more heavily populated areas. The class location is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined as follows:

- Class 1 - Location with 10 or fewer buildings intended for human occupancy.
- Class 2 - Location with more than 10 but less than 46 buildings intended for human occupancy.
- Class 3 - Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of a building, or small well-defined outside area pipeline any occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month.
- Class 4 - Location where buildings with four or more stories aboveground are prevalent.

Pipeline facilities located within class locations representing more populated areas are required to have a more conservative design. For example, pipelines constructed in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as

drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock. All pipelines installed in navigable rivers, streams, and harbors must have a minimum cover of 48 inches in soil or 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (e.g., 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4 locations). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure, inspection and testing of welds, and the frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas.

The proposed pipeline facilities would be constructed within Class 1, 2, and 3 locations. Although some increase in population density adjacent to the right-of-way is anticipated, the Applicant would be required to demonstrate compliance with the more stringent requirements, reduce the maximum allowable operating pressure (MAOP) or replace the segment with pipe of sufficient grade and wall thickness to comply with 49 CFR 192 for the new class location if the population density should increase enough to change the Class location. The Applicant is conservatively designing the project as though it were located within higher area class locations, where future development is anticipated within the foreseeable future.

2.1.3 Pipeline Integrity Management

49 CFR 192 Subpart O, Pipeline Integrity Management grew out of a series of pipeline incidents with severe consequences. This Subpart requires operators of gas pipeline systems in High Consequence Areas (HCA's) to significantly increase their minimum required maintenance and inspection efforts. For example, all lines located within HCA's must be analyzed by conducting a baseline risk assessment. In general, the integrity of the lines must also be evaluated using an internal inspection device or a direct assessment, as prescribed in the regulation. Two incidents in particular, raised public concern regarding pipeline safety and necessitated these relatively new requirements.

Bellingham, Washington, June 10, 1999

According to the National Transportation Safety Board (NTSB) accident report, "about 3:28 p.m., Pacific daylight time, on June 10, 1999, a 16-inch diameter steel pipeline

owned by Olympic Pipe Line Company ruptured and released about 237,000 gallons of gasoline into a creek that flowed through Whatcom Falls Park in Bellingham, Washington. About one and one half hours after the rupture, the gasoline ignited and burned approximately and one and one-half miles along the creek. Two 10-year-old boys and an 18-year-old young man died as a result of the accident. Eight additional injuries were documented. A single-family residence and the City of Bellingham's water treatment plant were severely damaged. As of January 2002, Olympic estimated that total property damages were at least $45 million. But the actual total costs were likely much higher; the families of the two children settled with the operator for $75 million less than one month prior to trial.

The following major safety issues were identified as factors during the subsequent investigation:

- excavations performed by IMCO General Construction, Inc., in the vicinity of Olympic's pipeline during a major construction project and the adequacy of Olympic Pipe Line Company's inspections thereof;
- the adequacy of Olympic Pipe Line Company's interpretation of the results of in-line inspections of its pipeline and its evaluation of all pipeline data available to it to effectively manage system integrity;
- the adequacy of Olympic Pipe Line Company's management of the construction and commissioning of the Bayview products terminal;
- the performance and security of Olympic Pipe Line Company's supervisory control and data acquisition system; and
- the adequacy of Federal regulations regarding the testing of relief valves used in the protection of pipeline systems." (NTSB 2002)

Carlsbad, New Mexico, August 19, 2000

Per the NTSB accident report, "At 5:26 a.m., mountain daylight time, on Saturday, August 19, 2000, a 30-inch diameter natural gas transmission pipeline operated by El Paso Natural Gas Company ruptured adjacent to the Pecos River near Carlsbad, New Mexico. The released gas ignited and burned for 55 minutes. 12 persons who were camping under a concrete-decked steel bridge that supported the pipeline across the river were killed and their three vehicles destroyed. Two nearby steel suspension bridges for gas pipelines crossing the river were extensively damaged. According to El Paso Natural Gas Company and the figures included in the USDOT database, property and other damages or losses totaled $998,296. However, this figure significantly understates the financial impact to the operator. Although settlements were reached

with all of the victims, the only amount disclosed was a $14 million settlement for one of the victims. (Business Weekly)

The major safety issues identified in the NTSB investigation were as follows:

- the design and construction of the pipeline,
- the adequacy of El Paso Natural Gas Company's internal corrosion control program,
- the adequacy of Federal safety regulations for natural gas pipelines, and
- the adequacy of Federal oversight of the pipeline operator. (NTSB 2003)

Pipeline Integrity Management Regulations

As noted earlier, 49 CFR 192, Subpart O, Pipeline Integrity Management, is relatively new and was developed in response to the two major pipeline incidents discussed above. In 2002, Congress passed an Act to strengthen the pipeline safety laws. The Pipeline Safety Improvement Act of 2002 (HR 3609) was passed by Congress on November 15, 2002, and was signed into law by the President in December 2002. As of December 17, 2004, gas transmission operators of pipelines in high consequence areas (HCA's) were required to develop and follow a written integrity management program that contained all of the elements prescribed in 49 CFR 192.911 and addressed the risks on each covered transmission pipeline segment.

The regulation (68 Federal Register 69778, 69 Federal Register 18228, and 69 Federal Register 29903) defines HCA's as they relate to the different area class locations, potential impact circles, or areas containing an identified site as defined in 49 CFR 192.903. The OPS published a series of rules from August 6, 2002 to May 26, 2004 (69 Federal Register 69817 and 29904) that define HCA's where a gas pipeline accident could do considerable harm to people and their property. This definition satisfies, in part, the Congressional mandate in 49 USC 60109 for the OPS to prescribe standards that establish criteria for identifying each gas pipeline facility in a high-density population area.

The HCA's may be defined in one of two ways. Both methods are prescribed by 49 CFR 192.903. The first includes:

- Current Class 3 and 4 locations;

- Any area in Class 1 or 2 locations where the potential impact radius is greater than 660 feet (200 meters) and the area within a potential impact circle contains 20 or more buildings intended for human occupancy; or
- Any area in Class 1 or 2 locations where the potential impact circle includes an "identified site."

In the second method, an HCA includes any area within a potential impact circle that contains:

- 20 or more buildings intended for human occupancy; or
- an "identified site.

"Identified sites" include areas such as beaches, playgrounds, recreational facilities, camp grounds, outdoor theaters, stadiums, recreational areas, religious facilities, and other areas where high concentrations of the public may gather periodically as defined by 49 CFR 192.903.

The "potential impact radius" is calculated as the product of 0.69 and the square root of the maximum allowable operating pressure of the pipeline in pounds per square inch gauge (psig), multiplied by the pipeline diameter in inches squared. ($R = 0.69*(MAOP*d^2)^{0.5}$)

The potential impact circle is a circle with a radius equal to the potential impact radius.

Once a pipeline operator has identified the HCA's along its pipeline(s), it must apply the elements of its integrity management program to those segments of the pipeline within the HCA's. The pipeline integrity management rule for HCA's requires inspection of the entire pipeline within HCA's every 7 years.

As noted earlier, the proposed pipeline facilities are located within Class 1, 2 and 3 areas. As a result, using the first HCA definition, the portions of the line within Class 3 areas would be within an HCA. The impact radii are 646-feet and 215-feet for the 30-inch and 10-inch line segments respectively. These values are less than the 660-foot impact radius which might add additional portions to an HCA. As a result, certain portions of the Project will be required to be included in the Applicant's Pipeline Integrity Management Plan. Should the population density increase, additional portions of the pipeline may become located within an HCA, requiring the Applicant to include the affected pipe segments in their Pipeline Integrity Management Plan.

2.2 STATE

As noted earlier, these intrastate pipeline facilities would be under the jurisdiction of the CPUC, as a result of their certification by the OPS. (The State of California is certified under 49 USC Subtitle VIII, Chapter 601, §60105.) The State requirements for designing, constructing, testing, operating, and maintaining gas piping systems are stated in CPUC General Order Number 112. These rules incorporate the Federal regulations by reference, but for natural gas pipelines, they do not impose any additional requirements affecting public safety.

3.0 SIGNIFICANCE CRITERIA

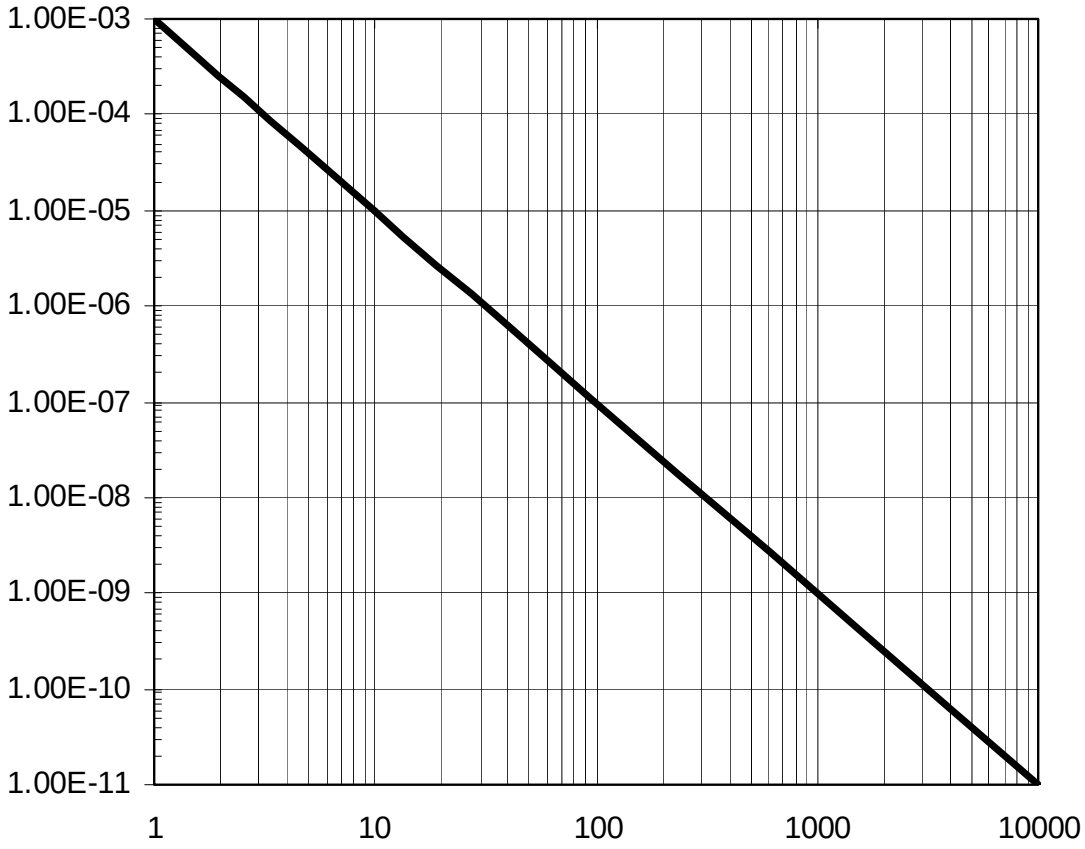
3.1 INDIVIDUAL RISK

For individual fatality risks, the generally accepted significance criterion is an annual likelihood of one in one million (1:1,000,000) (CDE 2007, CPUC 2006).

3.2 SOCIETAL RISK

Societal risk is the probability that a specified number of people will be affected by a given event. The accepted number of casualties is relatively high for lower probability events and much lower for more probable events. However, the acceptable values for societal risk vary greatly, depending on the responsible agency or jurisdiction. Unfortunately, there are no prescribed societal risk guidelines for the United States, nor the State of California. The United Kingdom, considers those events which result in 100 fatalities, with an annual probability of 1.0×10^{-5} (1:100,000) or less. The Committee for the Prevention of Disasters, uses the criteria as shown in Figure 3.2-1 below. This data is the same as the criteria used in the Netherlands and is the most conservative of the published data for Western Europe. These criteria have been used to evaluate societal risk in this document.

Figure 3.2-1: Societal Risk Criteria



Source: Committee for the Prevention of Disasters, The Hague

4.0 IMPACT ANALYSIS AND MITIGATION

4.1 POTENTIAL IMPACTS

The proposed Project could pose additional risks to the public. Natural gas could be released from a leak or rupture. If the natural gas reached a combustible mixture and an ignition source was present, a fire and/or explosion could occur, resulting in possible injuries and/or deaths.

Impact HAZ-1: Injuries or Fatalities

An unintentional release from the proposed Project could result in injuries and/or deaths (Significant and Unavoidable, Class 1).

4.1.1 Impact Discussion

Fire

The physiological effect of fire to humans depends on the rate at which heat is transferred from the fire to the person, and the time the person is exposed to the fire. Skin that is in contact with flames can be seriously injured, even if the duration of the exposure is just a few seconds. Thus, a person wearing normal clothing is likely to receive serious burns to unprotected areas of the skin when directly exposed to the flames from a flash fire (vapor cloud fire).

Humans in the vicinity of a fire, but not in contact with the flames, would receive heat from the fire in the form of thermal radiation. Radiant heat flux decreases with increasing distance from a fire. So those close to the fire would receive thermal radiation at a higher rate than those farther away. The ability of a fire to cause skin burns due to radiant heating depends on the radiant heat flux to which the skin is exposed and the duration of the exposure. As a result, short-term exposure to high radiant heat flux levels can be injurious. But if an individual is far enough from the fire, the radiant heat flux would be lower, likely incapable of causing injury, regardless of the duration of the exposure.

An incident heat flux level of 1,600 Btu/hour-square foot (btu/ft^2-hr) is considered by many to be potentially hazardous for people located outdoors and unprotected. Generally, humans located beyond this heat flux level would not be at risk to injury from thermal radiation resulting from a fire. The radiant heat flux effects to humans are summarized below:

- 8,000 btu/ft^2-hr (25.1 kW/m^2) – 50% mortality (CDE 2007).
- 5,000 btu/ft^2-hr (15.7 kW/m^2) – 1% mortality (CDE 2007).
- 3,500 btu/ft^2-hr (11.0 kW/m^2) - Second degree skin burns after ten seconds of exposure, 15% probability of fatality. This assumes that an individual is unprotected or unable to find shelter soon enough to avoid excessive exposure (Quest 2003).
- 1,600 btu/ft^2-hr (5.0 kW/m^2) - Second degree skin burns after thirty seconds of exposure.
- 440 btu/ft^2-hr (1.4 kW/m^2) - Prolonged skin exposure causes no detrimental effect (CDE 2007, Quest 2003).

Explosion

As noted earlier, natural gas does not explode unless it is confined sufficiently within a specific range of mixtures with air and is ignited. However, if an explosion does occur, the physiological effects of overpressures depend on the peak overpressure that reaches a person. Exposure to overpressure levels can be fatal. People located outside the flammable cloud when a combustible mixture ignites would be exposed to lower overpressure levels than those inside the flammable cloud. If a person is far enough from the source of overpressure, the explosion overpressure level would be incapable of causing injuries. The generally accepted hazard level for those inside buildings exposed to an explosion is an overpressure of 1.0 psig. This level of overpressure can result in injuries to humans inside buildings, primarily from flying glass and debris. The consequences of various levels of overpressure are outlined in the table below.

Table 4.1.1-1 Explosion Over-Pressure Damage Thresholds

Side-On Over-Pressure	Damage Description
0.02 psig	Annoying Noise
0.03 psig	Occasional Breaking of Large Window Panes Under Strain
0.04 psig	Loud Noise; Sonic Boom Glass Failure
0.10 psig	Breakage of Small Windows Under Strain
0.20 psig	Glass Breakage - No Injury to Building Occupants
0.30 psig	Some Damage to House Ceilings, 10% Window Glass Broken
0.50 to 1.00 psig	Large and Small Windows Usually Shattered, Occasional Damage to Window Frames
0.70 psig	Minor Damage to House Structures, Injury, but Very Unlikely to Be Serious
1.00 psig	1% Probability of a Serious Injury or Fatality for Occupants in a Reinforced Concrete or Reinforced Masonry Building from Flying Glass and Debris 10% Probability of a Serious Injury or Fatality for Occupants in a Simple Frame, Unreinforced Building
2.30 psig	0% Mortality to Persons Inside Buildings or Persons Outdoors (CDE 2007)
3.10 psig	10% Mortality to Persons Inside Buildings (CDE 2007)
3.20 psig	<10% Mortality to Persons Outdoors (CDE 2007)
14.5 psig	1% Mortality to Those Outdoors (LEES)

Sources: LEES, CDE 2007, Quest 2003

4.1.2 Baseline Data

In the following paragraphs, the anticipated frequency of unintentional releases and impacts to humans will be estimated using data from the following sources:

- United States Natural Gas Transmission and Gathering Lines (U.S. Department of Transportation [USDOT]) – 1970 through 2007.
- United States Interstate Hazardous Liquid Pipelines (USDOT) - 1984 through 1998.
- California Regulated Interstate and Intrastate Hazardous Liquid Pipelines (Payne, 1993) - 1981 through 1990.

Each of these data sets provides pipeline incident data for reportable incidents. However, the criteria for reporting incidents differ for each source. This makes direct comparison of the individual results difficult. On the other hand, it provides a methodology for estimating incident rates for a variety of consequences.

U.S. Natural Gas Transmission Lines - 1970 to June 1984

Since the USDOT natural gas pipeline reporting criteria changed in June 1984, the incident reports beginning in July 1984 have been summarized separately, in the next section of this document. The criteria for natural gas releases to be reported to the USDOT from 1970 through June 1984 were as follows:

- Resulted in a death or injury requiring hospitalization;
- Required the removal from service of any segment of a transmission pipeline;
- Resulted in gas ignition;
- Caused an estimated damage to the property owner, or of others, or both, of $5,000 or more;
- Involved a leak requiring immediate repair;
- Involved a test failure that occurred while testing either with gas or another test medium; or
- In the judgment of the operator, was significant even though it did not meet any of the above criteria.

The frequencies of the various consequences reported during this period are summarized below.

- Reportable Unintentional Releases - 1.3 incidents per 1,000 mile-years.

- Reportable Injuries - 0.096 injuries per 1,000 mile-years (0.007 public injuries per 1,000 mile-years).
- Fatalities - 0.016 fatalities per 1,000 mile-years (0.008 public fatalities per 1,000 mile-years).

It should be noted that during this 14½-year period, 36 (50%) of the total 72 fatalities and 161 (59%) of the total 274 of those injured were employees of the operating company.

U.S. Natural Gas Transmission Lines - July 1984 through 2007

In June 1984, the USDOT changed the criteria for reporting natural gas releases. The most significant change was that in general, leaks causing less than $50,000 property damage no longer required reporting to the USDOT. The criteria for natural gas releases to be reported to the USDOT from July 1984 through the present include:

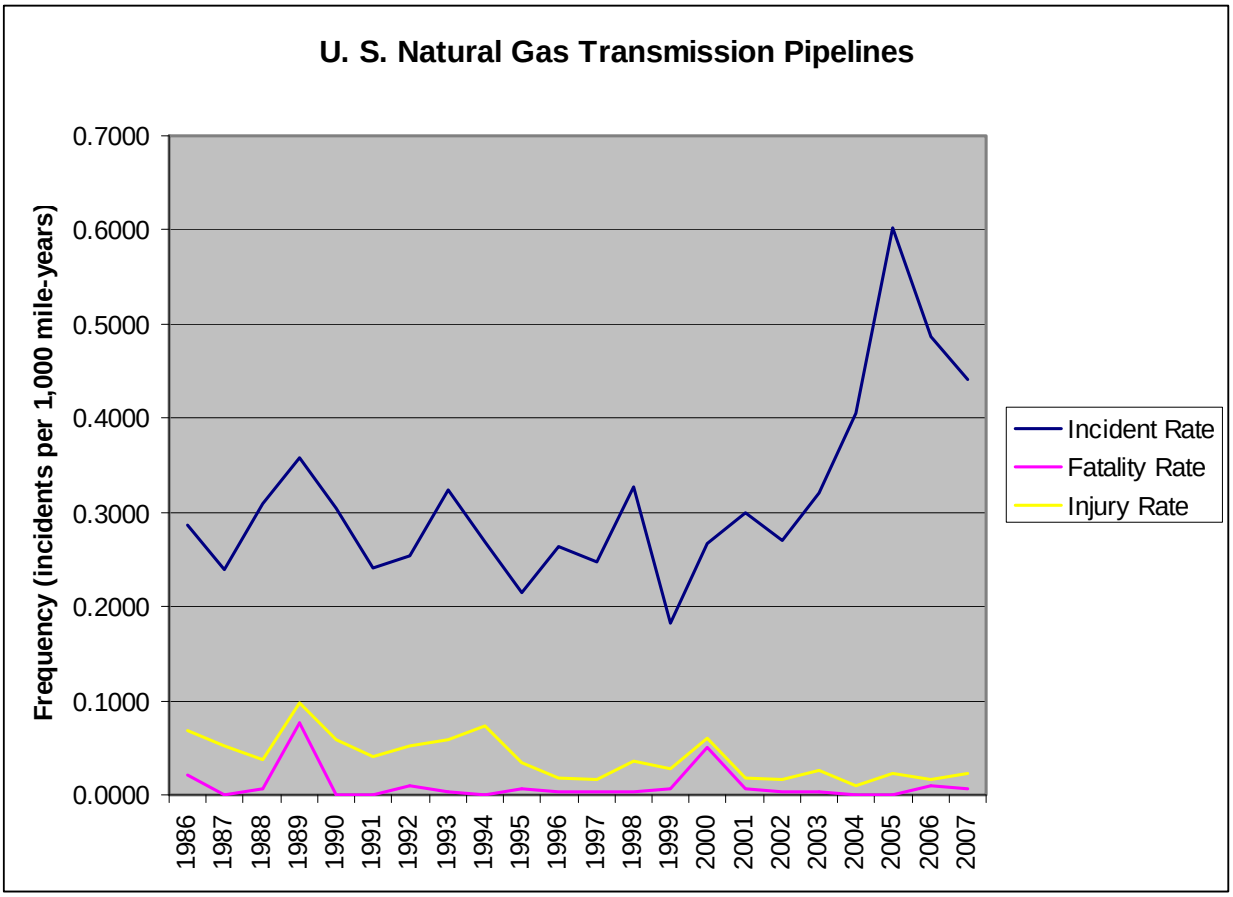
- Events which involved a release of gas from a pipeline, or of liquefied natural gas (LNG) or gas from an LNG facility, which caused: (a) a fatality, or personal injury necessitating inpatient hospitalization; or (b) estimated property damage, including costs of gas lost by the operator, or others, or both, of $50,000 or more.
- An event which resulted in an emergency shut-down of an LNG facility.
- An event that was significant, in the judgment of the operator, even though it did not meet the criteria above.

Since the reporting threshold is now significantly greater than the prior $5,000 reporting criteria, a significant decrease in the resulting reportable incident rate resulted. However, the frequency of reportable injuries and fatalities also decreased, indicating improvements in pipeline safety. These data are summarized below for the 22-year period from January 1, 1986 through December 31, 2007.

- Reportable Unintentional Releases - 0.31 incidents per 1,000 mile-years
- Reportable Injuries - 0.040 injuries per 1,000 mile-years
- Fatalities - 0.010 fatalities per 1,000 mile-years

In 2002, the USDOT changed their reporting forms. At this time, operators were required to begin reporting additional data for each reportable release. These changes were significant. Some of the additional reporting fields included the reporting of fires and explosions, which were not required to be identified previously.

For the most recent six year period, since the change in the USDOT reporting form (January 2002 through December 2007), there were a total of 761 reported incidents from natural gas transmission pipelines included in the database, including 35 reported injuries, and 7 fatalities. The average reported property damage was nearly $820,000 per incident. (However, the actual value is likely higher, due to the lag in the settlement of law suits, extended duration of some clean-up and repair efforts, etc. As noted earlier, the actual cost to the operator can be significantly higher than that initially reported to the USDOT.) The average annual transmission pipeline mileage was 301,373 miles for this six year period. Using these data, the frequency of reportable incidents during this most recent six year period was up over 50% when compared to the 22-year period presented above - 0.42 incidents per 1,000 mile-years for 2002 through 2007 versus 0.27 incidents per 1,000 mile-years for 1986 through 2002. The injury and fatality rates for the most recent six year period were 0.019 and 0.004 incidents per 1,000 mile-years respectively, down significantly. These data are summarized in the following figure by year.



Source: USDOT, Incident Summary Statistics by Year and Natural Gas Transmission Pipeline Annual Mileage

Figure 4.1.2-1 U.S. Natural Gas Transmission Pipeline Incident Rate History

It should be noted that the above data, as included on the USDOT Incident Summary Statistics by Year includes 92 incidents which occurred on lines identified as "Gathering" in the USDOT incident database (USDOT). An audit of the USDOT database is beyond the scope of this work. As a result, the reason that these data have been included in the USDOT summary statistics is unknown. There are several possible reasons. The operator may have indicated the classification of the line as "Gathering" in error. The USDOT may have inadvertently included the incident data in the wrong report. However, making the maximum correction for these incidents does not significantly affect the results. The 2002 through 2007 data would be affected as follows, if the 92 incidents which occurred on lines identified as "Gathering" were deleted:

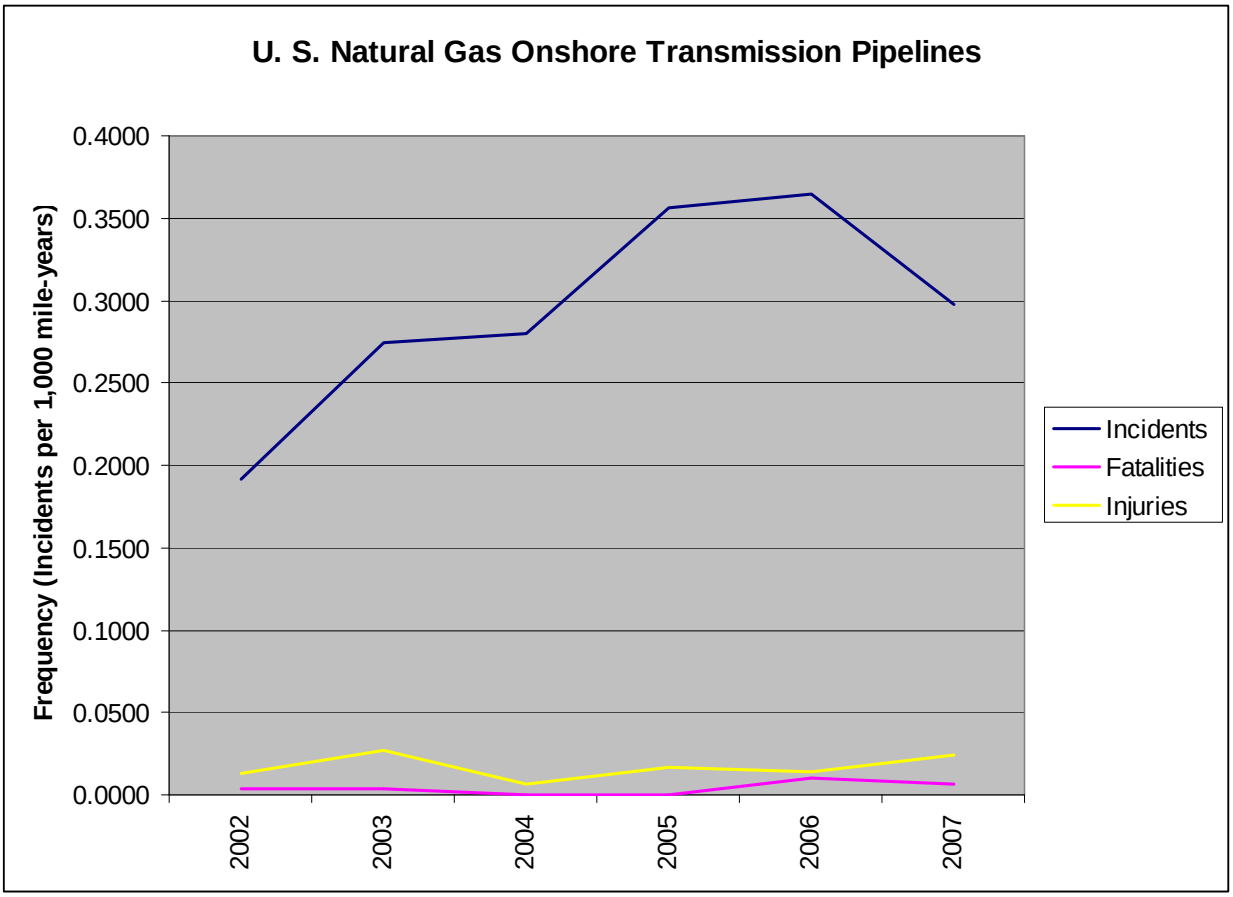
- Reportable Unintentional Releases – This figure would be reduced from 0.42 to 0.37 incidents per 1,000 mile-years

- Reportable Injuries - This figure would be reduced from 0.019 to 0.017 injuries per 1,000 mile-years
- Fatalities – This figure would be unchanged at 0.004 fatalities per 1,000 mile-years

The database also includes incidents which occurred on offshore segments of pipeline. During the six year period between January 2002 and December 2007, there were 216 such incidents. 67 of these occurred on lines identified as “Gathering”, while 149 occurred on segments identified as “Transmission”. If these offshore releases are also removed from the database, and the mileage is adjusted to only include the onshore mileage, the following incident rates result:

- Reportable Unintentional Releases – 0.29 incidents per 1,000 mile-years
- Reportable Injuries - 0.017 injuries per 1,000 mile-years
- Fatalities – 0.004 fatalities per 1,000 mile-years
- Average Property Damage - $520,000

The data for onshore transmission pipelines only are presented in the following figure.



Source: USDOT

Figure 4.2-2 U.S. Natural Gas Onshore Transmission Pipeline Incident Rate History

U.S. Hazardous Liquid Pipelines - 1984 through 1998

The criteria for hazardous liquid pipeline incidents to be reported to the USDOT for inclusion in this data set were as follows:

- Explosion or fire not intentionally set by the operator;
- Loss of more than 50 barrels (2,100 gallons) of liquid or carbon dioxide;
- Escape to the atmosphere of more than five barrels per day of highly volatile liquid;
- Death of any person;
- Bodily harm to any person resulting in loss of consciousness, necessity to carry the person from the scene, or disability which prevents the discharge of normal duties or the pursuit of normal activities beyond the day of the accident; and/or

- Estimated property damage to the property of the operator, or others, or both, exceeding $5,000, prior to June 1994. After June 1994, this criteria was changed to $50,000, including the cost of clean-up, recovery, and the value of any lost product.

The data for this period are summarized below:

- Reportable Unintentional Releases - 1.29 incidents per 1,000 mile-years
- Reportable Injuries - 0.076 injuries per 1,000 mile-years
- Fatalities - 0.015 fatalities per 1,000 mile-years

It should be noted that the 1994 Annual Report on Pipeline Safety excluded 1,851 individuals who were injured with minor burns and vapor inhalation from the failure and ignition of seven hazardous liquid pipelines during the San Jacinto River floods in mid-October, 1994, near Houston, Texas. These incidents were caused by severe flooding in the area. These injuries are not included in the injury rate shown above.

It is interesting to note that the incident rate for hazardous liquid pipeline releases (prior to 1994) was essentially the same as those for reportable U.S. natural gas transmission and gathering lines from 1970 through June 1984, which had a similar $5,000 property damage reporting requirement.

Regulated California Hazardous Liquid Pipelines - 1981 through 1990

This study, undertaken by the California State Fire Marshal, Pipeline Safety Division, included all regulated California interstate and intrastate hazardous liquid pipelines (Payne 1993). It included approximately 7,800 miles of pipeline data, over a ten year period (1981 through 1990). The systems included in this study had complete release records. The major difference for this study, as compared to ones discussed previously, is that all releases, regardless of size, cause, extent of property damage, or extent of injury were included in the study. Also, a complete audit of the pipeline inventory and release data was conducted. As a result, the incident rates resulting from this study were higher than presented in other studies, which only included reported releases fitting a relatively narrow set of criteria. A summary of these results is included below.

- Unintentional Releases - 7.08 incidents per 1,000 mile-years
- Injuries - 0.685 injuries per 1,000 mile-years
- Fatalities - 0.042 fatalities per 1,000 mile-years

Summary of Historical Pipeline Consequence Data

In the following table, the available pipeline release data have been summarized.

Table 4.1.2-1 Pipeline Release Consequences by Data Source

Consequence	U.S. Natural Gas Transmission 1970 to June 1984	U.S. Natural Gas Transmission July 1984 thru 2007 (As Reported by USDOT)	U.S. Natural Gas Onshore Transmission 2002 thru 2007	U.S. Hazardous Liquid - 1984 thru 1998	California Hazardous Liquid - 1981 thru 1990
	Incidents per 1,000 mile-years				
Reportable Incidents	1.30 ($5,000 criteria)	0.31 ($50,000 criteria)	0.29 ($50,000 criteria)	1.29 ($5,000 criteria)	7.08 (all incidents, regardless of size and value of property damage)
Injuries regardless of severity	N/A	N/A	N/A	N/A	0.685
Injury requiring hospitalization	0.096	0.040	0.017	N/A	N/A
Injuries requiring hospitalization, causing loss of consciousness, or preventing discharge of normal duties day following the incident	N/A	N/A	N/A	0.076	N/A
Fatalities	0.016	0.010	0.004	0.015	0.042

Consequence Data Used In Analysis

The USDOT database of natural gas transmission pipeline releases from January 2002 through December 2007 has been analyzed. These data will be used to develop the baseline frequency of unintentional releases from the proposed facilities. After deleting all releases noted from “Gathering” lines and “Offshore” lines, there were 520 releases remaining from onshore transmission pipelines. Of these, the two major causes of releases were excavation damage and external corrosion. 113 (22%) of the releases were caused by excavation damage from a third party and the pipeline operator. 71

(14%) of the releases were caused by external corrosion. The remaining 336 (64%) of the releases were caused by a variety of factors, listed in descending order of frequency:

- miscellaneous or unknown – 12%
- malfunction of control or relief equipment – 7%
- vehicles not related to excavation – 6%
- internal corrosion – 5%
- butt weld failure – 5%
- rain and flooding – 4%
- body of pipe failure – 4%
- incorrect operation – 3%
- pipe weld seam failure – 3%
- earth movement – 2%
- component failure – 2%
- joint failure – 2%
- threaded fitting or coupling failure – 2%
- lightning – 1%
- fire and explosions – 1%
- fillet weld failure – 1%
- temperature - <1%
- wind - <1%
- rupture of previously damaged pipe - <1%
- vandalism - <1%

Third Party Damage Incident Rate

As noted above, third party damage caused 22% of the accidental pipeline releases. The Applicant will be required to implement the following mitigation measures to reduce the frequency of third party caused releases in accordance with applicable LORS:

- One-Call System – The Applicant will subscribe to the USA North underground service alert “one-call” system. A toll free number is available for contractors and others to use before they begin excavations. Once a contractor calls and

identifies its proposed excavation location, the organization will notify the Applicant and other underground facility owners in the vicinity. The owners respond to these calls with personal communications with the excavator. If their facilities are nearby, they mark the location of their facilities on the ground, so third party intrusions can be avoided. Participation in a one-call system if required as part of an operator's damage prevention program, per 49 CFR 192.614.

- Line Marking – The Applicant is required by federal regulation (49 CFR 192.707) to install line marker posts such that the pipeline is readily identifiable. In addition, they are required to have warning signs installed at each side of road, railroad, and waterway crossings, and at fence lines across open or agricultural property, crossings of other lines (e.g., irrigation, oil, gas, telephone, utilities) where practical, and where the line is above ground in areas accessible to the public.
- Right-of-Way Patrolling - 49 CFR 192.705 requires each operator to have a patrol program to monitor for indications of leaks, nearby construction activity, and any other factors that could affect safety and operation. The frequency of these inspections is based on a number of factors. For the proposed line, in class 1 and 2 area classifications these patrols must be conducted at least twice each calendar year for road crossings and once each calendar year in other locations; in class 3 locations these patrols must be conducted at least four times each calendar year for road crossings and at least twice each calendar year in other locations
- Leakage Surveys – A leakage survey must be conducted at least once each calendar year for class 1 and 2 locations and at least twice per year for class 3 locations.
- Public Education - 49 CFR 192.616 requires pipeline operators to develop and implement a written continuing public education program that follows the guidance provided in the American Petroleum Institute's (API's) Recommended Practice 1162 Public Awareness Programs for Pipeline Operators as their public education procedure.

The California study found that the overall frequency of third party damage caused unintentional releases was 1.46 unintentional releases per 1,000 mile-years. For pipelines constructed in the 1950's, the frequency was only 0.88 unintentional releases per 1,000 mile-years; it was even lower for newer lines. These lower values were primarily due to the increased awareness of the threat from third party damage to pipeline facilities; newer lines have benefited from improved line marking, one-call dig alert systems, avoidance of high risk areas, improved documentation, increased depth of cover, and public awareness programs. (Payne 1993)

The Applicant's proposed mitigation to increase the depth of cover to a minimum of five -feet will provide increased protection from third party damage. A European Study found that increasing the pipe depth of cover beyond four feet decreased the risk of third party incidents by about 30% versus the depth of cover required by the 49 CFR 192. (HSE 2001)

Using these data and the baseline frequency of 0.29 reportable unintentional releases per 1,000 mile-years from the U. S. natural gas onshore transmission pipelines (2002 through 2007), the anticipated frequency of third party damage caused USDOT reportable releases is 0.045 incidents per 1.000 mile-years (0.29 per 1,000 mile-years baseline x 22% caused by third party damage x 70% = 0.045 incidents per 1,000 mile-years).

External Corrosion Incident Rate

External corrosion of a buried pipe is an electro-chemical reaction, which can occur when bare (un-coated) steel is in contact with the earth. The moist soil surrounding a pipeline can serve as an electrolyte. When this occurs, the pipe can become an anode. The current then flows through the electrolyte, from the anode (pipe) to the cathode (soil). In this instance, the anode (pipe) loses material (corrodes) as this process occurs.

The intent of an effective external corrosion prevention program is twofold. First, the pipe is protected from corrosion by insulating it from contact with the electrolyte (moist soil) using an external coating. Second, in the event that the coating should fail, the pipe is prevented from becoming the anode by introducing some other material into the electrochemical chain that is more anodic than the pipe, or appears to be because of an impressed current. An impressed current or sacrificial anode cathodic protection system makes the current flow through the soil, toward the pipe, instead of away from it; thus, external corrosion is eliminated.

An impressed current system takes alternating current electrical power from a utility source or solar panels. A transformer is used to reduce the voltage. A rectifier then converts the alternating current to a direct current. The direct current flows to and through anodes (graphite, steel, or other material) and into the surrounding earth. At locations where there may be a break in the external pipe coating (holiday), the current will reach the pipeline. It will then flow along the line to the rectifier, completing the circuit, preventing external corrosion at the external pipe coating holiday.

External corrosion typically causes a relatively large percentage of unintentional releases. Often, these releases are relatively small in volume, with low release rates. However, they often can go unnoticed for long periods of time.

The California study found that the frequency of unintentional releases (of all volumes) caused by external corrosion varied significantly by decade of pipe construction and pipeline operating temperature.

During the 1940's and 1950's, significant improvements were made in pipeline construction techniques and materials. Relative to external corrosion, the primary improvements included advances in external coatings and more widespread use of these coatings and cathodic protection systems. These items account for the significant reduction in external corrosion incident rates for modern pipelines, versus pipelines constructed prior to the 1940's. For newer pipelines, it is impossible to isolate the individual affects of pipe age and other improvements (e.g. technology, construction techniques, the more widespread use of high quality external coatings and cathodic protection systems). The table below presents the California data by decade of pipeline construction by incident cause.

Table 4.1.2-2 Incident Rates by Decade of Construction

Incident Cause	Pre-1940	1940-49	1950-59	1960-69	1970-79	1980-89
External Corrosion	14.12	4.24	2.47	1.47	1.24	0.00
Internal Corrosion	0.38	0.27	0.10	0.16	0.00	0.28
3rd Party - Construction	1.96	1.06	0.68	0.66	0.25	0.28
3rd Party - Farm Equipment	0.53	1.33	0.05	0.00	0.00	0.00
3rd Party - Train Derailment	0.00	0.00	0.00	0.05	0.25	0.00
3rd Party - External Corrosion	0.45	0.00	0.10	0.33	0.00	0.00
3rd Party - Other	0.30	0.13	0.05	0.05	0.00	0.00
Human Operating Error	0.30	0.13	0.00	0.11	0.25	0.00
Design Flaw	0.08	0.00	0.00	0.00	0.00	0.14
Equipment Malfunction	0.38	0.53	0.10	0.60	1.24	0.00
Maintenance	0.00	0.00	0.24	0.00	0.00	0.00
Weld Failure	0.38	0.27	0.15	0.44	0.25	0.00
Other	0.83	0.13	0.24	0.27	0.25	0.28
Total	19.71	8.09	4.18	4.14	3.73	0.98

Source: Payne, 1993

The statistical analyses performed in the California study indicated that operating temperature directly affected the frequency of unintentional releases caused by external corrosion. Considering all pipelines, regardless of decade of construction, those that were operated near ambient temperatures had an external corrosion caused incident rate of 1.33 unintentional releases per 1,000 mile-years. The incident rate rose dramatically as the operating temperature was increased.

The proposed pipeline segment will be operated at ambient temperatures. The table below indicates that the external corrosion incident rates for the California lines operated at various temperatures ranged from 0.48 to 11.36 unintentional releases per 1,000 mile-years. However, the lines operated between 130°F and 159°F had a 1947 mean year of pipeline construction; as discussed earlier, pipe age also significantly affected the incident rate. This effect is also reflected in these data.

Table 4.1.2-3 Incident Rates by Design Operating Temperature

Incident Cause	0-69°F	70-99°F	100-129°F	130-159°F	160°F+
External Corrosion	0.48	1.33	7.11	11.36	11.31
Internal Corrosion	0.00	0.21	0.32	0.57	0.08
3rd Party - Construction	1.91	0.94	0.95	0.57	0.60
3rd Party - Farm Equipment	0.00	0.30	0.47	0.00	0.08
3rd Party - Train Derailment	0.00	0.04	0.00	0.00	0.00
3rd Party - External Corrosion	0.00	0.06	0.16	0.00	0.15
3rd Party - Other	0.00	0.24	0.16	0.00	0.15
Human Operating Error	0.00	0.11	0.00	0.00	0.23
Design Flaw	0.00	0.04	0.00	0.00	0.00
Equipment Malfunction	0.00	0.24	0.16	0.57	0.98
Maintenance	0.00	0.09	0.16	0.00	0.00
Weld Failure	0.00	0.19	0.32	0.00	0.60
Other	0.00	0.21	1.11	1.14	0.45
Total	2.39	4.00	10.92	14.21	14.63

Source: Payne, 1993

To reduce the likelihood of releases caused by external corrosion, the following measures would be implemented by the Applicant in compliance with applicable LORS:

- Modern External Pipe Coating - The proposed pipeline segments will be externally coated with 14 mils of fusion bonded epoxy (FBE). In addition, pipe that will be installed using the horizontal directional drilling (HDD) or hammer bore technique, will have an additional outer abrasion resistant top coating (e.g., 3M 6352, DuPont NapRock, or Powercrete®).
- Impressed Current Protection System - The proposed pipeline will be protected from external corrosion by an impressed current cathodic protection system.
- Monitoring - At least once each calendar year, at intervals not exceeding 15 months, the Applicant will be required to test their cathodic protection system in accordance with 49 CFR 192.465.
- Visual Inspections - Each time buried pipe is exposed for any reason, the Applicant will be required to examine the pipe for evidence of external corrosion in accordance with 49 CFR 192.459. If active corrosion is found, the operator is required to investigate and determine the extent. Pipeline operators are required to maintain records of these USDOT required inspections. They are routinely reviewed by USDOT staff during their inspections.

Using the data presented in the Tables above, an opinion of the anticipated frequency of USDOT reportable unintentional releases due to external corrosion from the

proposed pipe segments has been developed. These segments will normally be operated at ambient temperatures, using externally coated pipe, with an impressed current cathodic protection system. The anticipated frequency of third party damage caused USDOT reportable releases is 0.027 incidents per 1.000 mile-years (0.29 per 1,000 mile-years baseline x 14% caused by third party damage x 2/3% = 0.027 incidents per 1,000 mile-years). This frequency is intended to reflect the average value over a 40-year project life. During the early years of operation, the frequency of externally corrosion caused incidents will likely approach zero. It should also be noted that the statistical impact of the new USDOT pipeline integrity regulations are unknown at this time. But they will likely reduce the frequency of releases from the proposed pipeline components located within an HCA which will be included in a Pipeline Integrity Management Plan.

Miscellaneous Causes Incident Rate

As noted above, the remaining 64% of the incidents not caused by third party damage or external corrosion are caused by a number of factors. Since each of these causes is a relatively small percentage of the total, adjustments were not made to these frequencies individually. A one-third reduction has been made to account for the remaining Applicant proposed mitigation measures and the fact that these facilities will be modern, new systems. A larger adjustment could have been made. However, the resulting frequency is intended to reflect the average value over a 40-year project life. The anticipated frequency of non-third party damage or external corrosion caused USDOT reportable releases is 0.124 incidents per 1.000 mile-years (0.29 per 1,000 mile-years baseline x 64% x 2/3 = 0.124 incidents per 1,000 mile-years).

Overall Pipeline Facility Incident Rate

The anticipated frequency of USDOT reportable releases from the proposed facilities is 0.196 incidents per 1.000 mile-years (0.045 from third party damage, 0.027 from external corrosion, and 0.124 from other causes).

4.1.3 Qualitative Risk Assessment

In this section, the anticipated frequency of unintentional releases, injuries and fatalities will be developed using the historical baseline data presented above for the following project components:

- 14-mile long, 30-inch diameter Line 406, including the regulating and metering facilities at Capay Station and Yolo Junction;
- 13.5-mile long, 30-inch diameter Line 407W, including the Power Line Road main line vale site;
- 12-mile long, 30-inch diameter Line 407E, including the Baseline/Brewer main line valve and the Baseline Road Pressure Regulating Station; and the
- 2.5–mile long, 10-inch diameter, DFM, including the Power Line Road regulating station.

Anticipated Frequency of Unintentional Releases

Using the baseline data compiled in the previous section, the anticipated frequencies of unintentional releases have been estimated. These data, for the proposed pipeline segments, are shown in Table 4.1.3-1 below. These data also include anticipated releases from the meter stations and other appurtenances, which are also under USDOT jurisdiction and are subject to the pipeline incident reporting requirements. As a result, releases from these facilities have been included in the previously presented baseline data.

Table 4.1.3-1 Anticipated Frequency of Unintentional Releases

Incident Cause	Incident Rate	Anticipated Number of Incidents Per Year	Likelihood of Annual Occurrence
Total, All Releases, Regardless of Spill Volume	3.00 per 1,000 mile-years	0.126	1 in 7.9
USDOT Reportable Gas Releases - 1970 thru June 1984 criteria (>$5,000 damage)	1.30 per 1,000 mile-years	0.055	1 in 18
USDOT Reportable Gas Releases - Current Criteria (>$50,000 damage)	0.196 per 1,000 mile-years	0.008	1 in 120

Anticipated Frequency of Injuries and Fatalities

Most unintentional natural gas releases are relatively small and do not cause personal injuries or death. In this section, the likelihood of human injuries and deaths will be estimated using historical baseline data. Later in this document, the human life impacts will be evaluated using a probabilistic approach.

As noted earlier, the primary natural gas component is methane, which is not toxic. Although methane presents a slight inhalation hazard, the primary risk to humans is posed by exposures to fire or explosion. A fire could result from a natural gas release with two conditions present. First, a volume of natural gas must be present within the combustible mixture range (5% to 15% methane in air). Second, a source of ignition must be present with sufficient heat to ignite the air/natural gas mixture (1,000°F). In order for an explosion to occur, a third condition must be present - the natural gas vapor cloud must be confined, to a sufficient degree.

It is difficult to estimate the potential extent of human injury because there are so many variables affecting the size of a fire or explosion: rate of vapor cloud formation (controlled primarily by the release rate), size of the vapor cloud within the combustible range (controlled by weather, including wind and temperature, release rate, etc.), concentration of vapors (varying with wind and topographic conditions), degree of vapor cloud confinement, etc. (These actual conditions will be evaluated later, in Section 4.1.4 of this Appendix.)

Based on the historical data presented earlier, the following frequencies for human life consequences are anticipated from the pipeline components and associated metering stations, regulating stations, and appurtenances:

Table 4.1.3-2 Human Life Impacts Based on Historical Data

Consequence	Frequency	Annual Number of Events	Return Interval (Years)
Injuries regardless of severity	0.700 incidents per 1,000 mile-years	2.9×10^{-2}	34
Injuries requiring hospitalization	0.017 incidents per 1,000 mile-years	7.1×10^{-4}	1,400
Fatalities	0.004 fatalities per 1,000 mile-years	1.7×10^{-4}	6,000

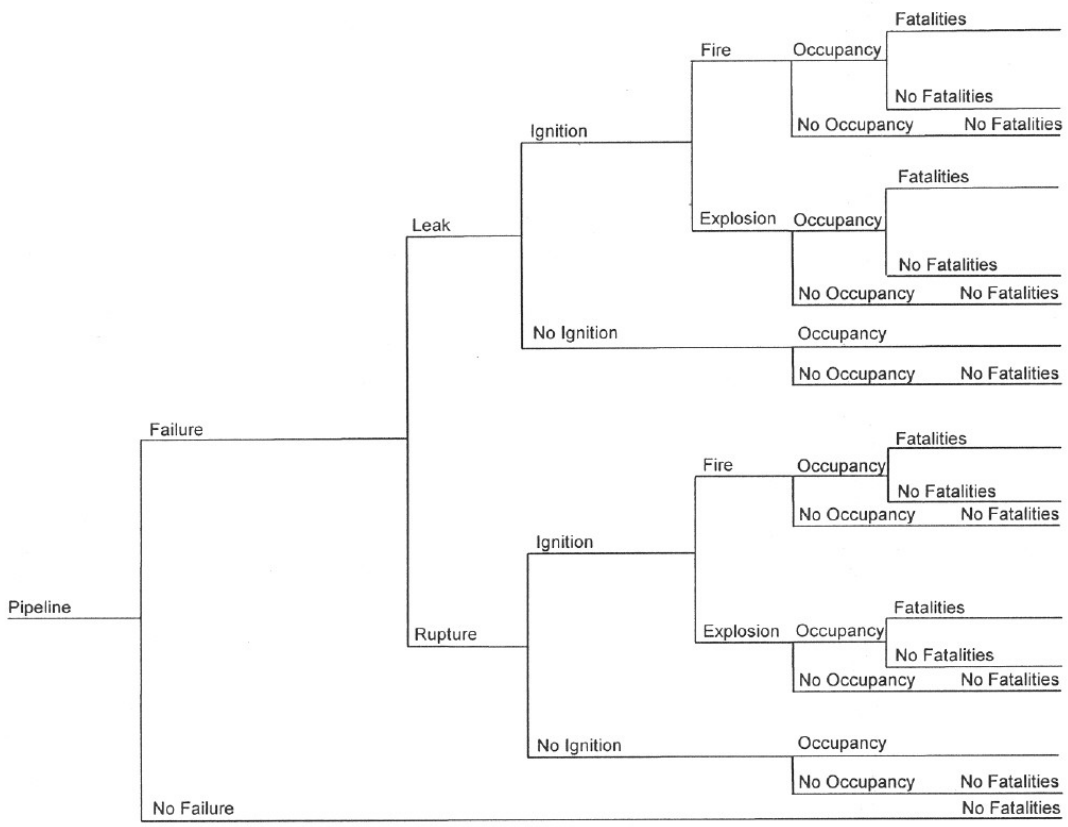
As indicated in the table above, the annual probability of a fatality is 1:6,000, based on the qualitative risk assessment. This is significantly higher than the generally accepted significance criterion of one in one million (1:1,000,000) (CDE 2007, CPUC 2006). As a result, this level of risk would generally be considered significant.

The anticipated frequencies of injuries and fatalities presented above are useful references. However, they do not facilitate an accurate evaluation of the specific

parameters for the proposed pipeline facilities. For example, these summary data do not differentiate between the risks of a relatively benign natural gas pipeline and a liquefied petroleum gas (LPG) pipeline, which is much more likely to result in serious impacts due to fires and explosions. These historical data also do not differentiate between various population densities. For example, a release in an urban area is likely to cause more significant impacts to humans than a release in a rural, undeveloped area. For the rural portion of the proposed facilities, the values shown above overstate the risk to the public; while in the urban areas they likely understate the risk. In the following section, a probabilistic risk assessment will be presented. This analysis will consider the actual environment, pipe contents, pipe diameter, actual operating conditions and the proximity to the public.

4.1.4 Quantitative Risk Assessment

In this section, a probabilistic pipeline risk assessment will be presented. This analysis considers the actual site population density, as well as the characteristics of the pipe contents in the event of an unintentional release. This analysis was conducted using the following consequence event tree, with minor modifications to differentiate between flash and torch fires.



Baseline Frequency of Unintentional Releases

For this analysis, a baseline frequency of USDOT reportable unintentional releases of 0.196 incidents per 1,000 mile-years has been used.

Conditional Consequence Probabilities

In order to conduct a probabilistic analysis, the conditional probabilities of each fault tree branch must be established. For example:

- What percentage of pipe failures are relatively small leaks versus full bore ruptures?
- What percentage of vapor clouds resulting from leaks and ruptures are ignited?
- What percentage of ignited vapor clouds burn versus explode?
- And in the event of a fire or explosion, do any serious injuries or fatalities result?

In order to evaluate these conditional probabilities, the actual unintentional release data reported to the Department of Transportation, Office of Pipeline Safety (USDOT) have been evaluated. Unfortunately, the USDOT incident reports prior to January 1, 2002 did not include fields for reporting fires or explosions; these fields were added in 2002. Between January 1, 2002 and December 31, 2007, there were 520 onshore transmission pipeline incidents reported to the USDOT. The following data are worth noting:

- 91 (17.5%) of the resulting vapor clouds ignited,
- 56 (61.5%) of the vapor clouds simply burned, and
- 35 (38.5%) of the vapor clouds exploded

In other words, 10.8% of the reported onshore natural gas transmission pipeline incidents resulted in fires while 6.7% resulted in explosions. 361 (69.4%) of the incidents were identified as being released directly from the pipeline, as apposed to other appurtenances (e.g., compressors, regulators, etc.). Of these, 109 (30%) of the pipeline releases were identified as ruptures. 26 (7%) of the pipeline release incidents resulted in fires and 20 (6%) resulted in explosions.

It is interesting to note that between January 1, 2002 and December 31, 2007, 55 (10.6%) of the reported 520 natural gas transmission pipeline incidents occurred in compressor stations; 14 (25%) of these incidents resulted in fires and 10 (18%) resulted in explosions. 50 (9.6%) of the reported incidents occurred at meter and/or regulator stations; 10 (20%) of these resulted in fires and 1 (2%) resulted in an explosion. The remaining 54 incidents were not identified as to which part or component of the pipeline system failed.

The conditional probabilities used in the probabilistic risk assessment are summarized in the following tables.

Table 4.1.4-1 Conditional Probabilities

Parameter	Conditional Consequence Probability	Value - Source
Leak Size	Probability of Release (1-inch diameter hole)	70% - USDOT
	Probability of Rupture (complete, full diameter pipe severance)	30% - USDOT
Ignition	Probability of No-Ignition	82.5% - USDOT
	Probability of Ignition	17.5% - USDOT
Fire/Explosion	Probability of Fire Upon Ignition	61.5% - USDOT
	Probability of Explosion Upon Ignition	38.5% - USDOT

Table 4.1.4-2 Combined Conditional Probabilities, Fires versus Explosions

Consequence	Conditional Release Consequence	Value
Fires	Pipeline Release (1-inch) Resulting in a Fire	0.70 x 0.175 x 0.615 = 7.5%
	Pipeline Rupture Resulting in a Fire	0.30 x 0.175 x 0.615 = 3.2%
Explosions	Pipeline Release (1-inch) Resulting in an Explosion	0.70 x 0.175 x 0.385 = 4.7%
	Pipeline Rupture Resulting in an Explosion	0.30 x 0.175 x 0.385 = 2.0%

Flash Fires versus Torch Fires

The USDOT data does not provide any differentiation regarding the type of fire (torch fire versus flash fire). However, since there are a relatively large number of reported explosions in the USDOT database, it is likely that the number of flash fires is limited. There are also few historical flash fires on record (LEES). The analyses assumed that 10% of the fires would be flash fires and 90% would be torch fires.

Unignited Vapor Clouds, Flash Fires versus Indoor Explosions

Should the combustible portion of a vapor cloud migrate to nearby residences or commercial buildings before ignition, a flash fire would occur if the ignition were outdoors, or an explosion would occur indoors. Unfortunately, available references

provide little data regarding the likelihood of these two occurrences. The analyses assumed that 90% of the fires would be flash fires and 10% would be explosions within the structures.

Table 4.1.4-3 Combined Conditional Probabilities, Torch Fires versus Delayed Ignition of Vapor Clouds

Consequence	Conditional Release Consequence	Value
Torch Fires	Release (1-inch) Resulting in a Torch Fire	7.5% x 0.90 = 6.8%
	Rupture Resulting in a Torch Fire	3.2% x 0.90 = 2.9%
Flash Fires (Vapor Cloud Ignition Outdoors)	Release (1-inch) Resulting in a Flash Fire	7.5% x 0.10 x 0.90 = 0.7%
	Rupture Resulting in a Flash Fire	3.2% x 0.10 x 0.90 = 0.3%
Indoor Explosion (Vapor Cloud Ignition Indoors)	Release (1-inch) Indoor Explosion	7.5% x 0.10 x 0.10 = 0.08%
	Rupture Indoor Explosion	3.2% x 0.10 x 0.10 = 0.03%

Release Modeling

In this section, various pipeline release scenarios are presented. The releases were modeled using CANARY, by Quest, version 4.3 software. For vapor cloud explosion modeling, this software uses the Baker-Strehlow model to determine peak side-on over-pressures as a function of distance from a release. CANARY software also uses a torch fire model to determine radiant heat flux as a function of distance from a release. Literally thousands of possible data combinations could be used to evaluate individual releases (e.g., various release angles, various size releases, etc.). However, in order to evaluate the impacts from the proposed facilities using a reasonable amount of resources, the following assumptions were made:

Table 4.1.4-4 Release Modeling Input

Parameter	Model Input
Operating Pressure	975 psig maximum allowable operating pressure for all line segments
Typical Flow Rate	475 MMSCFD for 30-inch Line 406 180 MMSCFD for 30-inch Line 407W and 407E 17 MMSCFD for 10-inch DFM Line The actual flow rate will vary considerably, depending on natural gas demands, pressures in other system components, etc.
Modeled Releases	1-inch diameter release Full Bore release
Contents	Methane
Contents Temperature	70° F
Wind Speed	2 meters per second (4.5 mph) for vapor cloud explosion modeling 20 mph for torch fire modeling
Stability Class	D assumed Pasquill-Gifford atmospheric stability is classified by the letters A through F. Stability can be determined by three main factors: wind speed, solar insulation, and general cloudiness. In general, the most unstable (turbulent) atmosphere is characterized by stability class A. Stability A occurs during strong solar radiation and moderate winds. This combination allows for rapid fluctuations in the air and thus greater mixing of the released gas with time. Stability D is characterized by fully overcast or partial cloud cover during daytime or nighttime, and covers all wind speeds. The atmospheric turbulence is not as great during D conditions, so the gas will not mix as quickly with the surrounding atmosphere. Stability F generally occurs during the early morning hours before sunrise (no solar radiation) and under low winds. This combination allows for an atmosphere which appears calm or still and thus restricts the ability to actively mix with the released gas. A stability classification of “D” is generally considered to represent average conditions.
Relative Humidity	70%
Air and Surface Temperature	72° F
Continuous Release Duration	Two (2) hours, or until the pipe segment has been depressurized
Duration of Normal Flow after Leak Initiation	Two (2) hours for 1-inch diameter release Fifteen (15) minutes for full bore rupture The applicant has indicated that a severe pipeline rupture would be identified within 10 to 15 minutes. Line 406 could be shut-in remotely between Capay and Yolo Stations. The other line segments would require a physical response. The response could take from 15 minutes to 2 hours, depending on the location of employees and the time of occurrence.
Pipe Length Upstream and Downstream of Break	3-miles assumed for 30-inch diameter line segments 1.25-miles assumed for 10-inch diameter line segment.

Parameter	Model Input
Release Angle	45° above horizontal
Fuel Reactivity	Low Most hydrocarbons have medium reactivity, as defined by the Baker-Strehlow method. Low reactivity fluids include methane, natural gas (98+% methane), and carbon monoxide. High reactivity fluids include hydrogen, acetylene, ethylene oxide, and propylene oxide.
Obstacle Density	Low assumed for rural and agricultural areas Medium assumed for residential developed areas This parameter describes the general level of obstruction in the area including and surrounding the confined (or semi-confined) volume. Low density occurs in open areas or in areas containing widely spaced obstacles. High density occurs in areas of many obstacles, such as tightly-packed process areas or multi-layered pipe racks.
Flame Expansion	3 D assumed This parameter defines the number of dimensions available for flame expansion. Open areas are 3-D, and produce the smallest levels of overpressure. 2.5-D expansions are used to describe areas that quickly transition from 2-D to 3-D. Examples include compressor sheds and the volume under elevated fan-type heat exchangers. 2-D expansions occur within areas bounded on top and bottom, such as pipe racks, offshore platforms, and some process units. 1-D expansion may occur within long confined volumes such as hallways or drainage pipes, and produce the highest overpressures.
Reflection Factor	2 assumed This factor is used to include the effects of ground reflection when an explosion is located near grade. A value of 2 is recommended for ground level explosions.

Explosion Modeling Results

As discussed previously, natural gas generally does not explode, unless the vapor cloud is confined in some manner. The eastern portion of the 30-inch Line 407E and the 10-inch DFM are surrounded by residential land uses and open space. The remainder of the pipeline segments are surrounded by open, rural land with some road crossings. There is insufficient confinement to cause a significant vapor cloud explosion within the atmosphere in the rural and agricultural areas. Should natural gas migrate into residences or other structures, the overpressures from an explosion within the confined space would be life threatening.

Outdoors, the peak overpressure was only 1.5 psig for the residential areas, due to the relatively open development. This level is high enough to have a 1% probability of

serious injury or fatality to occupants of reinforced concrete or reinforced masonry buildings due to flying glass and debris. There is a 10% probability of serious injuries to occupants of simple frame, unreinforced buildings. This over pressure level would generally not be great enough to cause injuries to those outdoors.

The peak overpressure was only 0.02 psig for the rural and agricultural line segments, due to the very open surroundings and lack of confinement. This level results in an annoying noise.

A typical pipeline release is depicted in the figure below. This figure shows an elevation view of a release from a rupture of the 30-inch Line 406, operating at 975 psig at a flow rate of 475 MMSCFD. The combustible portion of the vapor cloud is between the 5 and 15 mole percent contours.

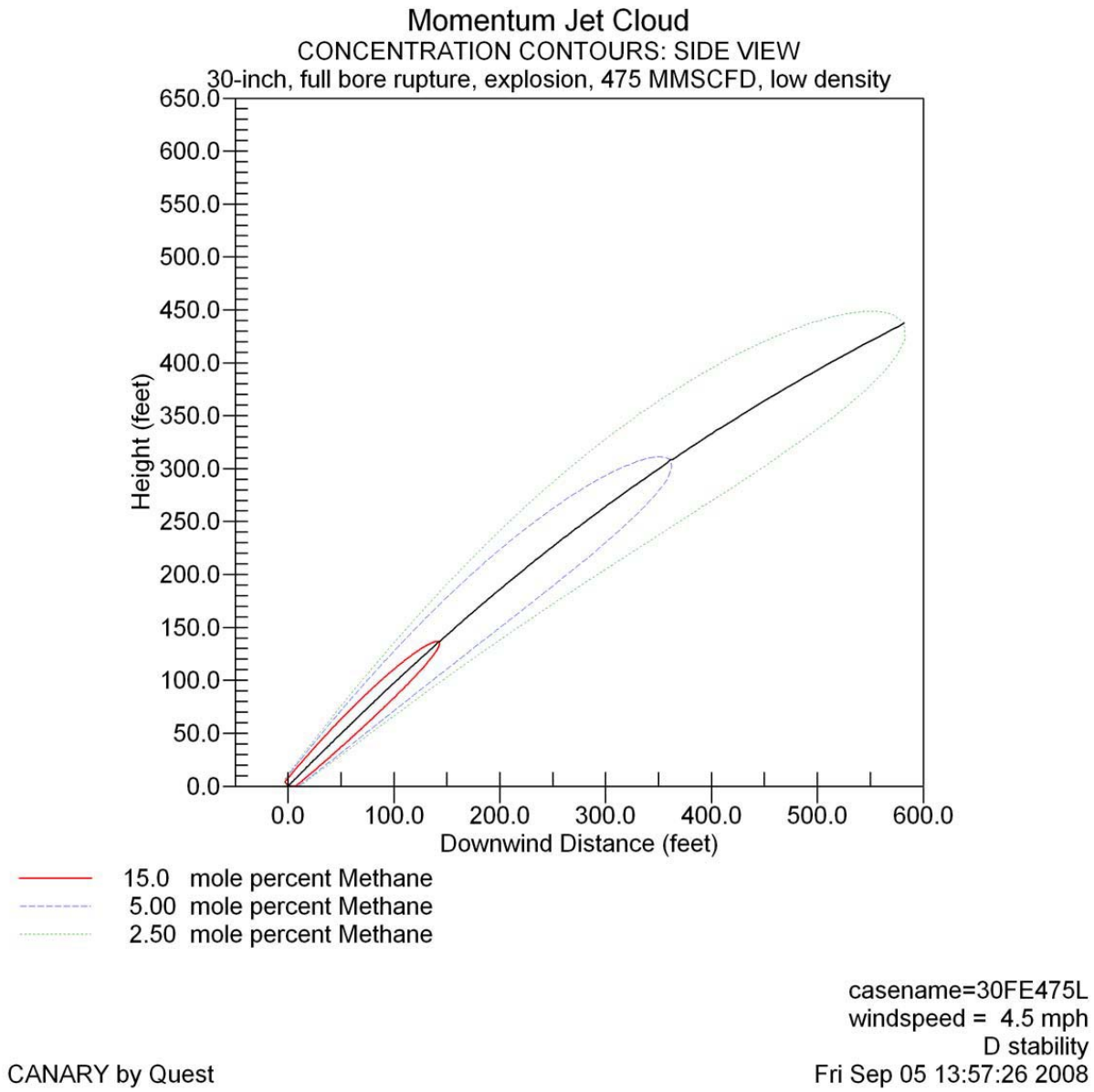


Figure 4.1.4-2 Line 406, Rupture Explosion, Elevation

The distances to various levels of peak side-on overpressures for each of the pipe segments are summarized in the table below. It is interesting to note that the results for Lines 406 and 407, which are similar except for the flow rate, are essentially the same. Also, the data for the 1-inch diameter releases are the same for all line segments, since the MAOP is the same for each segment. These explosion over-pressure levels are

applicable in residential areas only. The overpressure levels are too low to result in injuries or fatalities in rural and agricultural areas.

Table 4.1.4-5 Vapor Cloud Explosion Modeling Results in Residential Areas

Release	Operating Pressure	Maximum Width of Combustible Portion of Vapor Cloud (feet)	Distance from Unintentional Release (feet) Measured Perpendicular to Pipeline		
			1.00 psig Overpressure	0.70 psig Overpressure	0.10 psig Overpressure
Line 406 475 MMSCFD Full Bore Release @ 45° above horizon	975 psig	107	381	544	3,807
Line 406 475 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	10	35	50	352
Line 407 E & W 180 MMSCFD Full Bore Release @ 45° above horizon	975 psig	105	377	538	3,771
Line 407 E & W 180 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	10	35	50	352
DFM 17 MMSCFD Full Bore Release @ 45° above horizon	975 psig	31	114	162	1,137
DFM 17 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	10	35	50	252

Fire Modeling Results

Torch Fires

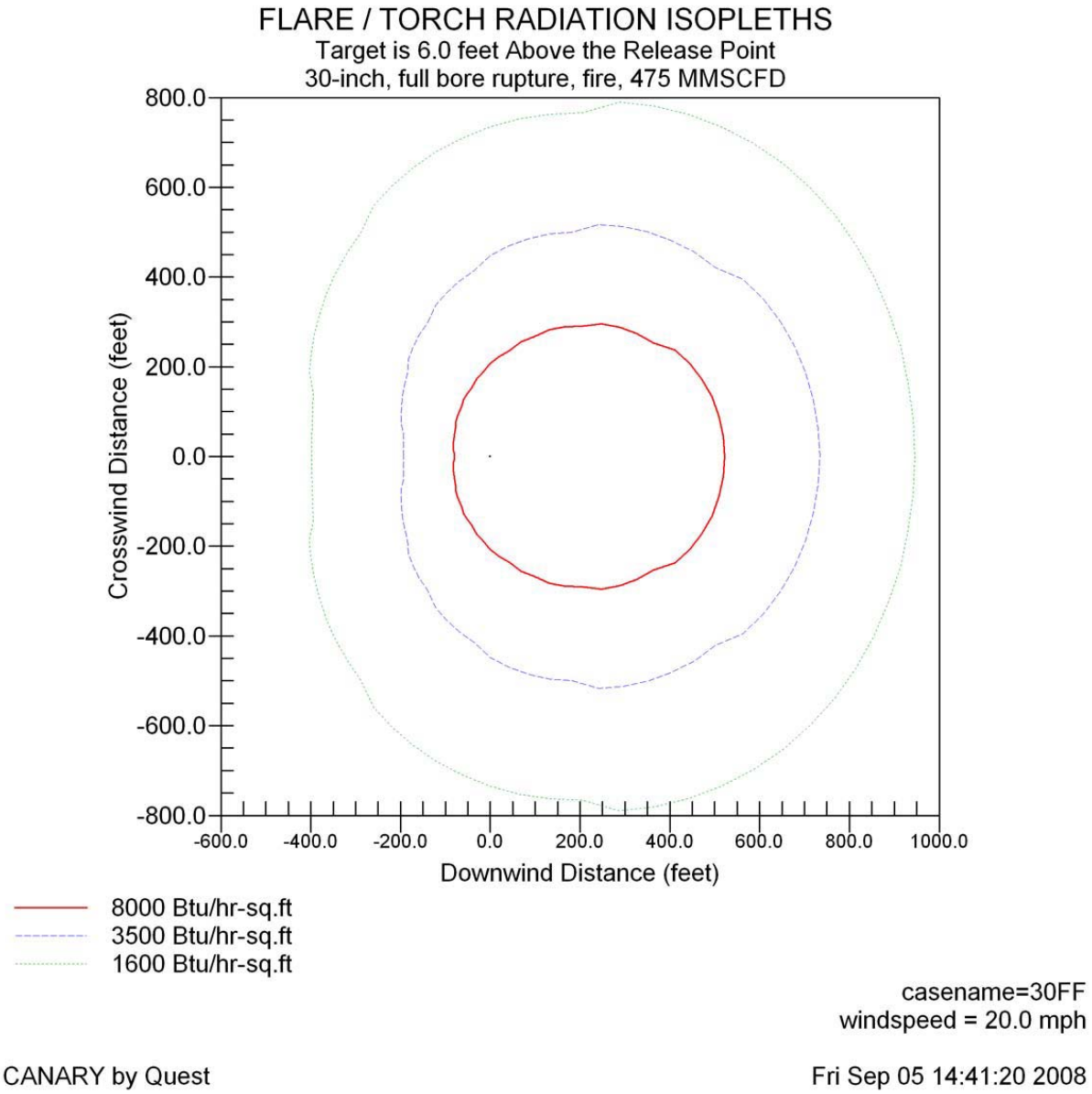
The torch fire modeling results are presented in the following table.

Table 4.1.4-6 Torch Fire Modeling Results

Release	Maximum Operating Pressure	Width of 8,000 btu/hr-ft^2 Isopleth (feet)	Flame Length (feet)	Horizontal Distance from Unintentional Release (feet)		
				8,000 btu/hr-ft^2	3,500 btu/hr-ft^2	1,600 btu/hr-ft^2
Line 406 475 MMSCFD Full Bore Release @ 45° above horizon	975 psig	300	527	523	734	946
Line 406 475 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	25	52	48	66	87
Line 407 E & W 180 MMSCFD Full Bore Release @ 45° above horizon	975 psig	300	523	519	728	938
Line 407 E & W 180 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	25	52	48	66	87
DFM 17 MMSCFD Full Bore Release @ 45° above horizon	975 psig	90	158	161	217	286
DFM 17 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	25	52	48	66	87

Note – Radiant heat flux values shown are measured at 6-feet above ground surface.

The results for a torch fire resulting from a full bore rupture of the 30-inch Line 406 are depicted in the figure below.



Flash Fires

As discussed previously, flash fires can occur when a vapor cloud is formed, with some portion of the vapor cloud within the combustible range, and the ignition is delayed. (If the ignition is immediate, a torch fire results.) In a flash fire, the portion of the vapor cloud within the combustible range burns quickly. It is assumed that those within the

combustible portion of the vapor cloud would likely be seriously injured or killed. Those outside the combustible portion of the vapor cloud would likely be uninjured. In other words, the public would generally be safe if they were too close to the release (over rich mixture, above the upper flammable limit) or beyond the portion of the vapor cloud with concentrations below the lower flammability limit. The results of the flash fire modeling are shown below:

Table 4.1.4-7 Flash Fire Modeling Results

Release	Operating Pressure	Distance from Unintentional Release (feet) Measured Perpendicular to Pipeline	
		Upper Flammability Limit (UFL)	Lower Flammability Limit (LFL)
Line 406 475 MMSCFD Full Bore Release @ 45° above horizon	975 psig	143	362
Line 406 475 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	12	32
Line 407 E & W 180 MMSCFD Full Bore Release @ 45° above horizon	975 psig	141	358
Line 407 E & W 180 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	12	32
DFM 17 MMSCFD Full Bore Release @ 45° above horizon	975 psig	41	109
DFM 17 MMSCFD 1-inch Diameter Release @ 45° above horizon	975 psig	12	32

Risks to Humans

In order to quantify the potential risk to humans, a number of assumptions must be made; otherwise, the effort required to perform the risk analysis can become unreasonably complex. The following paragraphs outline the assumptions made in estimating the frequency and severity of the potential hazards.

Exposure Probability

In cases where the exposure to impacts only occurred on one side of the pipeline, the probability was reduced by one-half. For example, where future commercial and industrial structures are proposed on only one side of the pipeline, the probability of exposure was reduced 50%.

Proximity to Residences and Commercial Buildings

In determining the distances from the pipe segments to existing residences and commercial buildings, the nearest distance from the pipeline to each structure was used. For individuals outside the structures, the analysis assumed that they would be located near the primary building.

Exposures to Occupants of Residences and Commercial Buildings

<u>Flash Fires and Indoor Explosions</u>

<u>Residential Occupants</u>

Should the combustible portion of a vapor cloud migrate to nearby residences before ignition, a flash fire would occur if the ignition were outdoors, or an explosion would occur indoors.

The analyses assumed a 100% probability of serious injury or fatality to those exposed to a flash fire. However, those housed within their residences were assumed to be sufficiently protected from an outdoor flash fire to prevent serious injury or fatality. The analyses assumed that those protected inside a residence would be able to evacuate safely should the structure catch fire, after the flash fire subsided. The analyses assumed that occupants of these residences would be outside their homes, exposed to outdoor flash fire effects, an average of 10% of the time (roughly 17 hours per week).

In the event that natural gas were to migrate inside the structure before ignition, the analysis assumed a 100% probability of serious injury or fatality. The analyses

assumed a 75% probability that occupants would be evacuated by emergency responders, or evacuate the structure on their own once they identified the gas odorant, before the gas reached a combustible mixture and ignited. The analysis assumed that occupants of these residences would be inside their homes, exposed to potential indoor explosions, an average of 70% of the time (16.8 hours per day). This results in a 17.5% probability of exposure (25% not evacuated x 70% = 17.5%).

Commercial Building Occupants

This analysis is similar to that described above for residential structures, except for the exposure duration. For a 1-inch diameter release, where the exposure width is relatively small, the analyses assumed that occupants of the commercial buildings would be outside the buildings, exposed to flash fire effects, an average of 6% of the time (roughly 10 hours per week, 2 hours per work day). For a flash fire resulting from a rupture, the width of the impact area is much larger and the likelihood of an individual being exposed is much higher. For these cases, the individual risk assessment analyses assumed an outdoor exposure of 50 hours per week (30% of the time); the societal risk assessment assumed an exposure of 6%, as this type of analysis considers the estimated number of people exposed to the hazard.

In the event that natural gas were to migrate inside the structure, the analyses assumed a 100% probability of serious injury or fatality to building occupants. The analyses assumed that occupants would be within the building 50 hours per week (30% of the time), with a 75% probability that occupants would be evacuated by emergency responders, or evacuate the structure on their own once they identified the gas odorant, before the gas reached a combustible mixture. This results in a 7.5% probability of exposure (25% not evacuated x 30% = 7.5%).

Torch Fires

Residential Occupants

The analyses assumed that residents within the 8,000 btu/hr-ft^2 heat flux contour would be exposed to a 50% probability of fatality while they are outside their homes. The analyses assumed that individuals would be sheltered from injurious radiant heat impacts while inside their homes. The analyses also assumed that those protected inside their residence would be able to evacuate safely should the structure catch fire. For 1-inch diameter releases, where the exposure width is relatively small, the analyses assumed that occupants of these residences would be outside their homes, exposed to

torch fire effects, an average of 10% of the time (roughly 17 hours per week). For a torch fire resulting from a rupture, the width of the impact area is much larger and the likelihood of an individual being exposed is much higher. For these cases, the individual risk assessment analyses assumed an outdoor exposure of 50 hours per week (30% of the time); the societal risk assessment assumed an exposure of 6%, as this type of analysis includes the estimated number of people exposed to the hazard.

Commercial Building Occupants

This analysis is similar to that discussed above for residences. However, the analysis assumed that occupants of these buildings would be outside, exposed to torch fire effects from a 1-inch diameter release, an average of 10 hours per week (6% of the time). The individual risk analyses assumed an exposure of 30% for torch fires resulting from full bore ruptures, due to the much larger width of exposure. For the societal risk assessment, an exposure of 6% was used for both 1-inch diameter and full bore releases.

Explosions

The analysis assumed a 10% probability of a serious injury or fatality to building occupants exposed to an over-pressure level of 1.00 psig due to flying glass and debris. As described above, residential buildings were assumed to be occupied 70% of the time (16.8 hours per day) and commercial buildings were assumed to be occupied 30% of the time (50 hours per week). The overpressure levels are expected to be below the threshold required to cause serious injuries or fatalities to those outdoors.

Exposures to Vehicle Occupants

Flash Fires

There is little actual or experimental data available for natural gas flash fires. Based on a full bore release at 45° above the horizon at the modeled conditions, the flammable concentration of the vapor cloud would be less than 100-feet wide in all of the modeled scenarios (measured perpendicular to the release). A vehicle traveling at 40 miles per hour perpendicular to the release would only be within the flammable portion of the vapor cloud for about two seconds, unless the vehicle were stopped (e.g., red light, traffic jam, etc.).

Considering the variety of possible release angles, the likely short duration of exposure, and the protection afforded by the vehicle, these analyses assumed that 10% of the

occupants of vehicles exposed to the modeled maximum horizontal projection of a flash fire resulting from a pipeline release would be seriously injured or killed.

It should be noted that 100% casualties are assumed for similar analyses used in the United Kingdom. However, there is evidence that those exposed to flash fires can survive. Although natural gas flash fires are rare, an event occurred on October 1982 which is noteworthy. This event is noted in the Report on a Study of International Pipeline Accidents (HSE 2000). In this case an end cap blew off the end of a natural gas pipeline in Pine Bluff, Arkansas. The ignition of the resulting gas cloud was delayed, until the flammable portion of the cloud reached a nearby welding machine. As stated in the report, "All seven persons at the accident site were engulfed in the flash-fire. The two welder-helpers, who were wearing goggles but not welding helmets, and the two company employees standing atop the ditch at the east and south end were placed in intensive care at a local hospital. Another worker on top of the ditch was admitted to the hospital in a serious but stable condition. The two welders, who were under the pipe when the fire erupted and were more sheltered from the fire, were treated and released from the hospital… While none of the workmen were killed, they were not representative of the population as a whole; they were relatively young, fit and wearing working clothes. Children or the elderly (perhaps 50% of the population), or those wearing less protective clothing in a similar fire would probably not have survived."

Torch Fires

Because the exposure time to passing vehicles would be limited, the analyses assumed that occupants in passing vehicles would be somewhat protected from the radiant heat due to torch fires. The analyses assumed that serious injuries and fatalities would only occur to those exposed directly to the flame or those within the 8,000 btu/hr-ft^2 isopleth. For a full bore rupture, this extends about 520 feet for the 30-inch line segments and 160 feet for the 10-inch line segment. For a 1-inch diameter release, it extends about 50 feet. It should be noted that the flame lengths and distances to the 8,000 btu/hr-ft^2 are essentially the same. Due to the variation in the possible release angles (e.g., the flame may be vertical, or pass above the vehicle) and the possibility for vehicle occupants to pass through the hazard area relatively quickly, a 25% probability of serious injury or fatality was assumed.

Explosions

The peak overpressures resulting from atmospheric explosions are anticipated to be sufficient to cause serious injuries or fatalities in areas where residential and commercial development have occurred. A 10% fatality rate has been assumed.

Number of Vehicle Occupants Exposed to Release

The analysis estimated the number of individuals exposed as follows:

- The traffic counts were obtained from Section X of this document. For roadways where traffic counts were not available, they were assumed as follows: For un-named county roads along each segment, 200 trips per day average was assumed. For roads along Line DFM, 500 trips per day average were assumed. For roads along Phase I of Line 407, 1,000 trips per day average were assumed. For rural highways along Phase II of Line 407, 1,000 trips per day average were assumed.
- An average traffic speed of 40 miles per hour was used, except for I-5 and Highway 505, which assume 70 miles per hour.
- The length of hazard, measured along the roadway, was determined individually for each type of release by modeling.
- The normal stopping distance was determined using a one second reaction time and 15 feet per second rate of deceleration.
- An average vehicle occupancy of 1 was assumed for individual risk and 2 for societal risk.

For the individual risk analysis, if the above calculation yielded a number greater than unity, the number exposed was reduced to one individual, consistent with the definition of the individual risk analysis.

Individual Risks

Exposures to Occupants of Residences and Commercial Buildings

In the following paragraphs, the impacts (e.g., serious injuries and fatalities) have been evaluated for individuals exposed to a fire or explosion. For Line 406, the impacts were assessed considering the existing buildings only; future land development was not considered in the analysis. For Line 407 and Line DFM, the existing conditions, plus the impacts of the following proposed land development projects were considered: Sutter Pointe, Placer Vineyard, Sierra Vista, and Curry Creek. The lengths of pipeline that

could result in serious impacts the public are summarized in the table below, for each of the identified conditions.

Table 4.1.4-8 Length of Pipeline Posing Risks to Building Occupants

Release Description	Significant Impact Distance from Release (feet)	Line 406 (feet)	Line 407 Phase I (feet)	Line 407 Phase II (Feet)	Line DFM (feet)
	Lines 406/407				
	Line DFM				
Explosion Full Bore Rupture	380	3,650	58,455	15,655	5,100
	115				
Explosion 1-inch Release	35	60	47,910	0	5,100
	35				
Torch Fire Full Bore Rupture	520	4,930	59,350	21,545	5,100
	160				
Torch Fire 1-inch Release	50	120	48,270	800	5,100
	50				
Flash Fire Full Bore Rupture	360	3,435	58,455	15,565	5,100
	110				
Flash Fire 1-inch Release	35	60	47,910	0	5,100
	35				

Note: For Line 407, Phase I, the distribution was assumed to be roughly 50% residential

As noted above, only a relatively short distance of Line 406 would pose a risk to occupants of existing residences. However, for the eastern portion of the project (Line 407 Phase I), much more of the line would pose a risk to occupants of existing and proposed residences and commercial properties. The resulting frequencies of anticipated serious injuries and fatalities to occupants of residential, commercial, and industrial buildings are summarized in the table below.

Table 4.1.4-9 Frequency of Serious Injury or Fatality to Building Occupants

Release Description	Line 406	Line 407 Phase I	Line 407 Phase II	Line DFM	Total
Explosion Full Bore Rupture	1.9×10^{-7}	2.2×10^{-6}	8.2×10^{-7}	5.7×10^{-8}	3.3×10^{-6}
Explosion 1-inch Release	7.4×10^{-9}	4.2×10^{-6}	0	1.3×10^{-7}	4.3×10^{-6}
Torch Fire Full Bore Rupture	8.0×10^{-7}	9.6×10^{-6}	3.5×10^{-6}	4.1×10^{-7}	1.4×10^{-5}
Torch Fire 1-inch Release	4.5×10^{-9}	1.5×10^{-6}	3.0×10^{-8}	5.8×10^{-8}	1.6×10^{-6}
Flash Fire Full Bore Rupture	4.4×10^{-8}	1.4×10^{-6}	2.0×10^{-7}	8.5×10^{-8}	1.7×10^{-6}
Flash Fire 1-inch Release	1.8×10^{-9}	1.1×10^{-6}	0	4.4×10^{-8}	1.1×10^{-6}
Total Probability Serious Injury or Fatality	1.05×10^{-6}	1.99×10^{-5}	4.54×10^{-6}	7.00×10^{-7}	2.62×10^{-5}
Annual Likelihood of Serious Injury or Fatality	1 : 950,000	1 : 50,000	1 : 220,000	1 : 1,400,000	1 : 26,000
Percentage of Total Risk to Building Occupants	4.0 %	76.0 %	17.3 %	2.7 %	100.0 %

As noted a above, the frequency of serious injuries and fatalities caused by explosion for Lines 406, 407 (Phase II), and DFM are extremely low, due to the rural areas where the majority of these lines are being installed. Line 407 (Phase I) poses 76% of the total

project risk to occupants of residential, commercial, and industrial buildings, due to the density of existing and planned land development.

Exposure to Vehicle Occupants

The risks posed to vehicle occupants are summarized in the table below, for each of the line segments.

Table 4.1.4-10 Frequency of Serious Injury or Fatality to Vehicle Occupants

Description	Line 406	Line 407 Phase I	Line 407 Phase II	Line DFM	Total
Total Probability of Serious Injury or Fatality	1.84×10^{-6}	2.94×10^{-5}	3.21×10^{-6}	2.06×10^{-7}	3.46×10^{-5}
Annual Likelihood of Serious Injury or Fatality	1 : 540,000	1 : 34,000	1 : 310,000	1: 4,900,000	1 : 29,000
Percentage of Total Risk to Building Occupants	5.3 %	84.9 %	9.2 %	0.6 %	100.0 %

It should be noted that the figures presented in the above table somewhat understate the likelihood of risks posed to vehicle occupants. As noted earlier, the length of hazard, measured along the roadway, was determined individually for each type of release; the exposures were calculated using the traffic speed, stopping distance, traffic volume, and the length of actual exposure to the hazard. For example, for a rural county road with an assumed traffic count of 200 trips per day, 40 miles per hour average traffic speed, 232-foot stopping distance, and a potentially hazardous cloud distance of 520-feet, the individual exposure was determined to be 0.03. In other words, given these parameters, the likelihood of an individual vehicle occupant being exposed to the hazard was 3%. However, for unignited vapor clouds, a passing vehicle is often the source of ignition. In these cases, the actual exposure to vehicle occupants would be 100%. Unfortunately, data is not available to support an accurate determination of the frequency in which motorists are the source of ignition. For scenarios with higher traffic counts, greater average traffic speed, etc., the error induced by this methodology is reduced or is eliminated altogether; for example, the likelihood of

exposure along many of the heavily traveled roadways (e.g., Baseline Road, Interstate 5, etc.) was 1.00 (100%) for many of the release scenarios. In these cases, the results would not be affected whether the vehicle was the source of ignition, or not.

Individual Risk Results

The total exposure to the public from the various pipe segments is summarized in the table below.

Table 4.1.4-11 Individual Risk Summary

Release Description	Line 406	Line 407 Phase I	Line 407 Phase II	Line DFM	Total
Building Occupants	1.05×10^{-6}	1.99×10^{-5}	4.54×10^{-6}	7.00×10^{-7}	2.62×10^{-5}
Vehicle Occupants	1.84×10^{-6}	2.94×10^{-5}	3.21×10^{-6}	2.06×10^{-7}	3.46×10^{-5}
Total Probability of Serious Injury or Fatality	2.89×10^{-6}	4.93×10^{-5}	7.75×10^{-6}	9.06×10^{-7}	6.08×10^{-5}
Total Annual Likelihood of Serious Injury or Fatality	1 : 350,000	1 : 27,000	1 : 130,000	1: 1,100,000	1 : 16,000
Percentage of Total Risk to Building Occupants	4.8 %	81.1 %	12.7 %	1.4 %	100.0 %

As presented above, the anticipated individual frequency of serious injury or fatality from the proposed project is is approximately 6.1×10^{-5}. This represents a 1:16,000 likelihood of a serious injury or fatality annually. This value is roughly sixty times greater than the generally accepted significance criteria of one in one-million per year (1:1,000,000). As a result, the individual risk posed by the proposed project is considered significant. The individual risks posed by each of the individual line segments are also summarized. As noted, the risk for each of the individual line segments, except Line DFM, exceeds the individual risk significance criteria; and for the

Line DFM, the individual risk significance is within the tolerance of the assumptions made in this study and should be considered significant.

It should be noted that this analysis was done based on the existing and stated future level of land development. Should population density or traffic volumes increase over the life of the project beyond these assumptions, the resulting likelihood of serious injuries and fatalities would increase accordingly.

Societal Risks

Societal risk is the probability that a specified number of people will be affected by a given event. The accepted number of casualties is relatively high for lower probability events and much lower for more probable events.

Exposures to Occupants of Residences and Commercial Buildings

The following scenarios were considered:

- Flash Fire or Indoor Explosion, 1-inch Diameter Pipeline Release – These impacts could be significant within about 35-feet of the proposed line segments. Roughly 4.5 miles of the Line 407, Phase I line segment could pose a hazard to existing or proposed buildings. The width of the vapor cloud within the combustible mixture would be roughly 10-feet. As a result, only one structure would like be exposed. The analysis assumed that one residence or one commercial structure could be affected by a release. A population of up to four per residence and up to ten individuals per commercial building was used.
- Flash Fire or Indoor Explosion, Full Bore Pipeline Release – These impacts could be significant within 110-feet for Line DFM and 360-feet for Lines 406 and 407. The width of exposure extends roughly 30-feet for Line DFM and 100-feet for Lines 406 and 407. The analyses assumed that one commercial building or one residence could be impacted, with an exposure of up to ten persons (commercial) or four persons (residential).
- Torch Fire, 1-inch Diameter Pipeline Release – These impacts could be significant within 50-feet of the proposed line segments (8,000 btu/hr-ft^2 isopleth). The 3,500 btu/hr-ft^2 isopleth extends about 65-feet for each of the proposed line segments. The width of the 3,500 btu/hr-ft^2 isopleth is roughly 80-feet, while the width of the 8.000 btu/hr-ft^2 isopleth is roughly 80-feet. Roughly 4.6 miles of the Line 407, Phase I line segment could pose a hazard to existing or proposed buildings. The analysis assumed that one residence or one commercial structure could be affected by a release. A population of up to four per residence and up to ten individuals per commercial building was used.

- Torch Fire, Full Bore Release – These impacts could be significant within 160-feet for Line DFM and 520-feet for Lines 406 and 407. The 3,500 btu/hr-ft^2 isopleth extends about 150-feet and 500-feet on either side of the release, measured perpendicular to the release, for Line DFM and Lines 406 and 407 respectively. The 8,000 btu/hr-ft^2 isopleth extends about 90-feet and 300-feet on either side of the release, for Line DFM and Lines 406 and 407 respectively. For Lines 406 and 407, the analysis assumed that up to ten residences (four occupants each) and up to two commercial buildings (ten occupants each) could be affected. For Line DFM, the analysis assumed that up to two residences and one commercial structure could be affected.
- Explosion, 1-inch Diameter Pipeline Release - These impacts could be significant within 35 feet from each of the line segments. The analysis assumed that one residence or one commercial structure could be affected by a release. A population of up to four per residence and up to ten individuals per commercial building was used.
- Explosion, Full Bore Pipeline Release - These impacts could be significant within 55-feet of Line DFM and 380-feet of Lines 406 and 407. A width of exposure to a 1 psig pressure level of 400-feet was assumed for Lines 406 and 407, resulting in up to four residences, housing four individuals per residence and up to two commercial buildings, with 10 occupants each. A population of one residence (four occupants) or one commercial building (ten occupants) was used for Line DFM.

Exposures to Vehicle Occupants

The societal risk analysis for potential impacts to vehicle occupants used the same methodology as outlined earlier for the individual risk. However, an average occupancy of two occupants per vehicle was used, instead of one occupant per vehicle for the individual risk analysis.

Societal Risk Results

Selected results of the societal risk analyses are presented below. The items presented are the cases that resulted in the highest ratio of site casualties to the societal risk criteria. In other words, these cases are those that presented the risks closest to the stated significance criteria. As indicated, the ratio of site casualties to the societal risk criteria is less than 1.0 for each situation. As a result, the societal risk is not considered significant, using the stated societal risk criteria; the number of anticipated site casualties is less than the societal risk criteria corresponding to the exposure probability.

For example, the probability of a rupture torch fire from Line 407 (Phase I) is 9.6e-06 per year. Based on the societal risk criteria (SRC), 23 people would need to be seriously injured or killed before this incident would be considered significant because the likelihood is relatively low. Should this type of incident occur, the analysis indicates that the number of site casualties (SC) would be 12. The resulting SC/SRC ratio is 0.53. Since this value is less than 1.00, the societal risks posed by this scenario is not considered significant.

Table 4.1.4-12 Societal Risk Summary (Highest Risk Scenarios Only)

Release	Exposure Probability	Probability of Serious Injury or Fatality to Exposed Individuals	Population Exposed	Number of Site Casualties (SC)	Societal Risk Criteria (SRC)	SC/SRC
Exposures to Occupants of Residences and Commercial Buildings						
Line 406 Rupture Torch Fire Residences	3.19e-07	0.50	24	12	56	0.21
Line 407, Phase I Rupture Torch Fire Residences	9.6e-06	0.50	24	12	23	0.53
Line 407, Phase I Rupture Torch Fire Commercial	9.6e-06	0.50	20	10	23	0.44
Exposures to Vehicle Occupants						
Line 406 Interstate 5 Rupture Explosion	9.1e-07	0.10	6	0.6	33	0.02
Line 406 Interstate 5 Rupture Torch Fire	1.6e-06	0.10	7	0.7	25	0.03
Line 407 Phase I Baseline Road Rupture Explosion	1.2e-05	0.10	3	0.3	9	0.03

Line 407 Phase I Baseline Road Rupture Torch Fire	1.7e-06	0.10	4	0.4	8	0.05
Line 407 Phase I Baseline Road Rupture Flash Fire	1.9e-06	0.10	3	0.3	23	0.01

There are a few release scenarios that could impact both building occupants and vehicle passengers. For example, an explosion along Baseline Road could impact commercial buildings, the residential neighborhood, and vehicle occupants. However, when these data are combined, the resulting societal risk remains below the stated significance threshold.

Mitigation Measures

The following mitigation measures are proposed to reduce the significant impacts posed by this project.

HAZ-1a. All pipe to be installed shall meet the following requirements:

- Line pipe shall be manufactured in the year 2000 or later.
- A 6-inch wide polyethylene marker tape shall be installed approximately 12 to 18-inches below the ground surface, above the center of the pipeline. The marking tape shall be brightly colored and shall be marked with an appropriate warning (e.g., Warning – High Pressure Natural Gas Pipeline).
- The pipe wall thickness shall be at least 0.375-inches.
- The depth of cover shall be at least 48-inches.
- 100% of the circumferential welds shall be radiographically inspected in accordance with American Petroleum Institute (API) Standard 1104, Welding of Pipelines and Related Facilities.
- If the in-line inspection required in mitigation measures HAZ-1b below is not implemented because the pipeline is operated below a hoop stress of 40% SMYS, a close interval cathodic protection survey shall be performed at least every seven years on portions of the line not included in the Applicant's Pipeline Integrity Management Program.

HAZ-1b. Prior to placing the pipeline system into service, the Applicant shall:

- Submit to the California State Lands Commission (CSLC) and the California Public Utilities Commission (CPUC) an Operation and Maintenance (O&M) manual, prepared in accordance with 49 CFR 192.605. The O&M manual shall address internal and external maintenance inspections of the completed facility, including but not limited to details of integrity testing methods to be applied, corrosion monitoring and testing of the cathodic protection system, and leak monitoring. In addition, the O&M manual shall also include a preventative mitigation measure analysis for the use of automatic shutdown valves per 49 CFR Part 192.935(c) requirements.
- PG&E shall conduct an in-line inspection of the pipeline if the Maximum Allowable Operating Pressure (MAOP) is raised to a pressure that creates a circumferential stress greater than 40% Specified Minimum Yield Strength (SMYS). The in-line inspection tool shall be capable of identifying pipe anomalies caused by internal and external corrosion and other causes of metal loss.
- A Pipeline Integrity Management Program for High Consequence Area (HCA) portions of the pipeline shall also be prepared in accordance with 49 CFR 192, Subpart O. The Integrity Management Program shall be submitted to the CSLC and CPUC.

HAZ-1c. The CSLC shall conduct, or cause to be conducted, an independent, third party design review of the Applicant's construction drawings, supporting calculations, and specifications and shall monitor and observe construction to ensure compliance with all applicable LORS, imposed mitigation, and Applicant proposed mitigation. The Applicant shall make payments to the CSLC for these design reviews, plan checks, and construction inspection services. These design review and construction observation services shall not in any way relieve the Applicant of its responsibility and liability for the design, construction, operation, maintenance and emergency response for these facilities.

Rationale for Mitigation

The societal risks are not considered significant. However, the individual risks identified herein exceed significance thresholds. The significance of these risks is primarily due to the individual risks caused by exposure to possible torch fires and explosions resulting from ruptures within developed areas. The proposed mitigation measures are intended to minimize the likelihood and consequences of pipeline ruptures.

The natural gas pipeline incidents, which were identified as "ruptures" in the USDOT database from 2002 through 2006 have been reviewed. The following points are worth noting:

- 46% of the ruptures were considered longitudinal tears or cracks. Of the components where the manufacturing date was provided, the average date of manufacture was 1955 – roughly 50 years old at the time of failure. Roughly three-quarters of these incidents were caused by third party damage and external corrosion, with the remainder being caused by a variety of factors.
- 50% or the ruptures were considered circumferential separation. For these cases, there was not a predominant cause(s).
- 4% or the ruptures were considered "other".

Third Party Damage Mitigation Effectiveness

In western Europe, the effectiveness of various forms of third party damage mitigation has been studied (HSE 2001). The findings are summarized below:

- Increased Wall Thickness – For 24-inch diameter pipe, a wall thickness of 0.375-inches or greater was found to reduce the frequency of third party caused unintentional releases by 80%. In other words, the incident rate was 20% of the norm. (The Applicant has proposed wall thicknesses that are equal to or greater than 0.375-inches for much of the project.)
- Increased Depth of Cover – Pipelines with a depth of cover of 48-inches or greater experienced a 30% reduction in third party caused incidents. (The incident rate was 70% of the norm.)
- Supplemental Third Party Protection – Pipelines protected with some form of third party warning device (e.g., marker tape, concrete cap, steel plates, etc.) experienced a reduction in third party caused incidents of 10%. (The incident rate was 90% of the norm.)

By implementing the above measures, the frequency of third party caused incidents may be reduced by roughly one-third.

External Corrosions Mitigation Effectiveness

Although data is not available to quantify the effectiveness of the external corrosion mitigation measures, the qualitative impacts can be summarized as follows:

- Increased Wall Thickness – Although increased pipe wall thickness does not prevent external corrosion, it allows more time to pass before a leak may result. This increased time period increases the likelihood that the anomaly will be identified by the operator before a release occurs.

- In-Line Inspection – Internal inspections of pipelines using modern techniques can identify external corrosion and other pipe wall anomalies, reducing the likelihood of a release.
- Close Interval Survey – Close interval cathodic protection surveys can identify coating defects and potential metal loss before a release is experienced.

Circumferential Separation

Inspecting 100% of the circumferential welds in accordance with API 1104 will decrease the likelihood of weld defects, which caused a portion of the circumferential separation ruptures noted in the USDOT database.

Residual Impacts

With the proposed mitigation, the individual risk would be reduced by roughly one-half. However, the individual risk would still be approximately 1:30,000 which exceeds individual risk significance thresholds by a factor of thirty.

It should be noted that there are a significant number of similar natural gas pipelines located in similar, and even more heavily urbanized areas. Many of these pipelines pose a greater risk to the public than the proposed line segments. The risks posed by these facilities have been generally accepted as a cost of modern living.

4.1.5 Impacts of Alternatives

A No Project Alternative and twelve options have been proposed for the alignment in order to minimize or eliminate environmental impacts of the proposed project and to respond to comments from nearby landowners. The twelve options, labeled A through L, have been analyzed in comparison to the portion of the proposed route that has been avoided as a result of the option. Descriptions of the options can be found in Section 3.0, Alternatives and Cumulative Projects, and are depicted in Figure 3-2.

The identified alternatives have been analyzed in the same manner that was used to analyze the proposed project. From a public risk standpoint, the alternatives present slightly different risks, since each route has slightly different lengths of line which could affect the public in the event of a release and subsequent fire and/or explosion

No Project Alternative

The “no project” alternative would eliminate the risks posed by the project, provided the operating pressures, sizes, and other operating parameters of existing natural gas facilities were not changed.

Option A

This option would realign a portion of Line 406 along County Road 16 and 15B. This would increase the length of Line 406 which would pose an impact to existing residences and roadways. The annual likelihood of serious injury or fatality along Line 406 would increase 22%, from 2.89×10^{-6} to 3.52×10^{-6}. The overall likelihood of serious injury or fatality for all of the proposed line segments would increase 1%, from 6.08×10^{-5} to 6.16×10^{-5}.

Option B

Similar to option A, this option would realign a portion of Line 406. This would increase the length of Line 406 which would pose an impact to existing residences and roadways. The annual likelihood of serious injury or fatality along Line 406 would increase 29%, from 2.89×10^{-6} to 3.72×10^{-6}. The overall likelihood of serious injury or fatality for all of the proposed line segments would increase 2%, from 6.08×10^{-5} to 6.18×10^{-5}.

Option C

The risks posed by this option are essentially the same as the proposed project.

Option D

This option would realign a portion of Line 406. The primary change would be to extend the portion of line along County Road 17. This would increase the length of Line 406 which would pose an impact to existing residences and roadways. The annual likelihood of serious injury or fatality along Line 406 would increase 30%, from 2.89×10^{-6} to 3.75×10^{-6}. The overall likelihood of serious injury or fatality for all of the proposed line segments would increase 2%, from 6.08×10^{-5} to 6.18×10^{-5}.

Option E

This option would realign a portion of Line 406. The primary change would be to extend the portion of line along County Road 19. This would increase the length of Line 406 which would pose an impact to existing residences and roadways. The annual likelihood of serious injury or fatality along Line 406 would increase 24%, from 2.89×10^{-6} to 3.57×10^{-6}. The overall likelihood of serious injury or fatality for all of the proposed line segments would increase 1%, from 6.08×10^{-5} to 6.16×10^{-5}.

Option F

This option would realign a portion of Line 407, Phase II. The realignment would result in minimal changes to the risks posed to the public. The annual likelihood of serious injury or fatality along Line 407, Phase II would increase 3%, from 7.75×10^{-6} to 7.99×10^{-6}. The overall likelihood of serious injury or fatality for all of the proposed line segments would increase less than 1%, from 6.08×10^{-5} to 6.12×10^{-5}.

Option G

The risks posed by this option are essentially the same as the preferred project.

Option H

This option would realign a portion of Line 407, Phase II, adding to the potential impacts to vehicle occupants along Powerline Road and West Elverta Road. The realignment would result in slight increases to the risks posed to the public. The annual likelihood of serious injury or fatality along Line 407, Phase II would increase 28%, from 7.75×10^{-6} to 9.92×10^{-6}. The overall likelihood of serious injury or fatality for all of the proposed line segments would increase less than 4%, from 6.08×10^{-5} to 6.31×10^{-5}.

Option I

This option would realign a portion of Line 407, Phase I to place the line outside the 1,500-foot buffer zone around a planned high school (PG&E 2009). This alternative would:

- Add approximately 3,000 lineal feet of pipe to the overall pipeline length.
- Remove one mile of line from potential impacts to vehicle occupants and planned commercial development along Baseline Road.

- Add 1,500 lineal feet of potential impacts to vehicle occupants along both South Brewer and Country Acres Roads.
- Add impacts to existing rural residences.

The annual likelihood of serious injury or fatality along Line 407, Phase I would decrease 14%, from 1.99×10^{-5} to 1.71×10^{-5}. The overall likelihood of serious injury or fatality for all of the proposed line segments would decrease 5%, from 6.08×10^{-5} to 5.80×10^{-5}.

The California Education Code, Section 17213 specifies that a school district may not approve a project involving the acquisition of a school site unless it determines that the property to be purchased or built upon does not contain a pipeline situated underground or aboveground that carries hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas line used only to supply that school or neighborhood. The California Code of Regulation, Title 5, Section 14010(h) states that, "the site shall not be located near an above-ground water or fuel storage tank or within 1,500 feet of the easement of an above ground or underground pipeline that can pose a safety hazard as determined by a risk analysis study, conducted by a competent professional." This realignment would place the proposed natural gas line beyond the specified 1,500-foot school buffer.

Option J

This option J is very similar to Option I discussed above. It would realign a portion of Line 407, Phase I to place the line outside the 1,500-foot buffer zone around a planned high school (PG&E 2009). This alternative would:

- Add approximately 5,200 lineal feet of pipe to the overall pipeline length.
- Remove one mile of line from potential impacts to vehicle occupants and planned commercial development along Baseline Road.
- Add 2,600 lineal feet of potential impacts to vehicle occupants along South Brewer Road.
- Add roughly 2,000 lineal feet of potential impacts to vehicle occupants along Country Acres Road.
- Add impacts to existing rural residences.

The annual likelihood of serious injury or fatality along Line 407, Phase I would decrease 10%, from 1.99×10^{-5} to 1.80×10^{-5}. The overall likelihood of serious injury or fatality for all of the proposed line segments would decrease 3%, from 6.08×10^{-5} to

5.89×10^{-5}. This realignment would place the proposed natural gas line beyond the specified 1,500-foot school buffer.

Option K

This alternative would realign a portion of Line 407, Phase I approximately 150-feet further to the north, just beyond the 1,500-foot buffer of a planned elementary school. This alternative would reduce the length of line affecting vehicle occupants from the impacts of 1-inch diameter releases along Baseline Road. The annual likelihood of serious injury or fatality along Line 407, Phase I would decrease less than 2%, from 1.99×10^{-5} to 1.96×10^{-5}. The overall likelihood of serious injury or fatality for all of the proposed line segments would decrease less than 1%, from 6.08×10^{-5} to 6.05×10^{-5}.

Although this realignment would place the proposed natural gas line outside the 1,500-foot buffer, it is unlikely that serious risks would be posed to the student body from the applicant proposed pipeline location, which is approximately 1,350 feet from the school boundary. The distances to various impacts from the proposed pipeline are summarized below. As noted, the impacts are very minor at distances greater than 800 to 1,000 feet.

Table 5.1.5-1 Consequence versus Distance Summary

Distance to Impact (feet)	Description of Potential Consequence
35 feet	1.0 psig overpressure from 1-inch diameter release explosion, release 45° above horizon. Windows usually shattered and occasional damage to window frames. 1% probability of serious injury or fatality to occupants in reinforced concrete or reinforced masonry building from flying glass and debris
50 feet	0.7 psig overpressure from 1-inch diameter release explosion, release 45° above horizon. Minor damage to residential structures. Some injuries to those indoors due to flying debris, but very unlikely to be serious.
50 feet	8,000 btu/hr-ft^2 heat flux from 1-inch diameter release torch fire, release 45° above horizon. 50% mortality anticipated to those exposed.
70 feet	3,500 btu/hr-ft^2 heat flux from 1-inch diameter release torch fire, release 45° above horizon. Second degree skin burns after ten seconds of exposure.
90 feet	1,600 btu/hr-ft^2 heat flux from 1-inch diameter release torch fire, release 45° above horizon. Second degree skin burns after thirty seconds of exposure.

360 feet	Distance to lower flammability limit (flash fire boundary) from full bore release at 45° above horizon for flash fire. This would likely result in serious injury or death to those exposed to the ignited vapor cloud under typical conditions.
380 feet	1.0 psig overpressure from full bore release explosion, release 45° above horizon. Windows usually shattered and occasional damage to window frames. 1% probability of serious injury or fatality to occupants in reinforced concrete or reinforced masonry building from flying glass and debris.
420 feet	1.0 psig overpressure from full bore release explosion, horizontal release. Windows usually shattered and occasional damage to window frames. 1% probability of serious injury or fatality to occupants in reinforced concrete or reinforced masonry building from flying glass and debris.
520 feet	8,000 btu/hr-ft^2 heat flux from full bore release torch fire, release 45° above horizon. 50% mortality anticipated to those exposed.
540 feet	0.7 psig overpressure from full bore release explosion, release 45° above horizon. Minor damage to residential structures. Some injuries to those indoors due to flying debris, but very unlikely to be serious.
600 feet	0.7 psig overpressure from full bore release explosion, horizontal release. Minor damage to residential structures. Some injuries to those indoors due to flying debris, but very unlikely to be serious.
600 feet	5,000 btu/hr-ft^2 heat flux from full bore release torch fire, release 45° above horizon. California Department of Education uses 1% mortality to those exposed.
640 feet	Distance to lower flammability limit (flash fire boundary) from full bore release at horizontal for flash fire. This would likely result in serious injury or death to those exposed to the ignited vapor cloud under typical conditions.
730 feet	3,500 btu/hr-ft^2 heat flux from full bore release torch fire, release 45° above horizon. Second degree skin burns after ten seconds of exposure.
800 feet	8,000 btu/hr-ft^2 heat flux from full bore release torch fire, horizontal release. 50% mortality anticipated to those exposed.
820 feet	5,000 btu/hr-ft^2 heat flux from full bore release torch fire, horizontal release. California Department of Education uses 1% mortality to those exposed.
820 feet	Distance to lower flammability limit (flash fire boundary) from full bore release at horizontal for flash fire. This would likely result in serious injury or death to those exposed to the ignited vapor cloud. This result is for the worst case modeling inputs, as defined by the United States Environmental Protection Agency.
940 feet	1,600 btu/hr-ft^2 heat flux from full bore release torch fire, release 45° above horizon. Second degree skin burns after thirty seconds of exposure. No fatalities anticipated for reasonable exposure duration.
980 feet	1,600 btu/hr-ft^2 heat flux from full bore release torch fire, horizontal release. Second degree skin burns after thirty seconds of exposure. No fatalities anticipated for reasonable exposure duration.
1,260 feet	0.3 psig overpressure from full bore release explosion, release 45° above horizon. 10% window glass breakage. No injuries.
1,370 feet	440 btu/hr-ft^2 heat flux from full bore release torch fire, horizontal release. Prolonged skin exposure causes no detrimental effect.
1,540 feet	440 btu/hr-ft^2 heat flux from full bore release torch fire, release 45° above horizon. Prolonged skin exposure causes no detrimental effect.

1,890 feet	0.2 psig overpressure from full bore release explosion, release 45° above horizon. Some window glass breakage, no injuries to building occupants.

It should be noted that the California Department of Education (CDE), Guidance Document for School Site Pipeline Risk Analysis (Guidance Document) considers 1% mortality (fatality probability of 1%) to be the reasonable estimate of the boundary of serious harm. It is considered the demarcation between threat (1% mortality) and no-threat (0% mortality). Using this criterion, the following boundary distances could be established from the proposed Line 407, Phase I, to proposed school sites:

- Explosion – 420 feet. This is the distance to the 1.0 psig overpressure level from a full bore, horizontal release. This level of overpressure is considered by some sources to result in a 1% probability of serious injury or fatality to occupants in reinforced concrete or reinforced masonry building from flying glass and debris. It should be noted that this is a conservative result. For reference, the CDE Guidance Document indicates that an overpressure level of up to 2.3 psig will not result in any fatalities to persons inside buildings or outdoors; the maximum anticipated peak overpressure level from the proposed pipeline is 1.5 psig at distances less than 420 feet from the source.
- Flash Fire – 640 feet. This is the downwind distance to the lower flammability limit of an unignited vapor cloud from a full bore horizontal release under the typical conditions outlined in Table 4.1.4-4. It should be noted that the size of the combustible vapor cloud can vary significantly depending on atmospheric and other conditions. For example, if the wind speed was decreased from 2.0 to 1.5 meters per second and the stability class was changed from D to F, the downwind distance to the lower flammability limit of the unignited vapor cloud would increase to 820 feet; these conditions are considered the worst case for off-site consequence modeling from stationary sources by the United States Environmental Protection Agency.
- Torch Fire – 820 feet. This is the distance to the 5,000 btu/hr-ft^2 heat flux which is considered by the CDE to be the level of exposure resulting in 1% mortality. For reference, the CDE Guidance Document provides charts for determining radiant heat from torch fires. Although these charts were developed using a different modeling software, they show a distance of 975 feet from the release to the 5,000 btu/hr-ft^2 heat flux. (CDE 2007)

Option L

Option L would involve installing the portion of Line 407, Phase I which is within the 1,500 foot buffer of a planned elementary school, using horizontal directional drilling techniques. This would significantly reduce or eliminate the likelihood of the line being

damaged by third parties, since the line would be installed well below normal excavation depths. The estimated baseline risk of unintentional release would be reduced roughly one-third, from 1.96x 10^{-4} to 1.2x10^{-4}. The annual likelihood of serious injury or fatality along Line 407, Phase I would decrease less than 3%, from 1.99x10^{-5} to 1.94x10^{-5}. The overall likelihood of serious injury or fatality for all of the proposed line segments would decrease less than 1%, from 6.08x10^{-5} to 6.03x10^{-5}. Summary of Alternatives

Although most of the alternatives pose slightly higher risks than the proposed project, the various project alternatives pose very minor changes to the overall project risk.

Table 4.1.5-1 Summary of Alternatives Risk

Project Alternative	Annual Risk of Serious Injury or Fatality	Annual Likelihood of Serious Risk or Fatality
Proposed Project	6.08e-05	1 : 16,000
Option A	6.16e-05	1 : 16,000
Option B	6.18e-05	1 : 16,000
Option C	6.08e-05	1 : 16,000
Option D	6.18e-05	1 : 16,000
Option E	6.16e-05	1 : 16,000
Option F	6.12e-05	1 : 16,000
Option G	6.08e-05	1 : 16,000
Option H	6.31e-05	1 : 16,000
Option I	5.80e-05	1 : 17,000
Option J	5.89e-05	1 : 17,000
Option K	6.05e-05	1 : 17,000
Option L	6.03e-05	1 : 17,000

4.1.6 Cumulative Projects Impact Analysis

From a system safety perspective, the proposed project has not been considered as to cumulative impacts.

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Appendix I: Noise Analysis

ENVIRONMENTAL NOISE ANALYSIS

PG&E Line 406 and 407 Pipeline Project

Yolo, Sutter and Placer Counties, California

BBA Project No. 08-207

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BROWN • BUNTIN
ASSOCIATES, INC.

NOISE

Pacific Gas and Electric Company (PG&E) is planning to construct the Line 406 and Line 407 Pipeline Project (project) in California's Central Valley in Yolo, Sutter, Sacramento, and Placer counties. This natural gas pipeline project involves a new transmission pipeline that begins at PG&E's existing Lines 400 and 401 in Yolo County at the foot of the Coast Range and extends east to Line 172A (Line 406), a new transmission pipeline that extends from Line 172A near the town of Yolo east to existing PG&E Line 123 in the City of Roseville (Line 407), and a new Distribution Feeder Main (DFM) that extends from Line 407 south paralleling Powerline Road to the proposed Sacramento Metro Air Park development in Sacramento County.

Potential noise sources associated with the Project include construction equipment and activities, as well as operational noise associated with pressure limiting regulators, valves, and pressure relief gas discharges. These operational facilities would be located at the proposed metering and pressure limiting/regulating stations (also referred to as aboveground facilities in this report). The pipeline itself, as well as most valves, would be underground, and would not create audible noise at nearby receptors.

ENVIRONMENTAL SETTING

The project runs west to east, primarily across agricultural fields or along sparsely populated county roadways in Yolo, Sacramento, Sutter, and Placer counties. Scattered rural residential uses exist along the roadways in the vicinity of the project alignment. A proposed industrial development (Metro Air Park) will be at the southern terminus of a short north-south pipeline spur that is proposed along Powerline Road.

About ten homes are located within about 100 feet of the pipeline route along Yolo County Road 17 between I-505 and I-5. These homes would be exposed to noise during pipeline construction.

In Yolo County within the town of Yolo, there are several schools within 1 mile of the pipeline route. The closest one is an existing school with elementary through high school grades to the south of the Line 407 alignment. The existing Cache Creek High School is at the intersection of Clay Street and 2nd Street and is approximately 0.77 mile south of the pipeline alignment and 0.8 mile southeast of the proposed Yolo Junction Pressure Limiting Station (YJS) along Line 172A. Another sensitive receptor, the Yolo Branch Library, is in the town of Yolo at the intersection of Sacramento Street and 2nd Street, and is approximately 0.66 mile south of the project area and 0.72 mile southwest of the proposed YJS. Approximately 17 residences in the Yolo vicinity are located in close proximity (150 feet or less) to the project area. The nearest residence to the YJS is approximately 2,100 feet to the south-southeast.

There are seven proposed horizontal direction drill (HDD) segments in Yolo County and there are three residences that occur within 1,000 feet of an HDD pad (near Interstate 505, Interstate 5, and Highway 113). The main line bridle valves and blow-off stacks will be installed at the west end of Line 406 where it meets Lines 400 and 401. The nearest residences to these pipeline appurtenances are approximately 1 mile to the northeast and southeast.

Farther west of the town of Yolo, two schools are approximately 0.9 mile south of the Line 407 route. The Laugenour School is on the west side of Route 113 to the north of Cache Creek. The Woodland Joint Unified School is west of Route 113 just north of the western end of County Road 18 on the south side of Cache Creek. It should be noted that the location and identification of these two schools were indicated on the local Google Earth area maps, but were not identified as active schools within the Woodland Joint Unified School District. This could indicate that they are not currently in use or that they are private schools. Other schools in Yolo County are more than 1 mile from the project area.

Baseline/Brewer Road Main Line Valve Station (MLV) would be constructed approximately 250 feet west of Brewer Road along Baseline Road in Elverta, CA. This site is currently undeveloped, but is adjacent to existing rural residential development to the east and north.

The proposed Baseline Road Pressure Regulating Station (BRS) would be located on Baseline Road between Fiddyment Road and Walerga Road within the City of Roseville's sphere of influence. This site is currently undeveloped, but is adjacent to existing suburban residential development to the east and south. Future development is planned under the Sierra Vista Specific Plan and the nearby Placer Vineyards Specific Plan.

Ambient noise measurements were conducted in three locations along the pipeline route. A continuous 24-hour noise measurement was conducted at 32865 Yolo County Road 17. Short-term (15-minute) noise samples were collected at two locations: near the proposed Powerline Road Pressure Regulating Station (PRS) / Metro Air Park, and near the proposed BRS. Figures 4.8-1, 4.8-2 and 4.8-3 show the locations of the ambient noise measurement sites.

Figure 4.8-1
24-Hour Noise Measurement Site
32865 County Road 17, Yolo County

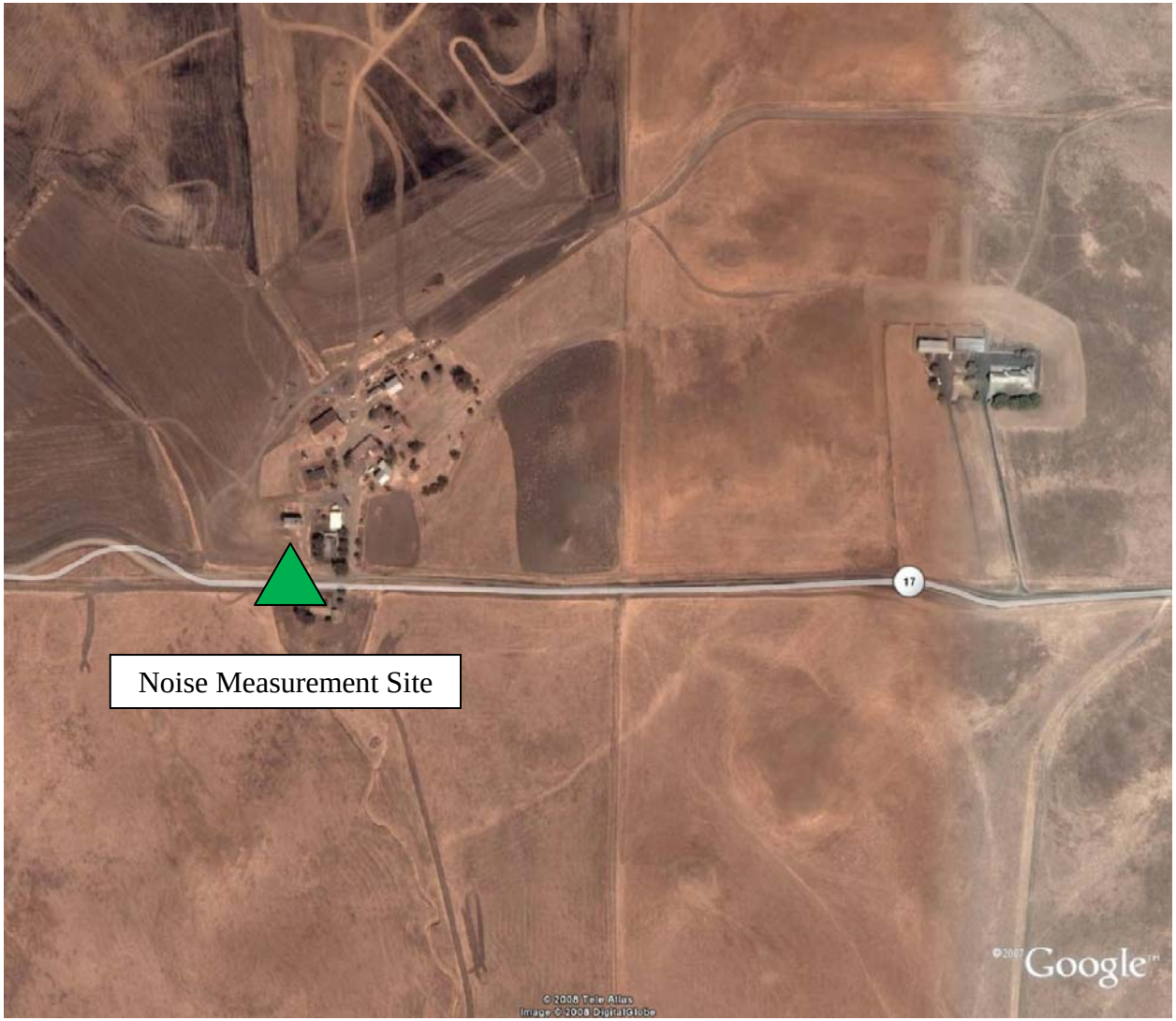


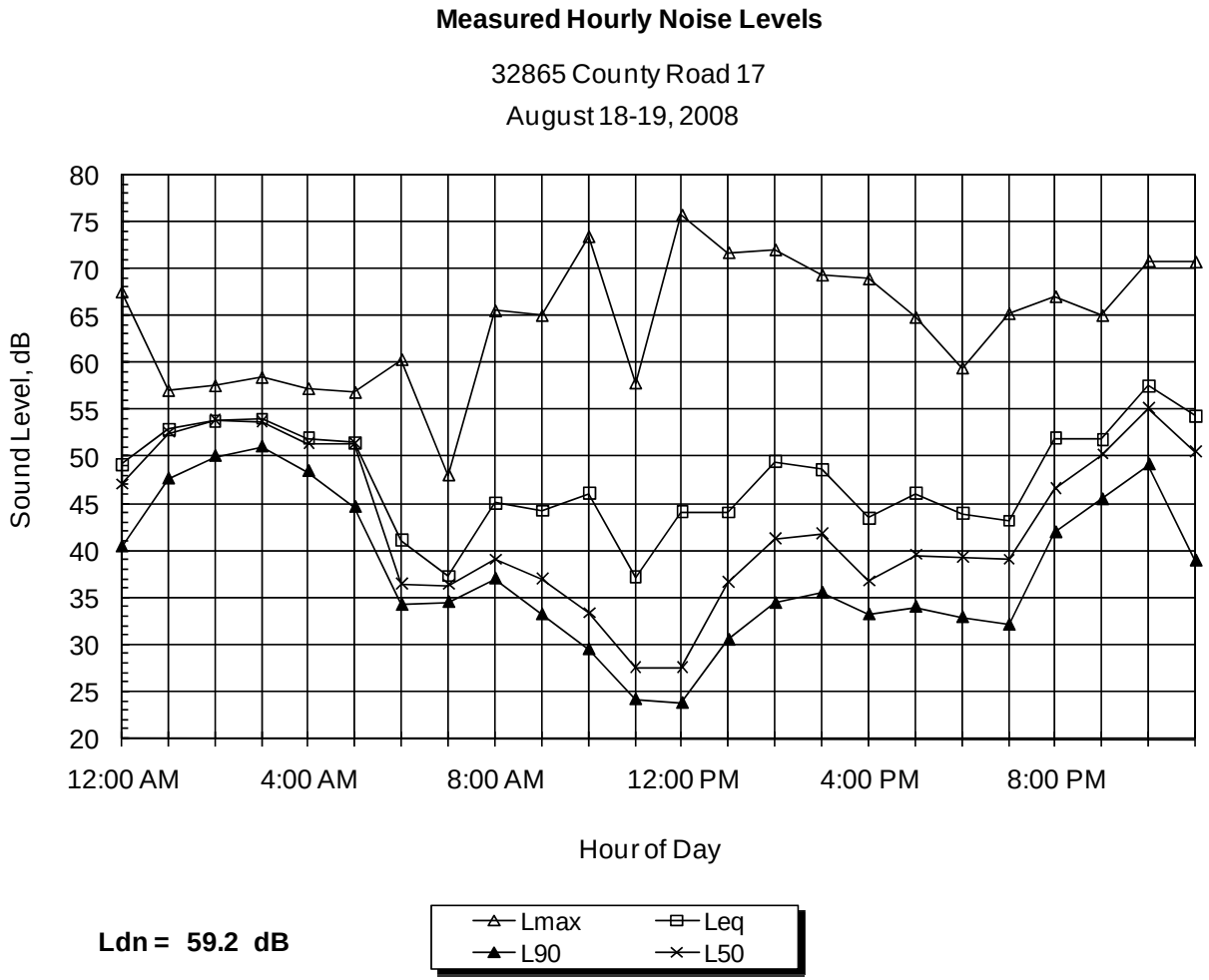
Figure 4.8-2
Short-Term Noise Measurement Site
Powerline Road and Elverta Road

Figure 4.8-3
Short-Term Noise Measurement Site
Baseline Road and Fiddyment Road

The continuous noise measurement site at 32865 Yolo County Road 17 was selected to be representative of the quietest rural residential areas that could be impacted by project-related noise. This site is in the Dunnigan Hills approximately midway between I-5 and I-505, and is shielded from freeway traffic noise by topography. The site is adjacent to Yolo County Road 17, which experiences very little traffic, as the house is located at the end of the paved road. Ambient noise sources primarily consist of the wind in trees, insect sounds and bird vocalizations, and occasional traffic. Although no above-ground project-related equipment would be located near this site, construction would occur immediately in front of the house.

The 24-hour noise measurements were performed August 18-19, 2008. The results are summarized by Table 4.8-1, and are portrayed graphically by Figure 4.8-4. The noise environment at this location may be described as very quiet, especially during daytime hours. The elevated sound levels at night were apparently caused by birds and insects in the adjacent vegetation. Other homes in rural environments could be exposed to ambient noise levels in this range, though increased proximity to major roadways would result in higher background noise levels (represented by the L90 values). In general, the noise environment in the vicinity of the rural residences near the proposed pipeline route and above-ground facilities would be considered to be very quiet.

Figure 4.8-4



Ldn = 59.2 dB

Table 4.8-1 Measured Noise Levels 32865 County Road 17 August 18-19, 2008					
Date	**Time**	**Hourly Sound Level, dB**			
		Leq	**Lmax**	**L50**	**L90**
August 18, 2008	1300	44.1	71.8	36.7	30.6
	1400	49.5	72.1	41.3	34.5
	1500	48.7	69.4	41.9	35.6
	1600	43.5	69.0	36.8	33.3
	1700	46.1	64.9	39.6	34.1
	1800	44.0	59.5	39.4	33.0
	1900	43.2	65.3	39.1	32.2
	2000	52.0	67.1	46.7	42.0
	2100	51.9	65.1	50.3	45.5
	2200	57.6	70.9	55.2	49.2
	2200	54.4	70.8	50.6	39.0
	2300	49.2	67.6	47.1	40.5
August 19, 2008	0000	52.9	57.1	52.6	47.7
	0100	53.8	57.6	53.9	50.1
	0200	54.1	58.5	53.7	51.1
	0300	52.0	57.3	51.4	48.5
	0400	51.5	56.9	51.5	44.7
	0500	41.1	60.4	36.5	34.3
	0600	37.3	48.1	36.4	34.6
	0700	45.1	65.6	39.1	37.1
	0800	44.3	65.1	37.0	33.3
	0900	46.1	73.5	33.4	29.6
	1000	37.2	57.9	27.6	24.3
	1100	44.2	75.8	27.6	23.9
	1200	44.1	71.8	36.7	30.6

The proposed PRS / Metro Air Park site was selected for ambient noise measurements because the aboveground equipment that would be located in that vicinity could produce audible noise, and because there is the potential for development of moderately sensitive light industrial land uses nearby. The area is currently used for agriculture, and the site is located adjacent to Runway 18L/36R at Sacramento International Airport. Two 15-minute noise measurements were performed on August 7, 2008. The data are summarized in Table 4.8-2. Figure 4.8-5 shows the time history for the daytime noise measurement, and shows the noise levels created by nearby agricultural activity, traffic, and aircraft landings at the Airport. This site is currently affected by local noise sources, and is expected to experience increased ambient traffic noise exposure as the Air Park is developed.

Figure 4.8-5

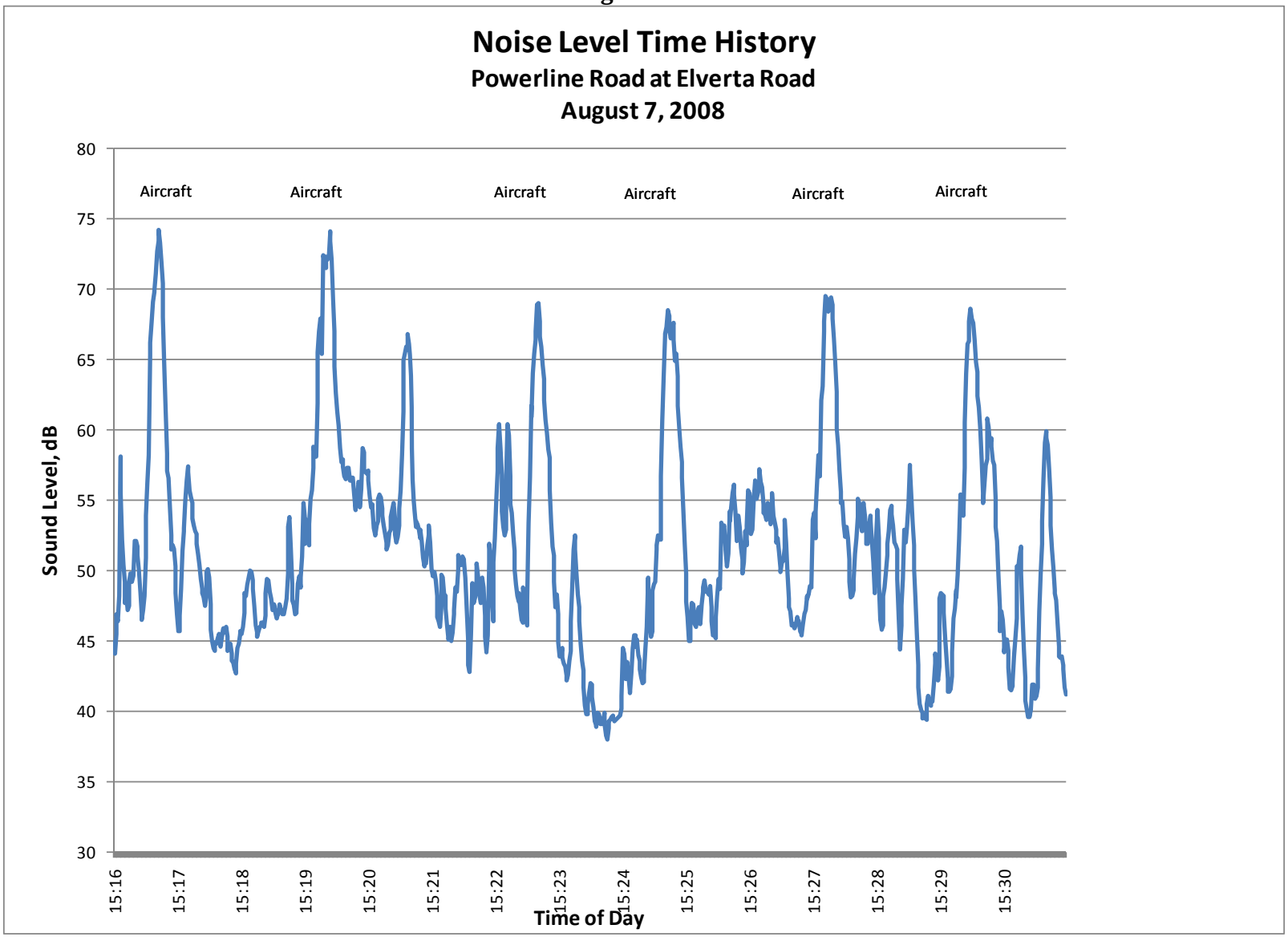
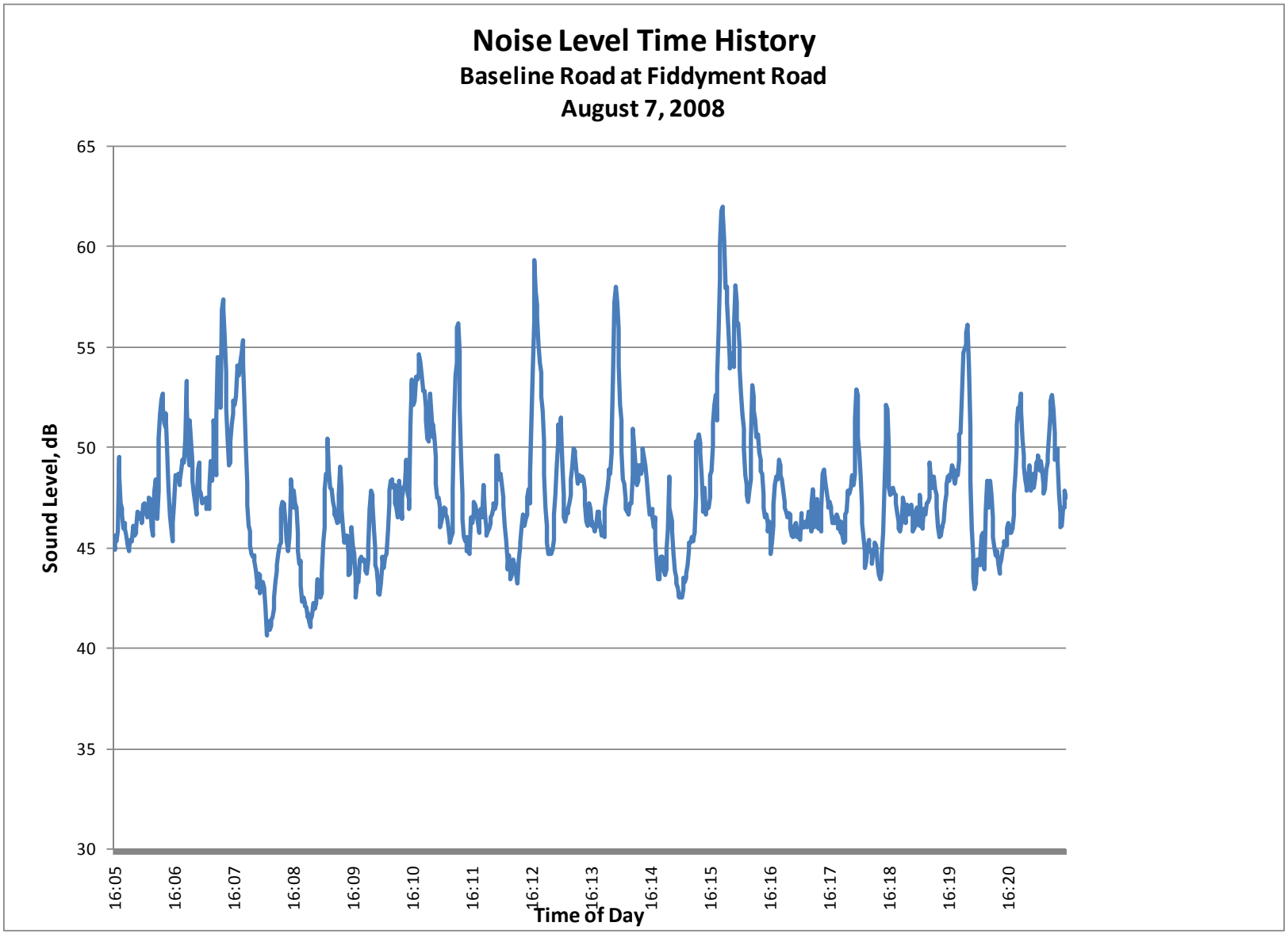

Noise Level Time History
Powerline Road at Elverta Road
August 7, 2008
Aircraft
Aircraft
Aircraft
Aircraft
Aircraft
Aircraft
Sound Level, dB
80
75
70
65
60
55
50
45
40
35
30
15:16
15:17
15:18
15:19
15:20
15:21
15:22
15:23
15:24
15:25
15:26
15:27
15:28
15:29
15:30
Time of Day

Table 4.8-2 Measured Noise Levels Short-Term Sample Sites August 7, 2008					
Location	**Time**	**15-Minute Sound Level, dB**			
		Leq	**Lmax**	**L50**	**L90**
Powerline Road and Elverta Road	15:16:15	59.5	74.8	50.3	42.7
	21:59:40	49.4	60.9	45.6	39.8
Baseline Road and Fiddyment Road	16:05:00	49.5	62.2	46.9	43.9
	22:35:41	59.4	76.4	47.2	43.3

The Baseline Road measurement site was selected to represent ambient noise levels at the existing homes near Baseline and Fiddyment Roads. It was not possible to gain access to the proposed BRS site, so a representative location was selected on the south side of Baseline Road, south of the proposed BRS. Background noise levels were caused by traffic on both Baseline and Fiddyment Roads; the highest noise levels were due to loud individual vehicles on Baseline Road. Two 15-minute noise measurements were performed on August 7, 2008. The data are summarized in Table 4.8-2. Figure 4.8-6 shows the time history for the daytime noise measurement, and illustrates the noise levels created by nearby traffic. This site is currently affected by local traffic noise sources, and is expected to experience increased traffic noise exposure as new residential development occurs in the immediate vicinity.

Most of the land uses along the proposed pipeline route are agricultural or rural residential, and the nearest roadways are lightly traveled west of State Highway 99. Ambient noise levels along most of the route are therefore expected to range from the quietest levels measured at Yolo County Road 17 to the levels observed at the Metro Air Park. Ambient noise levels along the proposed route adjacent to Baseline Road are dominated by traffic on Baseline Road and are expected to be in the range of the levels measured near the intersection of Baseline and Fiddyment Roads.

Figure 4.8-6


Noise Level Time History
Baseline Road at Fiddyment Road
August 7, 2008
Sound Level, dB
65
60
55
50
45
40
35
30
16:05
16:06
16:07
16:08
16:09
16:10
16:11
16:12
16:13
16:14
16:15
16:16
16:17
16:18
16:19
16:20
Time of Day

REGULATORY SETTING

Federal

There are no specific federal regulations for noise produced by local land use projects. However, the federal government applies guidelines for acceptable noise levels at residential projects that qualify for federal funding support (such as HUD-financed multi-family development projects) that are generally in the range of 55 dB L_{dn} to 65 dB L_{dn}, based upon the recommendations contained in the U.S. EPA "Levels Document"[1] and upon the 65 dB L_{dn} criterion applied by the U.S. Department of Housing and Urban Development[2] and other federal agencies. These criteria are typically applied to noise from transportation noise sources, but may be used to assess the compatibility of other noise sources relative to residential land uses, provided that consideration is given to potential disturbances due to impulsive sound, tonal content (whistles, music, etc.), and the prevalence of nighttime activities.

State

There are no specific state regulations for noise produced by local land use projects. The State Office of Planning and Research (OPR) has prepared guidelines for preparation of the Noise Element of the General Plan for cities and counties in California that are similar in concept to the USEPA and HUD recommendations, but it is the responsibility of local governments to adopt Noise Element standards that are suited to their individual situations.

Local

The proposed pipeline project would pass through or be adjacent to five local governmental jurisdictions: Yolo County, Sutter County, Sacramento County, Placer County, and the City of Roseville.

Yolo County: There are no quantitative noise standards for new projects in the Yolo County General Plan. The Yolo County General Plan is currently being updated and the draft for public comment is expected to be released in September 2008. However, the current (1983) General Plan contains the following general policies directed toward ensuring compatible land uses relative to noise:

N 1. Noise, Basic. Yolo County shall regulate, educate, and cooperate to reduce excessive noise levels within the environment and particularly those noise levels which impinge upon the home environment.

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[1] Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare with an Adequate Margin of Safety, U.S. Environmental Protection Agency, 550-9-74-004, March 1974.
[2] 24 CFR Part 51, Subpart B, Section 51.103c.

N 2. Noise/Land Use. Yolo County shall regulate the location and operation of land uses to avoid or mitigate harmful or nuisance levels of noise.

N 3. Noise, Prevent and Control. Noise shall be prevented, avoided, and suppressed by controlling noises at the source, providing barriers or buffers, by the implementation of a noise ordinance and by means of wise land use planning and implementation.

N 4. Noise Ordinance. Yolo County shall adopt a comprehensive Noise Ordinance.

N 5. Development Review. Yolo County shall review all new development and redevelopment in terms of the Standards of Noise Avoidance or Control.

N 6. Basic Compatibility. Yolo County will review all new developments, public and private, for noise compatibility with surrounding uses to protect the occupants of nearby lands from undesirable noise levels and shall discourage new residential development in areas subject to legal, long term, excessive noise.

N 7. Development Control/Noise. Yolo County shall review development plans for noise compatibility of the proposed use with the surrounding uses and planned uses, and shall incorporate noise reduction, avoidance, or mitigation techniques as necessary. In addition to other ordinances, standards, or devices, the following may be used to accomplish these policies:

- Provide open space, berms or walls, or landscaped areas between occupied dwellings and noise generators.
- Require specific plans, subdivision maps, or zoning standards to require deep lots in order to locate dwellings farthest from noise generators.
- Require effective sound barriers for new residential developments adjacent to existing freeways and highways.

The Yolo County Code does not have any standards directly related to construction or operational noise.

Sutter County: According to the Sutter County General Plan, there are very few existing noise conflicts in unincorporated Sutter County and most of these are from mobile sources (e.g., motor vehicles, aircraft, and trains). The general plan establishes land use compatibility guidelines for noise-sensitive uses for operational noises from non-transportation sources (see Table 4.8-3). There are no noise-specific municipal codes for construction noise in Sutter County. Table 4.8-4 provides land-use compatibility guidelines for various land uses for new noise-sensitive

developments and provides an indication of acceptable noise levels related to operational noise for different land uses.

Table 4.8-3: On-Site Sound-Level Standards for Sensitive Receptors—Sutter County

Sound-level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly equivalent energy noise level	50	45
Maximum level, decibels	70	65

Table 4.8-4: Land Use Compatibility Noise-Level Guidelines for Development—Sutter County

Land Use Category[1]		Community Noise Exposure L_{dn}/CNEL, dB[2]						
		55	60	65	70	75	80	
Residential, theaters, meeting halls, churches, auditoriums	A							
	CA							
	U							
Transient lodging, motels, hotels	A							
	CA							
	U							
Schools, libraries, hospitals, child care, museums	A							
	CA							
	U							
Playgrounds, neighborhood parks, Amphitheaters	A							
	CA							
	U							
Office buildings, business, commercial, and professional	A							
	CA							
	U							
Industrial, utilities, manufacturing, agriculture	A							
	CA							
	U							
Golf courses, riding stables, outdoor spectator sports	A							
	CA							
	U							

Source: Sutter County General Plan, 1996

[1] A=Acceptable; CA=Conditionally Acceptable; U=Unacceptable
[2] L_{dn}=Day-Night Average Level; CNEL=Community Noise Equivalent Level; dB=Decibel

Sacramento County: Policies NO-1 and NO-2 of the Sacramento County General Plan Noise Element govern the amount of noise a new project can generate, as measured at existing and proposed noise-sensitive land uses. The Noise Element policies of Sacramento County are consistent with the County Noise Control Ordinance (Sacramento County Code, Chapter 6.68). Therefore, satisfaction of the Noise Element policies would also ensure satisfaction of the County Noise Control Ordinance standards.

Policies NO-1 and NO-2 of the County Noise Element are listed below. Policy NO-1 would pertain to any project-related traffic noise, while Policy NO-2 would apply to on-site activities.

NO-1: Noise created by new transportation* noise sources should be mitigated so as not to exceed 60 dB Ldn/CNEL at the outdoor activity areas of any affected residential lands or land use situated in the unincorporated areas. When a practical application of the best available noise-reduction technology cannot achieve the 60 dB Ldn/CNEL standard, then an exterior noise level of 65 dB Ldn/CNEL may be allowed in outdoor activity areas.

* For the purposes of the Noise Element, transportation noise sources are defined as traffic on public roadways and railroad line operations. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as the Sacramento County Noise Control Ordinance. Areas affected by public use airport noise are subject to the Airport Land Use section and individual Comprehensive Land Use Policy.

The Noise Element further indicates that a community noise environment of up to 70 dB Ldn is acceptable for agricultural lands.

NO-2: Noise created by new non-transportation noise sources shall be mitigated so as not to exceed any of the noise level standards of Table II-1, as measured immediately within the property line of any affected residentially designated lands or residential land use situated in the unincorporated areas.

Table II-1
Noise Level Performance Standards
for Residential Uses Affected by Non-Transportation Noise
Sacramento County

Statistical Descriptor	Daytime (7 am to 10pm)	Nighttime (10 pm - 7 am)
L50	50 dBA	45 dBA
Lmax	70 dBA	65 dBA

1. These standards are for planning purposes only and may vary from the standards of the County Noise Ordinance which are for enforcement purposes.
2. These standards apply to new or existing residential areas affected by new or existing non-transportation sources.

Placer County: The Noise Element of the Placer County General Plan includes the following standards (Table 4.8-5) that are applicable to operational noise associated with new projects.

The Placer County Municipal Code (Chapter 9 Public Peace, Safety, and Welfare) includes an article that pertains to noise (Article 9.36). In this article, sensitive noise receptors are defined as "land uses in which there is a reasonable degree of sensitivity to noise. Such uses include single-family and multi-family residential uses, frequently used outbuildings, schools, hospitals, churches, rest homes, cemeteries, public libraries, and other sensitive uses as determined by the enforcement officer." The sound level standards for operational noise for sensitive receptors are summarized in Table 4.8-6.

Noise from construction activities is considered exempt from Article 9.36 provided the noise occurs between the hours of 6 a.m. and 8 p.m. Monday through Friday and between the hours of 8 a.m. and 8 p.m. on Saturday and Sunday. For this exemption to be valid, all construction equipment must be fitted with a factory-installed muffling device and maintained in good working order.

Table 4.8-5: Allowable L_{dn} Noise Levels within Specified Zone District[1]—Placer County

Zone District of Receptor	Property Line of Receiving Use	Interior Spaces[2]
Residential Adjacent to Industrial[3]	60	45
Other Residential[4]	50	45
Office/Professional	70	45
Transient Lodging	65	45
Neighborhood Commercial	70	45
General Commercial	70	45
Heavy Commercial	75	45
Limited Industrial	75	45
Highway Service	75	45
Shopping Center	70	45
Industrial	—	45
Industrial Park	75	45
Industrial Reserve	—	—
Airport	—	45
Unclassified	—	—
Farm	(see footnote 5)	—
Agricultural Exclusive	(see footnote 5)	—
Forestry	—	—
Timberland Preserve	—	—
Recreation and Forestry	70	—
Open Space	—	—
Mineral Reserve	—	—

[1] Overriding policy on interpretation of allowable noise levels: Industries operating upon industrial zoned properties must be afforded reasonable opportunity to exercise the rights/privileges conferred upon them by their zoning. Whenever the allowable noise levels herein fall subject to interpretation relative to industrial activities, the benefit of a doubt shall be afforded to the industrial use.

[2] Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.

[3] In recognition of the fact that noise mitigation from industrial operations may be difficult or costly, the exterior noise standards for residential zone districts immediately adjacent to industry-related zone districts have been increased by 10 decibels as compared to residential districts adjacent to other land uses.

[4] Where a residential zone district is located within an –SP combining district, the exterior noise-level standards are applied at the outer boundary of the –SP district. If an existing industrial operation within an -0SP district is expanded or modified, the noise-levels standards at the outer boundary of the –SP district may be increased.

[5] Normally, agricultural uses are noise insensitive and will be treated this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within agricultural zone districts. Therefore, where effects of agricultural noise upon residences located in these agricultural zones are a concern, a Day-Night Average Level of 70 A-weighted decibels will be considered acceptable outdoor exposure at a residence.

Table 4.8-6: On-site Sound Level Standards For Sensitive Receptors—Placer County

Sound-Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Equivalent Energy Noise Level	55	45
Maximum level, decibels	70	65

The Placer County Municipal Code prohibits any person at any location from creating sound, or allowing the creation of any sound, on property owned, leased, occupied, or otherwise controlled by such person that:

- causes the exterior sound level when measured on the property line of any affected sensitive receptor to exceed the ambient sound level by 5 dBA; or
- exceeds the sound-level standards as set forth in Table 4.8-6, whichever is greater.

Placer County allows exceptions for the provisions of this article and the notice of that request for exception must be given to all the properties that would be affected by the exception. Factors considered for construction-related exceptions include but are not limited to the following:

- conformance with the intent of Article 9.36;
- uses of the property and existence of sensitive receptors within the area affected by sound;
- factors related to initiating and completing all remedial work;
- the time of the day or night the exception will occur;
- the duration of the exception; and
- the general public interest, welfare, and safety.

City of Roseville: The Noise Element of the City of Roseville General Plan establishes an exterior noise level standard of 60 dB Ldn (or CNEL) at the outdoor activity areas of new residential uses affected by transportation noise sources. An exterior noise level of up to 65 dB Ldn is considered to be Conditionally Acceptable, and may be allowed only after a detailed

acoustical analysis is performed and needed noise abatement features are included in the design. The outdoor activity areas for residential developments are considered to be the back yard patios or decks of single-family dwellings. For multi-family residential units, the outdoor activity area is the common area where people generally congregate. The Noise Element also establishes an interior noise level standard of 45 dB Ldn for residential uses.

Table IX-3 of the City of Roseville Noise Element contains performance standards for non-transportation noise sources, and is reproduced here.

TABLE IX-3
PERFORMANCE STANDARDS
FOR NON-TRANSPORTATION NOISE SOURCES
OR PROJECTS AFFECTED BY NON-TRANSPORTATION NOISE SOURCES
(As Measured at the Property Line of Noise-Sensitive Uses)
City of Roseville

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65

Each of the noise levels specified above should be lowered by five dB for simple tone noises, noises generally consisting primarily of speech or music, or for recurring impulsive noises. Such noises are generally considered by residents to be particularly annoying and are a primary source of noise complaints. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwelling).

No standards have been included for interior noise levels. Standard construction practices should, with exterior noise levels identified, result in acceptable interior noise levels.

Chapter 9.24 of the Roseville Municipal Code is the City noise regulation. Section 9.24.030 of the Code provides an exemption from the City Noise Ordinance for: "G. Private construction (e.g., construction, alteration or repair activities) between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and between the hours of 8:00 a.m. and 8:00 p.m. Saturday and Sunday; provided, however, that all construction equipment shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order."

Vibration Level Criteria

The vibration assessment methodology and criteria used for this project were derived in part from Federal Transit Administration (FTA) recommendations[3]. The FTA criteria for ground-borne vibration are expressed in terms of the "vibration velocity level", in VdB, with a reference velocity of 10^{-6} in/sec.

The threshold of vibration perception is taken by the FTA to be 65 VdB, and the threshold of potential architectural damage to fragile structures is about 100 VdB. For residential uses, vibration levels less than 72 VdB are considered acceptable for exposures to more than 70 vibration events per day, and vibration levels less than 80 VdB are considered acceptable for exposures to fewer than 30 vibration events per day.

Caltrans has prepared guidelines for acceptable vibration limits in terms of the induced peak particle velocity (PPV). Tables 19 and 20 of the Caltrans Transportation- and Construction-induced Vibration Guidance Manual[4] are reproduced below:

Table 19. Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old building	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial building	2.00	0.50

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

[3] Transit Noise and Vibration Assessment, Carl E. Hanson et al, U.S. DOT, Federal Transit Administration, May 2006.

[4] Jones & Stokes. 2004. *Transportation- and construction-induced vibration guidance manual.* June. (J&S 02-039.) Sacramento, CA. Prepared for California Department of Transportation, Noise, Vibration, and Hazardous Waste Management Office, Sacramento, CA.

Table 20. Guideline Vibration Annoyance Potential Criteria		
Human Response	**Maximum PPV (in/sec)**	
	Transient Sources	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severe	2.00	0.40
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.		

Measures of Changes in Ambient Noise Levels

For non-transportation noise sources affecting noise sensitive land uses, many jurisdictions consider an increase in ambient noise levels of 5 dB to be potentially significant. This amount of change in environmental noise levels is generally considered to be the minimum required to be clearly noticeable by most people. This measure may be applied to median or energy-average ambient noise levels, whichever is a better measure of potential annoyance in the noise environment.

Some additional guidance as to the significance of changes in ambient noise levels is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels resulting from aircraft operations. The FICON findings are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. Annoyance is a summary measure of the general adverse reaction of people to noise that generates speech interference, sleep disturbance, or interference with the desire for a tranquil environment.

The rationale for the FICON findings is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of Ldn or CNEL. The changes in noise exposure that are shown in Table 4.8-7 are expected to result in equal changes in annoyance at sensitive land uses.

TABLE 4.8-7 POTENTIALLY SIGNIFICANT INCREASES IN CUMULATIVE NOISE EXPOSURE FOR TRANSPORTATION NOISE SOURCES	
Ambient Noise Level Without Project (L_{dn} or CNEL)	**Change in Ambient Noise Level Due to Project**
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more
Source: Federal Interagency Committee on Noise (FICON), 1992, as applied by Brown-Buntin Associates, Inc.	

Significance Criteria

A noise impact is considered significant and would require mitigation if:

- Noise levels from Project construction exceed criteria defined in a construction noise ordinance or general plan of the local jurisdiction in which the activity occurs;
- Noise levels from Project operations exceed criteria defined in a noise ordinance or general plan of the local jurisdiction in which the activity occurs;
- Noise levels from Project operations result in a substantial permanent increase in noise levels;
- Groundborne vibrations or groundborne noise from Project activities would have substantial direct or indirect effects on persons or structures.

IMPACT ANALYSIS AND MITIGATION

Applicant Proposed Measures (APMs) have been identified by PG&E in its Environmental Analysis prepared for the CSLC. APMs that are relevant to this section are presented below. This impact analysis assumes that all APMs would be implemented as defined below. Additional mitigation measures are recommended in this section if it is determined that APMs do not fully mitigate the impacts for which they are presented.

APM NOI-1. PG&E will limit construction activities to daytime hours whenever possible and will apply noise control best management practices to minimize adverse noise impacts to nearby residences or other sensitive receptor land uses. These provisions would be applicable to construction

activities in the vicinity of residences, as no other noise-sensitive uses have been identified along the proposed pipeline route.

APM NOI-2. PG&E will coordinate drilling activities where residents may live within 1,000 feet of the HDD temporary-use areas if construction is scheduled to occur between 8 p.m. and 6 a.m.

IMPACT DISCUSSION

Impact NOI-1: Potential Impacts of Noise.

The project will install approximately 42 miles of underground 30-inch-diameter natural gas transmission pipeline in Yolo, Sutter, Sacramento, and Placer counties.

Noise will be generated during the construction of the project. At any given location, construction noise will be generated over a relatively short period, and will not create a permanent addition to background noise levels. Sensitive noise receptors in the vicinity of the project alignment may be affected by temporary construction noise.

Maximum noise levels from construction equipment such as that which will be used during various phases of pipeline construction are shown in Table 4.8-8. According to Table 4.8-8, instantaneous (L_{max}) noise levels from construction equipment could reach 96 dB at 50 feet. Besides the equipment listed in Table 4.8-8, other more specialized equipment (such as the HDD rig) will also be used. Typical operational noise levels for this specialized equipment are not available, though it is anticipated that the primary noise source will be the diesel engine. Therefore, it is not likely that any of this equipment will generate maximum noise levels in excess of the equipment listed in Table 4.8-8.

The closest receptors to construction activity are sparsely distributed residences along the rural county roadways in Yolo, Sutter, and Placer counties, and in the City of Roseville. Some of these residences will be within 50 feet of the construction right-of-way. There would be no residences along the pipeline spur within Sacramento County. The construction noise would represent a noticeable temporary increase in ambient noise levels at the nearest residences in Yolo, Sutter, and Placer counties, and in the City of Roseville. Increases in ambient noise due to construction will be much less at the nearest schools or other sensitive receptors, but could still be noticeable.

In Yolo County, other sensitive receptors are found in the town of Yolo and include the Woodland Community School and the Yolo Branch Library (approximately 4,000 feet and 3,500 feet south to Line 407, respectively). In Placer County, the nearest sensitive receptors are two schools. The Alpha School (historical) is approximately 0.5 mile north of Line 407 along

Baseline Road, and the Coyote Ridge Elementary School is approximately 0.4 mile north-northeast of the eastern terminus of Line 407 at the intersection of Baseline Road and Fair Oaks Boulevard.

Maximum construction noise levels could reach up to 86 dBA at the nearest residences. In Yolo County, maximum sound levels from construction noise at the nearest sensitive receptors are expected to be approximately 58 dBA at both the Woodland Community School and the Yolo Branch Library. In Placer County, maximum sound levels from construction noise at the nearest sensitive receptors are expected to be approximately 61 dBA at the Alpha School and 64 dBA at the Coyote Ridge Elementary School.

Table 4.8-8: Construction Equipment Noise Levels (dBA)

Equipment	Impact Device	Measured L_{max}[1] (50 feet)	Predicted L_{max} (2,500 feet)
Auger drill rig	No	84	51
Backhoe	No	78	45
Boring jack power unit	No	83	50
Clam shovel (dropping)	Yes	87	54
Compactor (ground)	No	83	50
Compressor (air)	No	78	45
Concrete mixer truck	No	79	46
Concrete pump truck	No	81	48
Concrete saw	No	90	57
Crane	No	81	48
Dozer	No	82	49
Drill rig truck	No	79	46
Drum mixer	No	80	47
Dump truck	No	76	43
Excavator	No	81	48
Flat-bed truck	No	74	41
Front-end loader	No	79	46
Generator	No	81	48
Generator (<25KVA, VMS signs)	No	73	40
Gradall	No	83	50
Grapple (on backhoe)	No	87	54

Equipment	Impact Device	Measured L_{max}[1] (50 feet)	Predicted L_{max} (2,500 feet)
Horizontal boring hydr. jack	No	82	49
Jackhammer	Yes	89	56
Man lift	No	75	42
Mounted impact hammer (hoe ram)	Yes	90	57
Pavement scarifier	No	90	57
Paver	No	77	44
Pickup truck	No	75	42
Pneumatic tools	No	85	52
Pumps	No	81	48
Rivet buster/chipping gun	Yes	79	46
Rock drill	No	81	48
Roller	No	80	47
Scraper	No	85	52
Shears (on backhoe)	No	96	63
Slurry plant	No	78	45
Slurry trenching machine	No	80	47
Vacuum excavator (vac-truck)	No	85	52
Vacuum street sweeper	No	82	49
Vibrating hopper	No	87	54
Vibratory concrete mixer	No	80	47
Welder/torch	No	74	41

Source: Federal Transit Administration, 2006
[1] L_{max} is the maximum instantaneous noise level experienced during a given period of time.

For the work within Placer County, the predicted maximum exterior noise levels (61 to 64 dB exterior at the two nearest schools) would exceed the land use noise standards for sensitive receptors (L_{eq} of 55 dBA between 7 a.m. and 10 p.m. and 45 dBA between 10 p.m. and 7 a.m.). These standards are intended to apply to permanent noise sources. Construction noise, however, is short-term and temporary in nature, and equipment is not in continuous operation at these maximum noise levels.

Most municipal regulations allow for exemptions to noise standards for construction provided that work is completed during daytime hours. It is anticipated that pipeline construction will

progress along the routes in a manner so that noise impacts at any one residence will be of relatively short duration.

For example, the expected sequence of construction events near a given residence would include preliminary grading, topsoil stripping, digging trenches, welding, installation of the pipe, and backfill of the trenches. These activities would occur over a period of about one month, though the use of heavy equipment would probably occur over a period of only a few days. Trenching, for example, would proceed at a rate of about 1,500 to 3,000 feet per day, so the trenching equipment would only be in close proximity to a given residence for 1 to 2 days. Similarly, grading, stripping, and backfill would each occur over a 1 to 2 day period.

Horizontal directional drilling (HDD) would be employed where necessary to install the pipeline under canals, vernal pools, and major roadways. An HDD rig consists of a diesel engine that powers a drill rig and mud pumps. It is typically operated on a continuous basis after setup until the bore is completed. For this project, HDD use would occur no closer than about 400 feet to the nearest residence (in the vicinity of Garden Highway and Riego Road), and otherwise would be 800 feet or more from the nearest rural residence. At the nearest residence, the noise level produced by an HDD rig would be about 68 dBA. In all other cases, the noise levels at the nearest residences would be no more than about 62 dBA. A setback of about 3,000 feet would be required to reach a noise level of about 50 dBA.

Even though construction activities could occur outside of normal daytime construction hours, this would only happen when the nature of the work would make it necessary to perform construction around the clock. This would be the case with only a small portion of the overall work, such as during directional drilling and hydrostatic testing. Because project construction noise will be noticeable at various receptors during construction, the project will be expected to mitigate construction noise where possible and to coordinate with residents and local authorities to minimize the adverse impacts associated with construction noise.

Construction of the project will generate high levels of noise that could substantially increase ambient noise levels on a temporary basis in the vicinity of the pipeline route. In Placer County and Sacramento County, construction noise during daylight working hours is exempt from noise standards. Given that construction noise at any given location will be short-term and temporary in nature, impacts are not expected to be significant.

There are no existing noise sensitive receptors adjacent to the project in Sacramento County.

The only public airport or airstrips in the vicinity of the project are the Sacramento International Airport and Freedom Field.

The Sacramento International Airport is a major transportation airport in the Sacramento metropolitan area that has numerous aircraft landings and takeoffs each day. The southern terminus of the 10-inch-diameter north-south pipeline spur along Powerline Road is approximately 1.49 miles from the nearest terminal buildings, so passengers and airport staff will not be affected by noise during construction activities. Project-related construction workers could be exposed to aircraft noise levels similar to those shown by Figure 4.8-5 when working near the pipeline spur and the Powerline Road Main Line Valve (PRV), with maximum noise levels approaching 75 dBA. This exposure would not be expected to be excessive and would occur only temporarily. Consequently, this would be a less than significant impact.

By comparison, Freedom Field, located in the northeast quadrant of Locust Road and Baseline Road, is a private facility that only accommodates sportplanes and ultralights. The project does not create alternate land uses that would modify the long-term noise conditions for people who live or work in the vicinity of the airport or airstrip and are regularly exposed to airplane noise. Project-related construction workers would conceivably be exposed to noise from airplanes for short periods of time during construction when construction occurs close to the airport runway ends. This exposure would not be expected to be excessive and would occur only temporarily. Consequently, this would be a less than significant impact.

Noise levels from Project construction would exceed criteria defined in a construction noise ordinance or general plan of the local jurisdiction in which the activity occurs.

Mitigation Measures for Impact NOI-1: Potential Impacts to Noise.

NOI-1a. Construction activities will be limited to daytime hours when they occur within 1,000 feet of residences, except for the operation of horizontal directional drilling equipment.

NOI-1b. When construction activities occur within 1,000 feet of residences, the following best management practices shall be implemented:

1. All construction equipment shall be fitted with factory installed mufflers and enclosures.

2. All construction equipment shall be maintained in good working order.

3. Horizontal directional drilling (HDD) equipment shall be shielded from view of the nearest residences with temporary barriers (such as plywood or straw bales) that block line of sight from engines and pumps to the windows of those residences.

4. PG&E shall provide a noise complaint hot line, staffed on a 24-hour basis, to allow nearby residents to submit complaints about construction-related noise. The hot line number shall be clearly posted at the construction site.

5. PG&E shall respond to noise complaints in a timely manner, so that residents may obtain any necessary relief before the construction is completed.

NOI-1c. PG&E will coordinate drilling activities where residents may live within 1,000 feet of the HDD temporary-use areas if construction is scheduled to occur between 8 p.m. and 6 a.m. The objective of such coordination shall be to ensure that residents are afforded the opportunity to plan for activity interruptions, and to ensure that the planned drilling activity does not substantially interfere with the residents' sleep. Where necessary to prevent sleep disruption, PG&E shall provide alternative lodging for the residents during the construction period.

Rationale for Mitigation

People are typically most annoyed by noise due to activities beyond their control during nighttime hours, when most people sleep. This disproportionate response is recognized by commonly-accepted noise standards in Noise Elements and noise ordinances, which typically apply a 10 decibel penalty to noise occurring during nighttime hours. The proposed mitigation measures account for the increased sensitivity of people to noise at night.
By requiring that the equipment be maintained in good working order with all original silencing devices intact, the proposed mitigation measures recognize that modern construction equipment is effectively silenced to provide the maximum practical noise reduction.

The proposed shielding for the HDD equipment recognizes that such equipment must be operated on a continuous basis, and provides a practical reduction of noise by requiring an effective noise barrier between the HDD equipment and the nearest residences.

Finally, the proposed mitigation measures provide a method for residents to contact PG&E in the event of a noise complaint, and they require PG&E to resolve the complaints in a fair and practical manner.

Residual Impacts

There will be no residual noise impacts after construction is completed.

Impact NOI-2: Potential Impacts to Noise.

The project will install approximately 42 miles of underground 30-inch-diameter natural gas transmission pipeline in Yolo, Sutter, Sacramento, and Placer counties.

Movement of the natural gas through the pipeline will not create any noticeable groundborne vibration or noise. Consequently, no groundborne vibration or groundborne noise from project operation will affect nearby sensitive receptors.

However, there are six permanent aboveground facilities where noise impacts from operation could occur. The six proposed aboveground facilities are the Capay Metering Station (CMS), the Yolo Junction Pressure Limiting Station (YJS), the Powerline Road Main Line Valve (PRV), the Powerline Road Pressure Regulating Station (PRS), the Baseline/Brewer Road Main Line Valve Station (MLV), and the Baseline Road Pressure Regulating Station (BRS).

There are no existing sensitive receptors located close to the proposed CMS, PRV or PRS facilities. It does not appear that any noise sensitive development will occur in the vicinity of the proposed CMS, which is surrounded by agricultural land uses. In the vicinity of the proposed PRV and PRS facilities, it is expected that future development will introduce industrial land uses, which are not considered to be noise sensitive, and which will generate noise due to industrial activities and traffic.

There is an existing residence within 1,000 feet of the proposed YJS. Single family homes are adjacent to the proposed MLV site, and it is likely that the lands immediately adjacent to that site will ultimately be developed with residential uses.

The MLV would be located relatively close to existing residences on South Brewer Road north of Baseline Road. Field investigations revealed that the nearest residence, about 160 feet from Baseline Road in the northeast quadrant of the intersection, is burned out and abandoned. Another residence is located about 500 feet north of Baseline Road.

The BRS would be located about 750 feet from existing residences at the northeast, southeast and southwest quadrants of the intersection of Baseline and Fiddyment/Walerga Roads. Residents in the northeast quadrant of the intersection are located within Roseville's city limits. Residents in the southeast and southwest quadrants are located in Placer County.

Aboveground facilities are designed to have the control valves and piping buried underground. To characterize the noise levels associated with the proposed aboveground stations, noise

measurements and visual observations were performed on the morning of July 14, 2008, at a similar facility in San Joaquin County, the PG&E Bixler Road Pressure Limiting Station. At that location, several valve assemblies and low-pressure gas discharge openings were present above ground. A control building was also located on the site, and it was equipped with an air conditioning unit.

During the observation period of about one hour, the only audible noise source was the air conditioning unit on the control building, which produced 60 dBA at a distance of 10 feet. The air conditioning unit operated intermittently as a function of the interior air temperature. There was no noticeable noise associated with the aboveground valves. It was reported by PG&E staff that the valves operate quickly and intermittently to route gas to different pipelines, and that their operation is very quiet. The gas discharge openings did not appear to be significant noise sources.

Based upon the observations at the Bixler Road Pressure Limiting Station, it was concluded that the only potentially significant noise source from an aboveground facility is the air conditioning unit associated with the control building. The Bixler Road Pressure Limiting Station produced a sound level of 45 dBA at a distance of about 56 feet. Both the MLV and the BRS would be located at distances significantly greater than 56 feet from the nearest residences, so the predicted noise levels would not be expected to exceed the 45 dBA Leq noise standards for Placer County or the adjacent City of Roseville. Ambient noise levels in both of the MLV and BRS areas currently exceed 45 dBA Leq due to noise generated by traffic on Baseline Road.

Noise levels from Project operations would exceed criteria defined in a noise ordinance or general plan of the local jurisdiction in which the activity occurs.

Mitigation Measures for Impact NOI-2: Potential Impacts to Noise.

NOI-2a. Where an aboveground facility or other aboveground equipment fitted with an air conditioning unit is located within 60 feet of residential land uses, PG&E shall provide an acoustical analysis demonstrating that shielding or setbacks will be employed to ensure that operation of any temperature control equipment will not generate a noise level exceeding 45 dBA at the nearest existing residential property line.

NOI-2b. Operation of any aboveground valves or other control equipment shall not generate a noise level exceeding an hourly Leq of 45 dBA at the nearest residential property line.

Rationale for Mitigation

The only aboveground equipment sites that would be located near existing or proposed residential receptors are at Baseline Road and South Brewer Road in Placer County, and at Baseline Road and Fiddyment/Walerga Road, immediately adjacent to the Roseville city limits. The operation of the temperature control unit for control buildings could produce fan noise exceeding the nighttime noise standards of these jurisdictions at the nearest residences if the equipment were located within about 60 feet of the residences. Although no significant regulator-related noise sources were observed at the Bixler Road Pressure Limiting Station, it is also possible that the installation of different (newer) types of regulators will produce audible noise. The proposed mitigation measures would ensure that the noise from above ground facilities would not exceed the Placer County or City of Roseville nighttime noise standards.

Residual Impacts

There will be no residual noise impacts if the above mitigation measures are implemented.

Impact NOI-3: Potential Impacts to Noise.

Based upon the observations at the Bixler Road Pressure Limiting Station, it was concluded that the only potentially significant noise source was the air conditioning unit associated with the control building. This noise source would produce a sound level of 45 dBA at a distance of about 56 feet.

Based upon the observed ambient noise levels in the vicinity of Baseline Road, noise produced by aboveground facilities is not expected to exceed ambient noise levels at existing noise sensitive receptors.

Noise levels from Project operations would not result in a substantial permanent increase in noise levels.

Mitigation Measures for Impact NOI-3: Potential Impacts to Noise.

NOI-3a. None required.

Impact NOI-4: Potential Impacts to Vibration.

Heavy-duty construction equipment could be used during the construction phase of the project. Typical levels of groundborne vibration produced by various pieces of construction equipment that could be used during project construction are shown in Table 4.8-9. While some specialized pieces of equipment other than those listed in Table 4.8-9 may be used during construction, it is unlikely that maximum vibration levels associated with this equipment would be greater than the listed equipment.

According to the site maps, some residential receptors would be within 50 feet of the pipeline alignment. Consequently, construction could contribute noticeable levels of groundborne vibration at any of these receptors. However, these would be short-term exposures that would occur primarily in the daytime.

Based upon Table 4.8-9, vibration due to the operation of equipment such as heavy trucks and bulldozers associated with the project could be perceptible, and could result in annoyance, for residents in homes located within about 60 feet of the construction site. Structural damage due to construction-related vibration is unlikely beyond 25 feet of the construction site.

The majority of construction activity is expected to occur at distances greater than 60 feet from sensitive structures. Where construction activity involving heavy equipment occurs within 60 feet of residences (such as may occur along the pipeline route), the people in those homes may be annoyed, but no structural damage would be expected, provided that vibration-causing equipment is at least 25 feet from sensitive structures. The use of heavy equipment that would produce the highest vibration levels would be limited to daytime hours. Due to the potential for creating annoyance, construction-related vibration is potentially significant.

TABLE 4.8-9

VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Peak Particle Velocity at 25 feet (inches/second)	Approximate Vibration Level (VdB) at 25 feet
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: U.S Department of Transportation, Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

Groundborne vibrations or groundborne noise from Project construction activities would have substantial direct or indirect effects on persons or structures.

Mitigation Measures for Impact NOI-4: Potential Impacts to Vibration.

NOI-4a. Earth-moving equipment on the construction lot shall not be operated closer than 25 feet from any residences.

NOI-4b. Route heavily-loaded trucks away from residential streets where possible. Select streets with the fewest homes if no alternatives are available.

NOI-4c. Operate earth-moving equipment on the construction lot as far away from vibration-sensitive sites as possible.

NOI-4d. Phase demolition, earth-moving and ground-impacting operations so as not to occur in the same time period.

NOI-4e. Nighttime construction activities immediately adjacent to residences shall be avoided.

Rationale for Mitigation

The proposed mitigation measures would serve to move potentially significant sources of vibration as far from sensitive receptors as possible. The total vibration level produced may be significantly reduced when each vibration source operates separately. People are more aware of vibration in their homes during the nighttime hours.

Residual Impacts

There will be no residual vibration impacts after construction is completed.

IMPACTS OF ALTERNATIVES

A No Project Alternative and twelve options have been proposed for the alignment in order to minimize or eliminate environmental impacts of the proposed project and to respond to comments from nearby landowners. The twelve options, labeled A through L, have been analyzed in comparison to the portion of the proposed route that has been avoided as a result of the option. Descriptions of the options can be found in Section 3.0, Alternatives and Cumulative Projects, and are depicted in Figure 3-2.

For the assessment of potential construction and aboveground facility noise impacts of the project alternatives, a screening threshold distance of 200 feet was applied. The distance has been established to evaluate aesthetic issues, but it is appropriate for noise as well. For example, the construction noise levels that are cited at a distance of 50 feet in Table 4.8-8 would be reduced by about 12 dBA at 200 feet, so that maximum noise levels for most equipment would be near or below the daytime maximum noise level standard of 70 dBA that is applied by local

jurisdictions for non-construction noise sources. Similarly, noise from aboveground facilities would be reduced to less than 35 dBA, which would satisfy the nighttime average noise level standards applied by local jurisdictions. The use of the 200-foot threshold supposes that construction-related noise sources at this distance would produce noise levels within the range of normally acceptable noise levels for any noise sources.

No Project Alternative

Without the project, there would be no temporary construction activities and consequent noise and vibration, and no potential for long-term noise production by aboveground facilities. Thus there would be no noise and vibration impacts.

Option A

Option A would shift approximately 14 miles of pipeline from the more densely populated area around Line 406 to the sparsely populated area to the north. Under Option A, the alternative Capay Metering Station (CMS) would be moved approximately 1.5 miles north of where it would be placed under the proposed Project. This option would increase the overall pipeline length by approximately 2,200 feet. Similar to the proposed Project, there are no existing sensitive receptors located close to the CMS. It does not appear that any noise sensitive development will occur in the vicinity of the CMS, which is surrounded by agricultural land uses.

The closest receptor to construction activity in Option A is a farmhouse north of Road 16 at Road 86. There are no other sensitive receptors in the vicinity of Option A, nor are there any public airports or airstrips. Option A crosses five fewer private residential parcels than Line 406. One residence would be located within 200 feet of the pipeline construction under Option A, whereas eight residences would be located within 200 feet of construction under the proposed Project. Under Option A, the nearest residence to an HDD crossing would be located approximately 490 feet away from the HDD construction pit. The residence nearest the proposed Project's HDD crossing would be located approximately 100 feet from the HDD construction pit. As a result, there would be fewer potential construction-related noise or vibration impacts along this segment of the pipeline.

Option B

Option B would shift approximately 6.5 miles of pipeline from the more densely populated area around Line 406 to the sparsely populated area to the north. Under Option B. the alternative CMS would be moved approximately 1.5 miles north of where it would be placed under the proposed Project. Similar to the proposed Project, there are no existing sensitive receptors

located close to the alternative CMS. It does not appear that any noise sensitive development will occur in the vicinity of the alternative CMS, which is surrounded by agricultural land uses.

Option B crosses approximately two more private residential parcels than Line 406. However, there are no residences within 200 feet of the I-505 HDD crossing under Option B or the proposed Project. There are no residences located within 200 feet of the pipeline construction under Option B or proposed Project. There are no other sensitive receptors in the vicinity of Option B, nor are there any public airports or airstrips. As a result, there would be no change in potential construction-related noise or vibration impacts along this segment of the pipeline.

Option C

This alternative would eliminate pipeline construction along one part of County Road 17 in the Dunnigan Hills area. There are no residences located within 200 feet of the pipeline construction under Option C or proposed Project. There are no other sensitive receptors in the vicinity of Option C, nor are there any public airports or airstrips. As a result, there would be no change in potential construction-related noise or vibration impacts.

Option D

This alternative would eliminate pipeline construction along one part of County Road 17 in the Dunnigan Hills area. Option D crosses approximately 5 more private residential parcels than Line 406. Under Option D, five residences would be located within 200 feet of the pipeline construction, whereas no residences would be located within 200 feet of construction for the proposed Project. There are no other sensitive receptors in the vicinity of Option D, nor are there any public airports or airstrips. There would be an increase in potential construction-related noise or vibration impacts associated with this option.

Option E

This alternative would relocate pipeline construction along Road 19 west of I-505. Option E crosses approximately 3 more private residential parcels than Line 406. Under Option E, three residences would be located within 200 feet of the pipeline construction, whereas no residences would be located within 200 feet of construction for the proposed Project. There are no other sensitive receptors in the vicinity of Option E, nor are there any public airports or airstrips. There would be an increase in potential construction-related noise or vibration impacts associated with this option.

Option F

This alternative would relocate pipeline construction east of the Dunnigan Hills. Option F crosses one less private residential parcel than the corresponding portion of Line 406. Under Option F, no residences would be located within 200 feet of the pipeline construction, whereas one residence would be located within 200 feet of construction for the proposed Project. There are no other sensitive receptors in the vicinity of Option F, nor are there any public airports or airstrips. There would be fewer potential construction-related noise or vibration impacts associated with this option.

Option G

This alternative would relocate pipeline construction east of the YJS. Option G would run between three residences, whereas the proposed Project would traverse an area slightly to the north of these residences. There are three residences located within 200 feet of Option G and the proposed Project. Under Option G, however, the nearest residence would be located approximately 10 feet closer to construction activities than under the proposed Project. This would result in a less than significant change in construction noise levels. The other sensitive receptors in the vicinity of Option G are the homes, library, and school in the town of Yolo; this option would make minor changes in the proposed alignment that would have less than significant effects at these more distant receptors. There are no public airports or airstrips in the vicinity of Option G. There would be no change in potential construction-related noise or vibration impacts associated with this option.

Option H

Option H crosses approximately three fewer private residential parcels than Line 406. Under Option H, only one residence would be located within 200 feet of the pipeline construction, whereas five residences would be located within 200 feet of construction for the proposed Project. Under Option H, the nearest residence to an HDD crossing would be located more than 2,000 feet away from the HDD construction pit. The residence nearest the proposed Project's HDD crossing would be located approximately 360 feet from the HDD construction pit. There are no other sensitive receptors in the vicinity of Option H.

The pipeline would pass within about 1.4 miles of the terminal buildings at Sacramento International Airport, and within about 0.5 miles of the runway ends. Project-related construction workers would be exposed to noise from aircraft arrivals and/or departures. Aircraft sound levels could exceed 65 dBA for about 30 seconds per noise event, with maximum noise levels in the range of 85-90 dBA. The noise due to aircraft overflights would not require hearing protection measures beyond those already required for the exposure to noise produced by heavy

equipment, but the aircraft noise events would add slightly to the total employee noise exposure. With this option, there would be fewer potential construction-related noise or vibration impacts for sensitive receivers, but there would be slight increases in noise exposure for project construction workers.

Option I

Option I crosses approximately five fewer private residential parcels than Line 407 East. Under Option I, four residences would be located within 200 feet of the pipeline construction, whereas eight residences would be located within 200 feet of construction for the proposed Project. There are no other sensitive receptors in the vicinity of Option I, nor are there any public airports or airstrips. Freedom Field (a private airstrip) is located within about 0.5 miles of Option I, but the main pipeline along Baseline Road passes closer to this facility than does Option I. The project does not create alternate land uses that would modify the long-term noise conditions for people who live or work in the vicinity of the airport or airstrip and are regularly exposed to airplane noise. Project-related construction workers would conceivably be exposed to noise from airplanes for short periods of time during construction when construction occurs close to the airport runway ends. This exposure would not be expected to be excessive and would occur only temporarily. There would be fewer potential construction-related noise or vibration impacts associated with this option.

Option J

Option J crosses approximately three fewer private residential parcels than Line 407 East. Under Option J, six residences would be located within 200 feet of the pipeline construction, whereas eight residences would be located within 200 feet of construction for the proposed Project. There are no other sensitive receptors in the vicinity of Option I, nor are there any public airports or airstrips. Freedom Field (a private airstrip) is located within about 0.5 miles of Option J, but the main pipeline along Baseline Road passes closer to this facility than does Option J. The project does not create alternate land uses that would modify the long-term noise conditions for people who live or work in the vicinity of the airport or airstrip and are regularly exposed to airplane noise. Project-related construction workers would conceivably be exposed to noise from airplanes for short periods of time during construction when construction occurs close to the airport runway ends. This exposure would not be expected to be excessive and would occur only temporarily. There would be fewer potential construction-related noise or vibration impacts associated with this option.

Option K

This alternative would relocate pipeline construction north of Baseline Road in an uninhabited area. There are no residences within 200 feet of Option K or the proposed Project. There are no other sensitive receptors in the vicinity of Option K, nor are there any public airports or airstrips. As a result, there would be no change in potential construction-related noise or vibration impacts.

Option L

Under Option L, a portion of the proposed Project adjacent to Baseline Road would be constructed utilizing HDD instead of trenching. Option L would not change the location of the route, but would change the construction method from trenching to HDD. However, there are no residences located near Option L. There are no other sensitive receptors in the vicinity of Option L, nor are there any public airports or airstrips. As a result, there would be no change in potential construction-related noise or vibration impacts.

Table 4.8-10
Comparison of Alternatives for Noise

Alternative	Comparison with Proposed Project
No Project	Fewer Impacts
Option A	Fewer Impacts
Option B	Similar Impacts
Option C	Similar Impacts
Option D	Greater Impacts
Option E	Greater Impacts
Option F	Similar Impacts
Option G	Similar Impacts
Option H	Fewer Impacts
Option I	Fewer Impacts
Option J	Fewer Impacts
Option K	Similar Impacts
Option L	Similar Impacts

Source: Brown-Buntin Associates, Inc., 2009.

CUMULATIVE PROJECTS IMPACT ANALYSIS

Cumulative noise impacts associated with the Project could occur if the noise levels due to aboveground facilities were to add significantly to ambient noise levels. The areas in which such impacts could potentially occur are those of the residential neighborhoods near the Baseline/Brewer Road Main Line Valve (MLV) and the Baseline Road Pressure Regulating Station (BRS). However, in those areas, vehicular traffic is the dominant noise source, and existing traffic noise levels would greatly exceed the mitigated project noise level due to aboveground facilities. As a result, there would be no cumulative noise impact due to the Project.

Respectfully submitted,
Brown-Buntin Associates, Inc.

Jim Buntin
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