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

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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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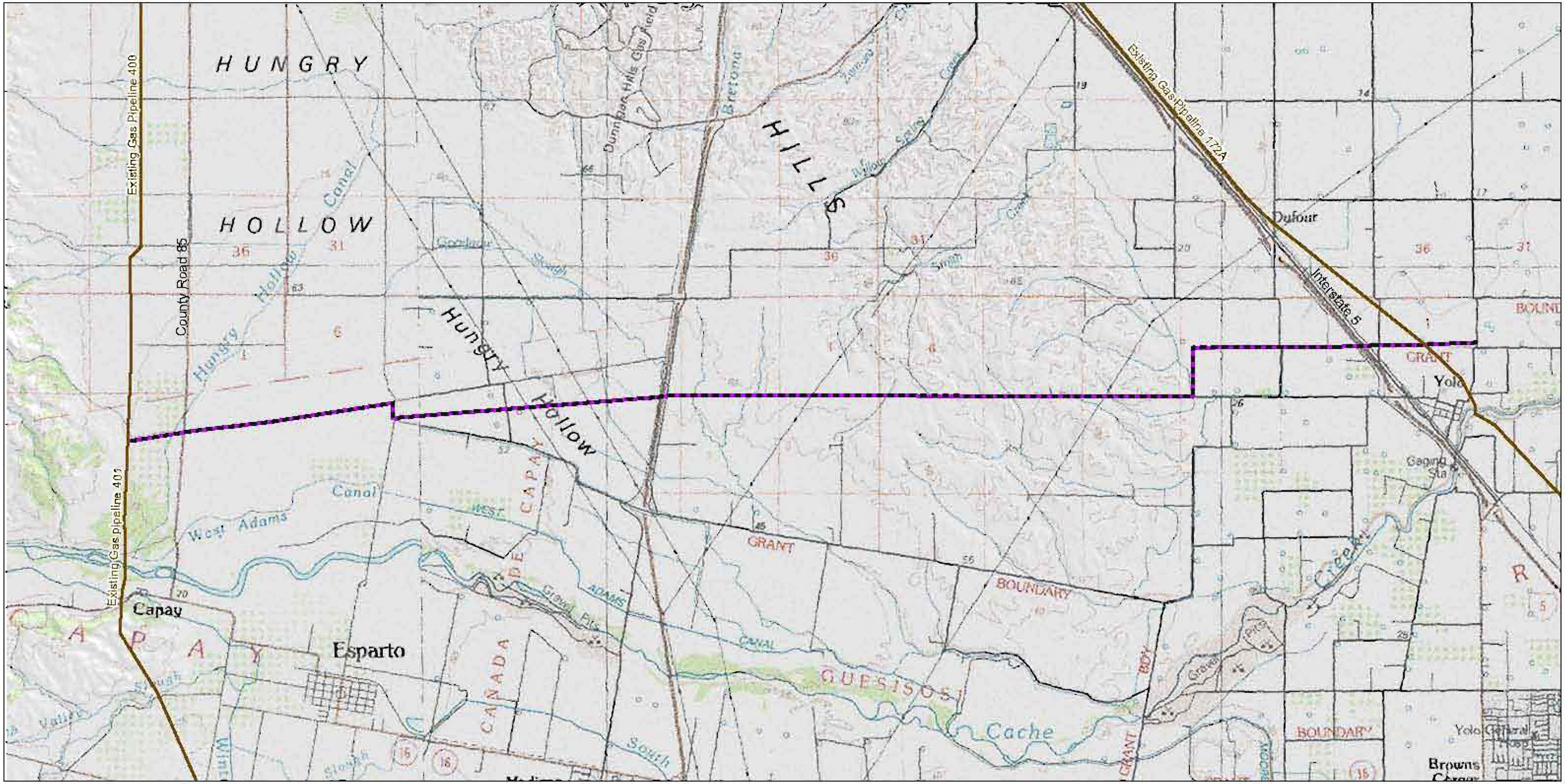
Figures



PG&E Line 406
Pipeline Project
Wetland Delineation
Figure 1
Regional Location

LEGEND

Proposed Line 406 Pipeline

Active PG&E Gas Pipeline

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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
CtD2	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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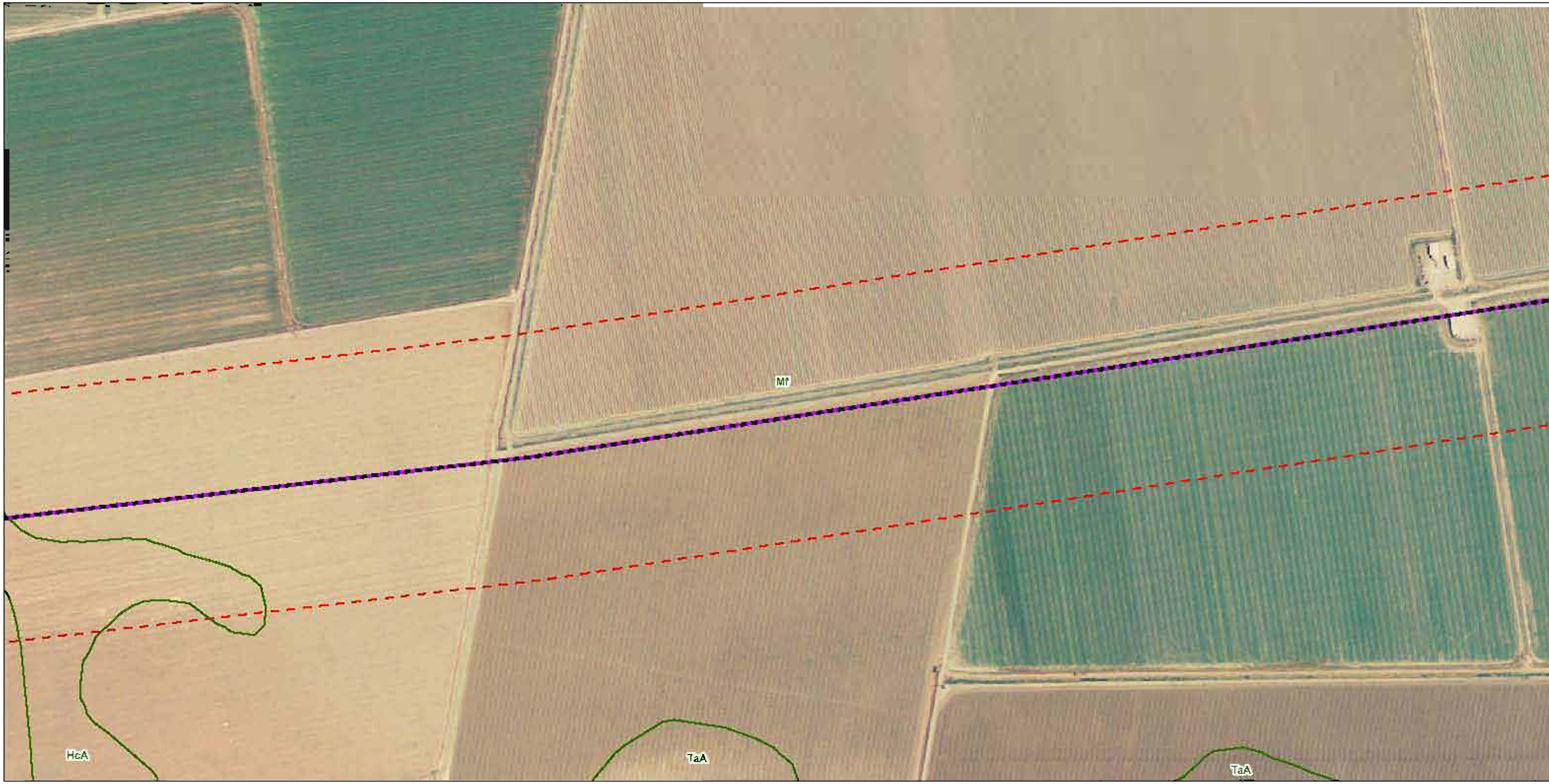


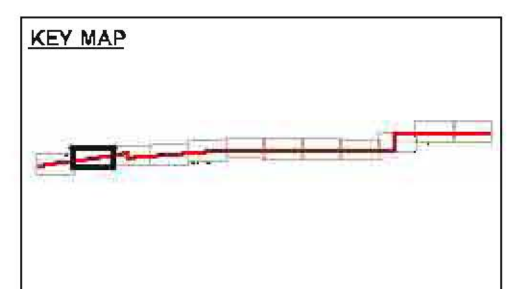
Line 406 and Line 407 Pipeline Project
Figure 2B
Soils and Land Use Maps

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

N S W E

0 200 400
Feet

\\GLACIER\PROJ\PGE\349516_YOLO_PIPELINE\MAPFILES\SOILS_LAND_USE_MAPBOOK_2E.MXD 8/9/2007 02:15:19

Line 406 and Line 407 Pipeline Project
Figure 2F
Soils and Land Use Maps

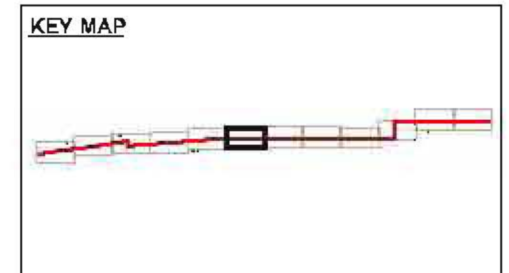
LEGEND

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



N
W E
S

0 200 400
Feet

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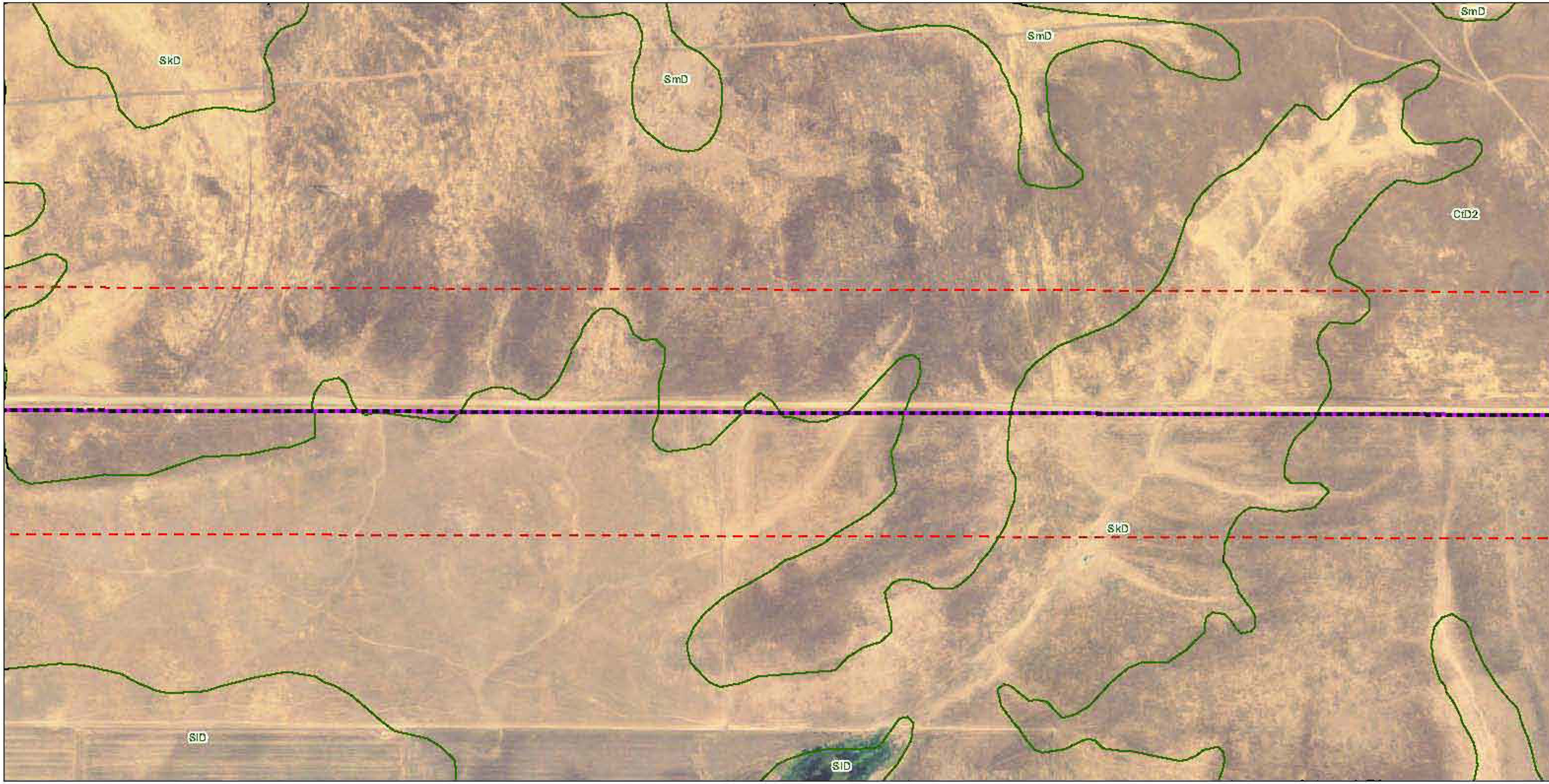

Line 406 and Line 407 Pipeline Project
Figure 2G
Soils and Land Use Maps

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

N W E S

0 200 400
Feet

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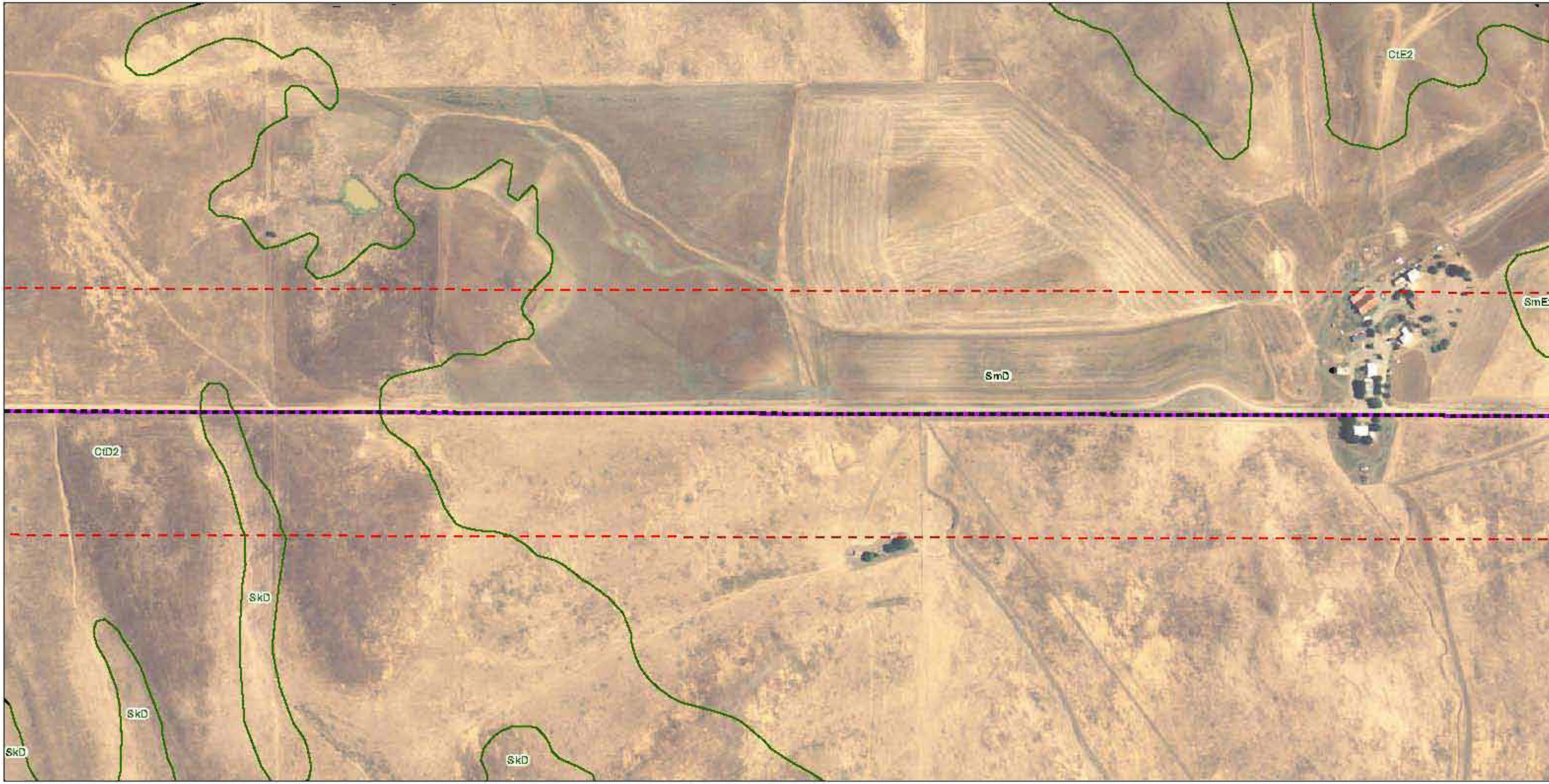


Line 406 and Line 407 Pipeline Project
Figure 2H
Soils and Land Use Maps

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

N W E S
0 200 400
Feet

\\GLACIER\PROJ\PGE\34516_YOLO_PIPELINE\MAPFILES\SOILS_LAND_USE_MAPBOOK_2H.MXD 8/9/2007 15:10:19

Line 406 and Line 407 Pipeline Project
Figure 2I
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

N
W E
S

0 200 400
Feet

\\GLACIER\PROJ\PGE\349516 YOLO PIPELINE\MAPFILES\SOILS LAND USE MAPBOOK 2I.MXD 8/9/2007 15:08:19

Line 406 and Line 407 Pipeline Project Figure 2J Soils and Land Use Maps

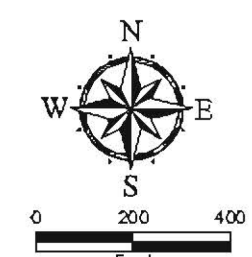
LEGEND

- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

Mapped Soil Units

CtD2	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

N W E S

0 200 400 Feet

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Line 406 and Line 407 Pipeline Project
Figure 2L
Soils and Land Use Maps

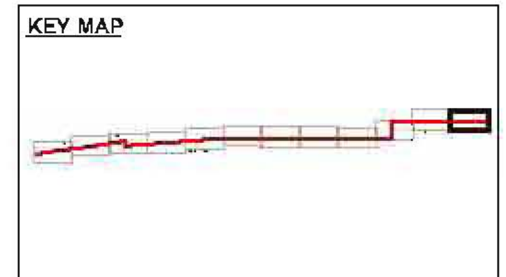
LEGEND

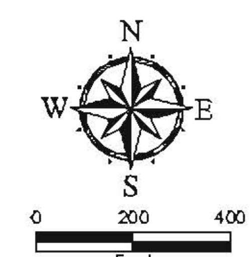
- 406 Pipeline
- ACTIVE PG&E GAS PIPELINE
- SOIL UNIT BOUNDARIES
- 500ft Buffer of Pipeline

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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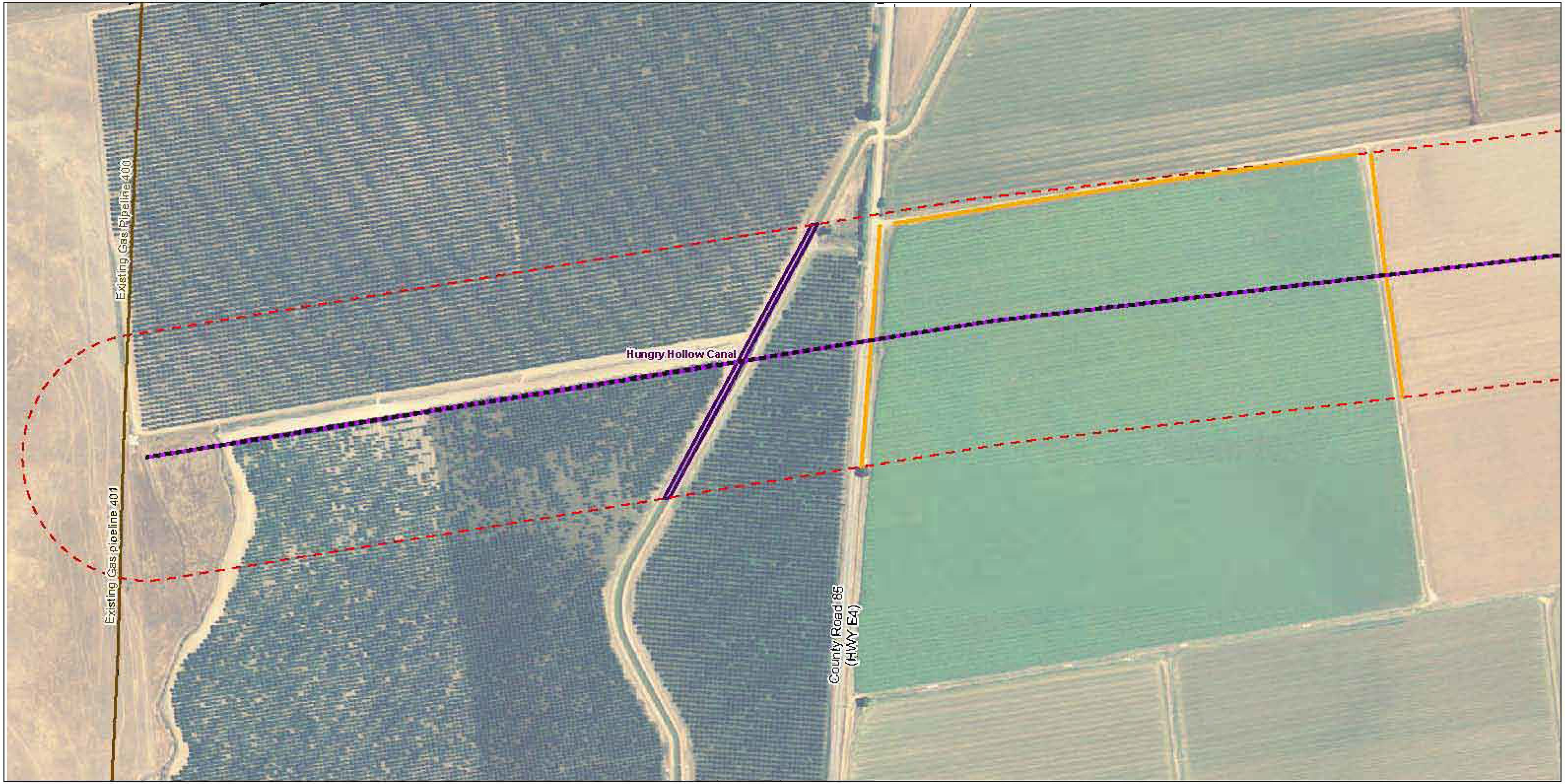
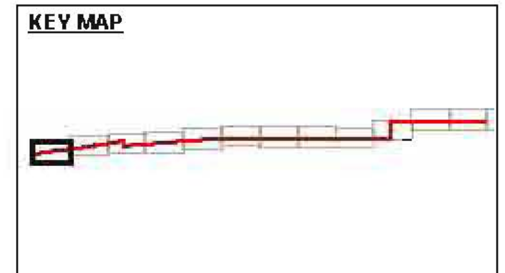


Line 406 and Line 407 Pipeline Project
Figure 3A
Wetlands Maps

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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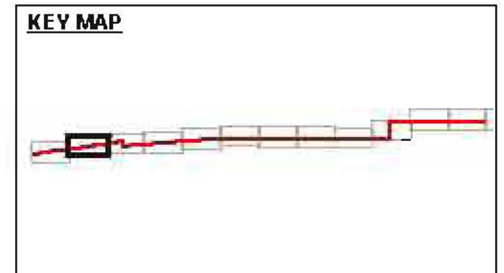
Line 406 and Line 407 Pipeline Project Figure 3B

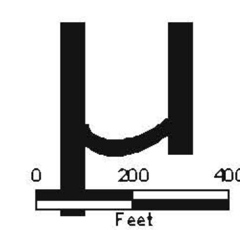
Wetlands Maps

LEGEND

Data Points	Upland Swale
406 Pipeline	Erosional Channel
ACTIVE PG&E GAS PIPELINE	Seasonal Wetland Swale
Agricultural Drainage Ditch	Seasonal Wetland
Drainage	Pond
500-Foot Buffer of Pipeline	Canal

KEY MAP



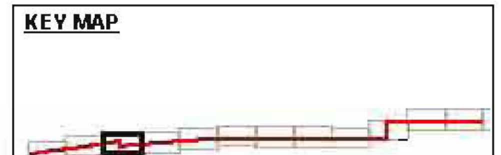


Line 406 and Line 407 Pipeline Project
Figure 3C
Wetlands Maps

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

0 200 400
Feet

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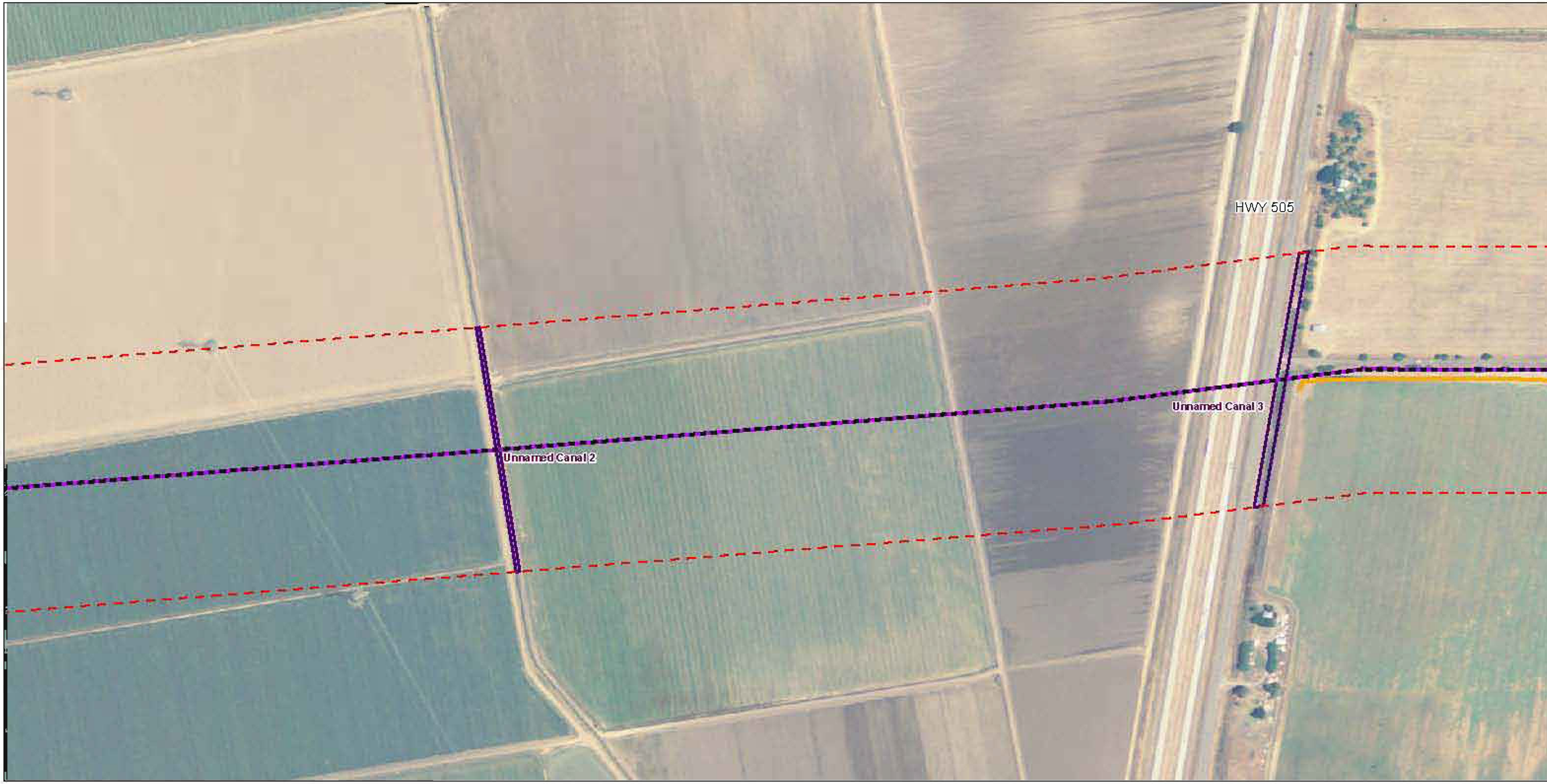
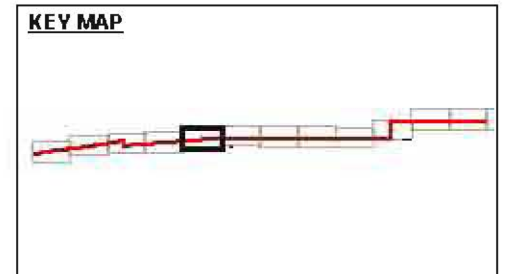


Line 406 and Line 407 Pipeline Project
Figure 3E
Wetlands Maps

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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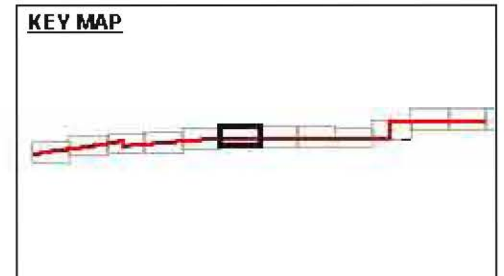
Line 406 and Line 407 Pipeline Project
Figure 3F
Wetlands Maps

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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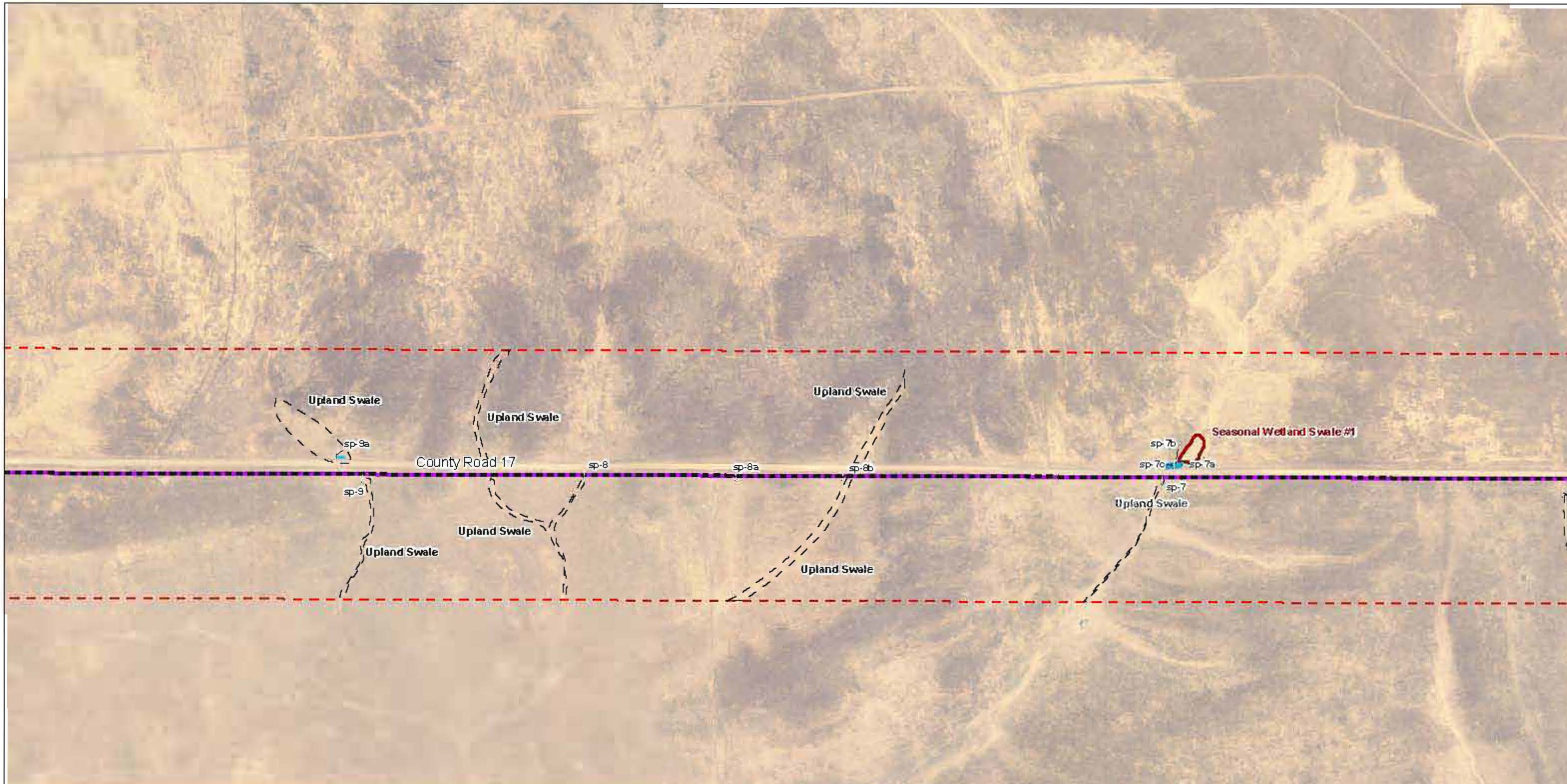
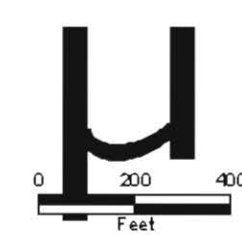


Line 406 and Line 407 Pipeline Project
Figure 3G
Wetlands Maps

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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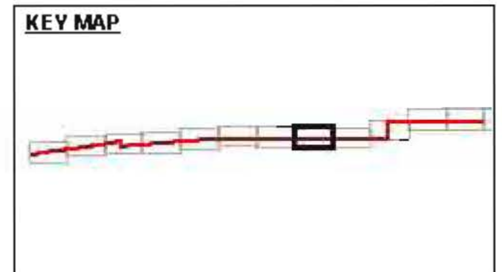
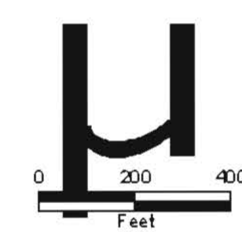
Line 406 and Line 407
Pipeline Project
Figure 3H
Wetlands Maps

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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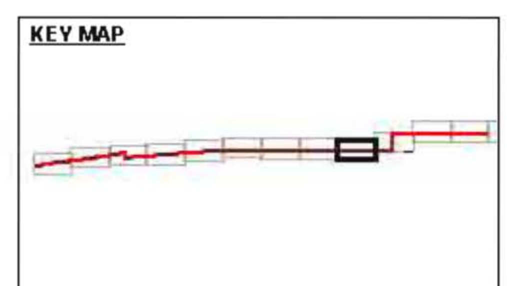
Line 406 and Line 407 Pipeline Project
Figure 3I
Wetlands Maps

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



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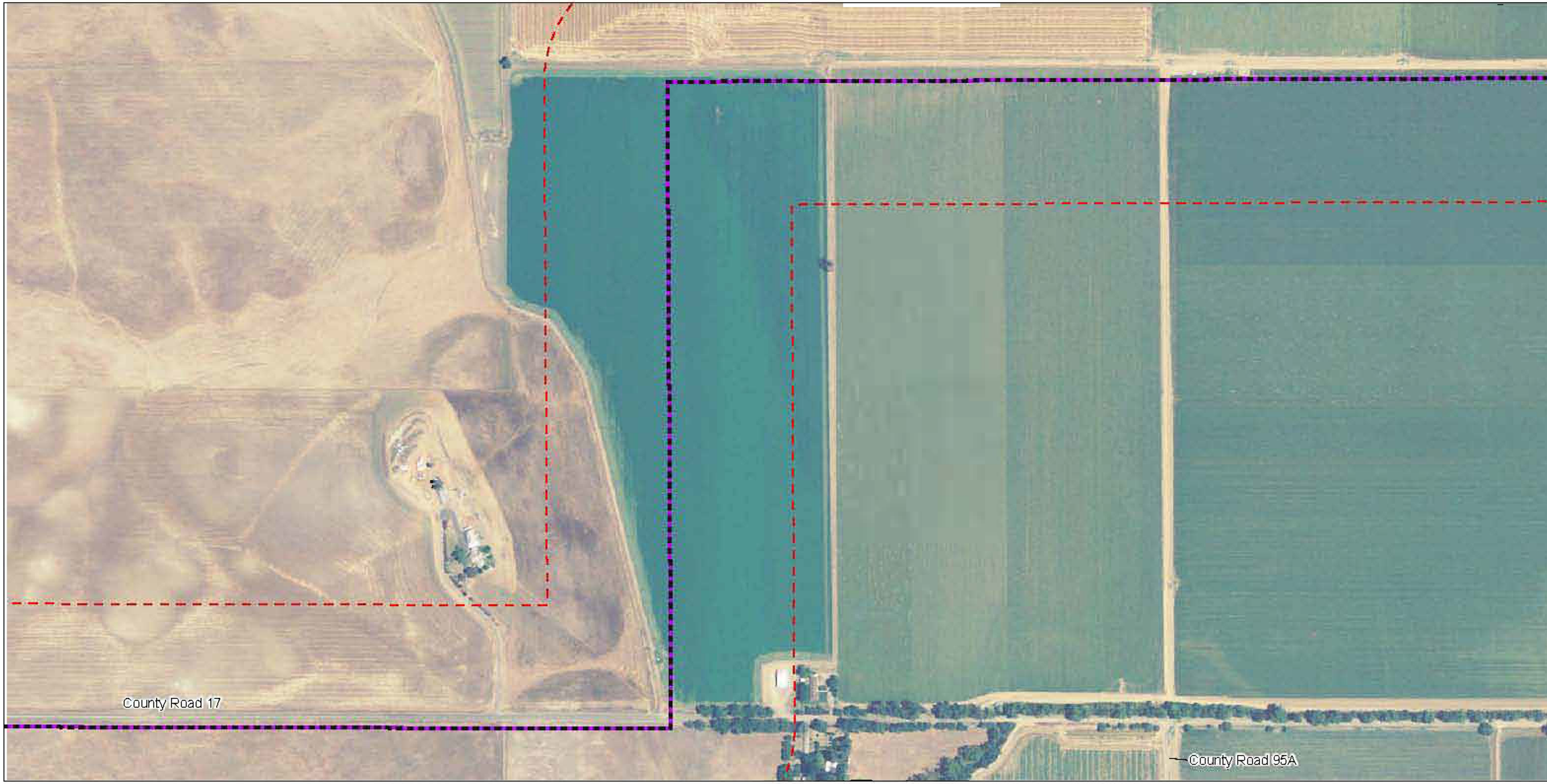
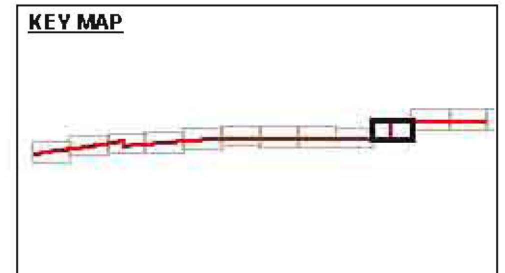


Line 406 and Line 407 Pipeline Project
Figure 3J
Wetlands Maps

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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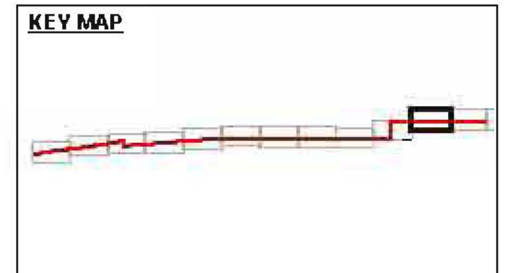
Line 406 and Line 407 Pipeline Project
Figure 3K
Wetlands Maps

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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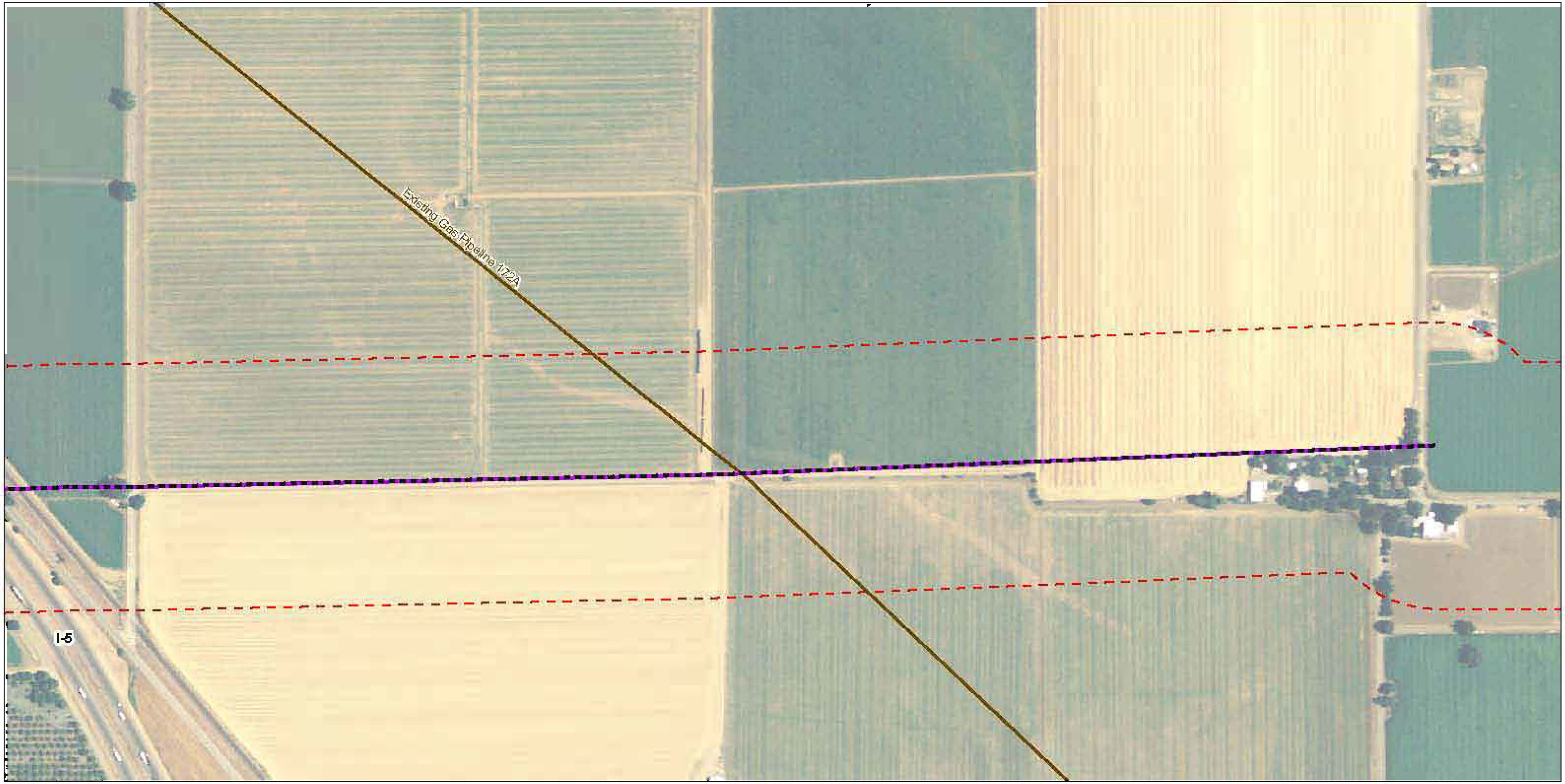
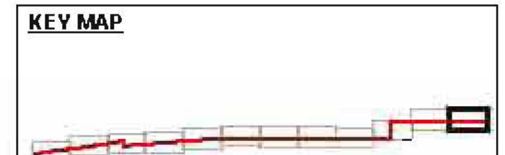


Line 406 and Line 407 Pipeline Project
Figure 3L
Wetlands Maps

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 > 365 days	1/16 to 12/14 333 days	2/26 to 11/28 276 days
70 percent *	> 365 days > 365 days	12/31 to 12/29 364 days	2/15 to 12/ 8 297 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.)			Precipitation (Inches)				
	avg daily max	avg daily min	avg	avg	30% chance will have less than	30% chance will have 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

	Temperature		
Probability	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

	Temperature (Degrees F.)			Precipitation (Inches)				
					30% chance will have			
Month	avg daily max	avg daily min	avg	avg	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

	Temperature		
Probability	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 - BALCOM 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:	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: 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 01E 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 <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	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	10YR4/2	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)	%	Redox Features Color (moist)	%	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	10YR 4/2	99%	5YR 4/6	1%	C	RC	SCL	MANY ROOTS / FINE GV
2-5	10YR 4/2	100%	–	–	–	–	GV SCL	
5-15	10YR 4/2	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. ERODIUM 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 Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5 YR 3/2	98%+	5YR4/6	1-2%	C	RC	SCL	VERY GRAVELLY
1-12	7.5YR3/2	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 Features %	Redox Features Type[1]	Redox Features 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 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 400/1401 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 hydrology 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 4/1	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 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 ~~X~~ 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. ERODIUM 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	10YR4/2	98%	7.5YR4/4	2	C	RC	SCL	GRAVELLY
2-15	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): >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: UNE 400 (40) 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 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: 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 ___ 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. AMSINCKIA 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)	%	Redox Features Color (moist)	%	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: 10N 01W 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 SOLSTITIALIS	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)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	97%	7.5YR 3/4	3%	C	RC	SCL	VERY GRAVELLY
2-18	10YR 4/1+	-	-	-	-	-	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.): HILLSLOPE 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 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 400-1401 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°56'19.629" 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), LOLIUM MULTIFLORUM (FAC*) 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)	%	Redox Features Color (moist)	%	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 * 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: 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 Features %	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 ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	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): 716

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 1W 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 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: 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:

GALLAWAY
CONSULTING, INC.
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Phone (530) 343-8327 Fax (530)343 8312

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Page

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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^{o} F) as defined by soil taxonomy.

PG&E Line 407 | Location

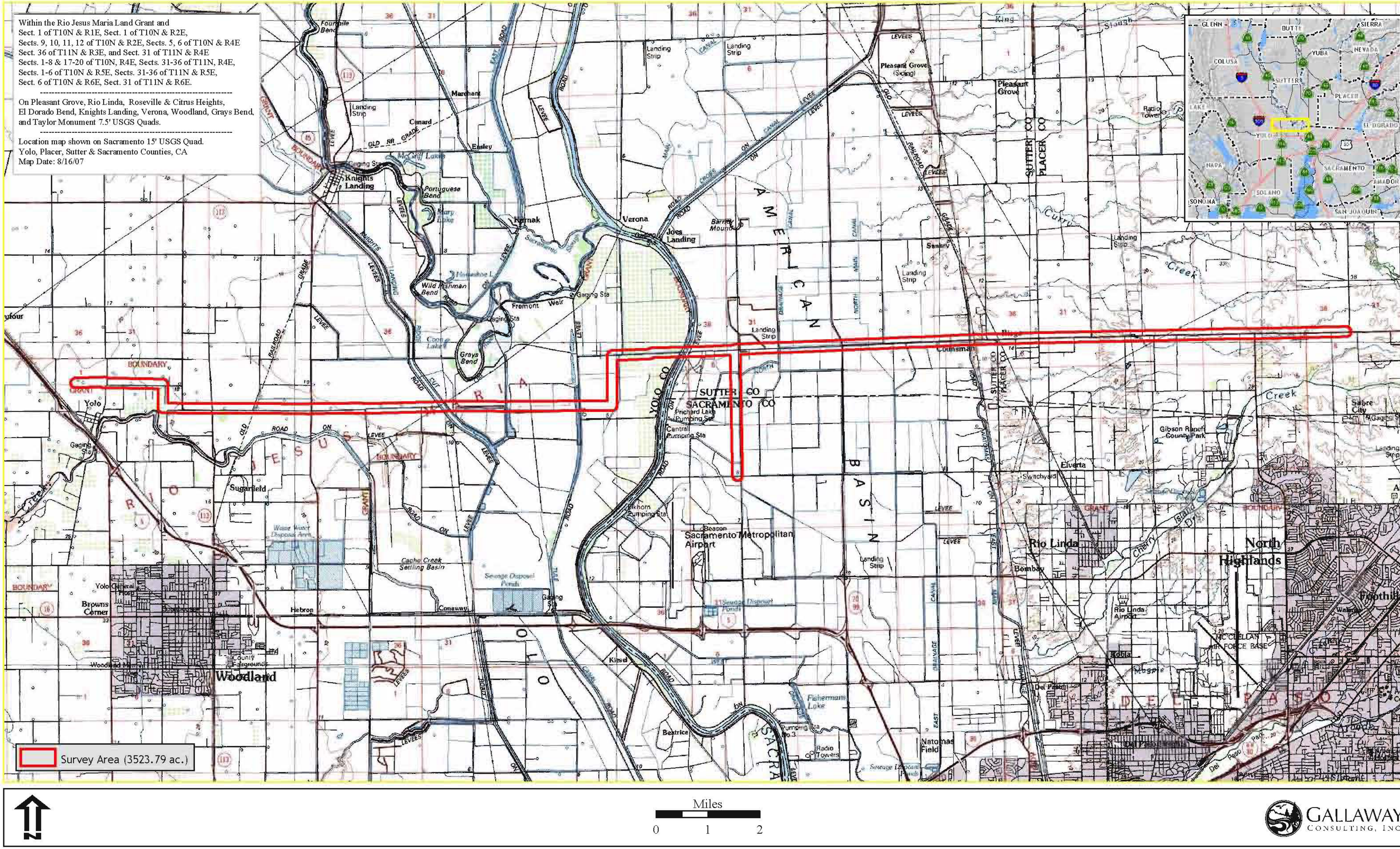


Figure 1

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.

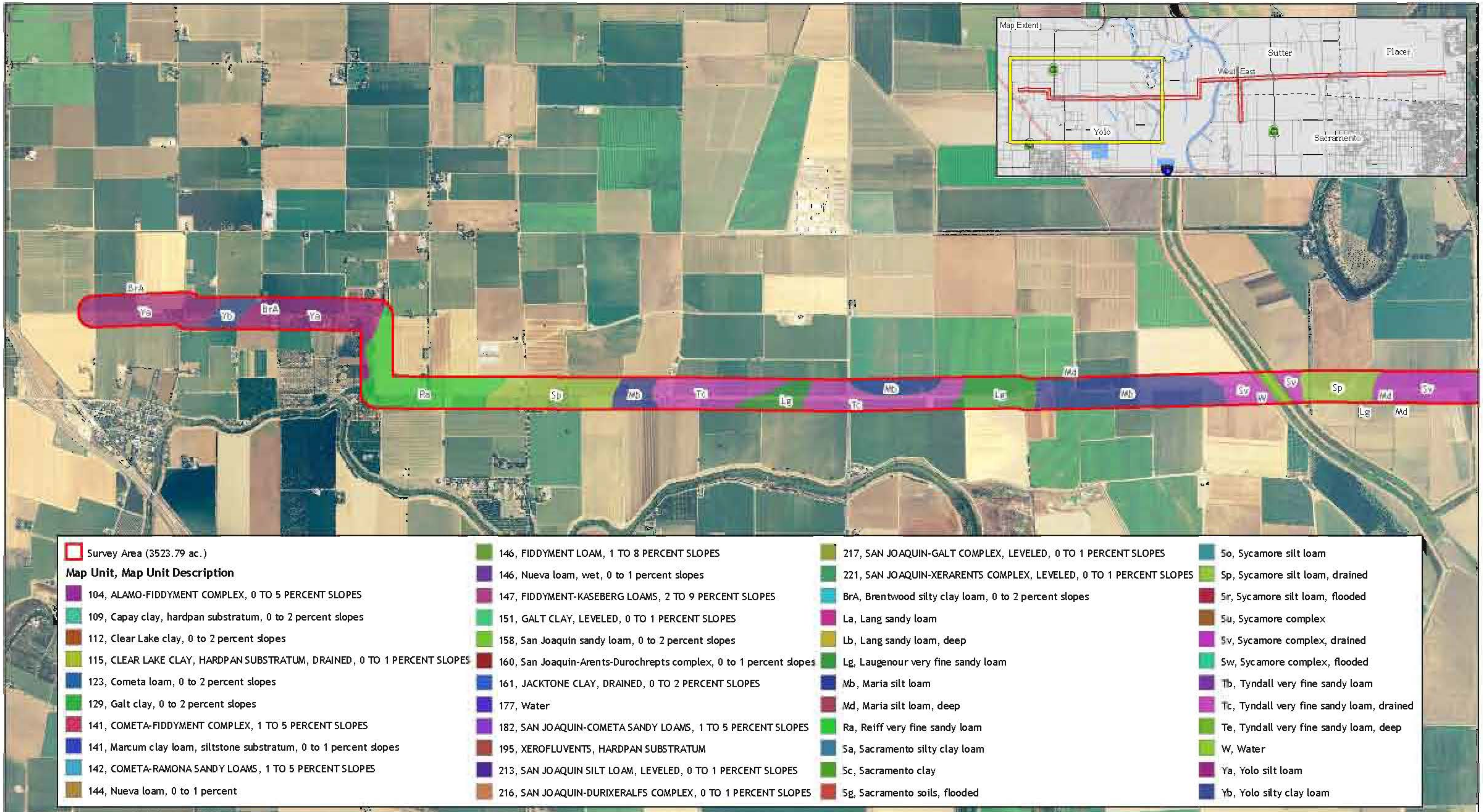
The presence of water or saturated soil for approximately 5 to 12.5 percent of the growing season typically creates anaerobic conditions in the soil, and these conditions affect the types of plants that can grow and the types of soils that develop (Environmental Laboratory 1987).

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.

PG&E Line 407

Soils Characterization Map (1 of 3)



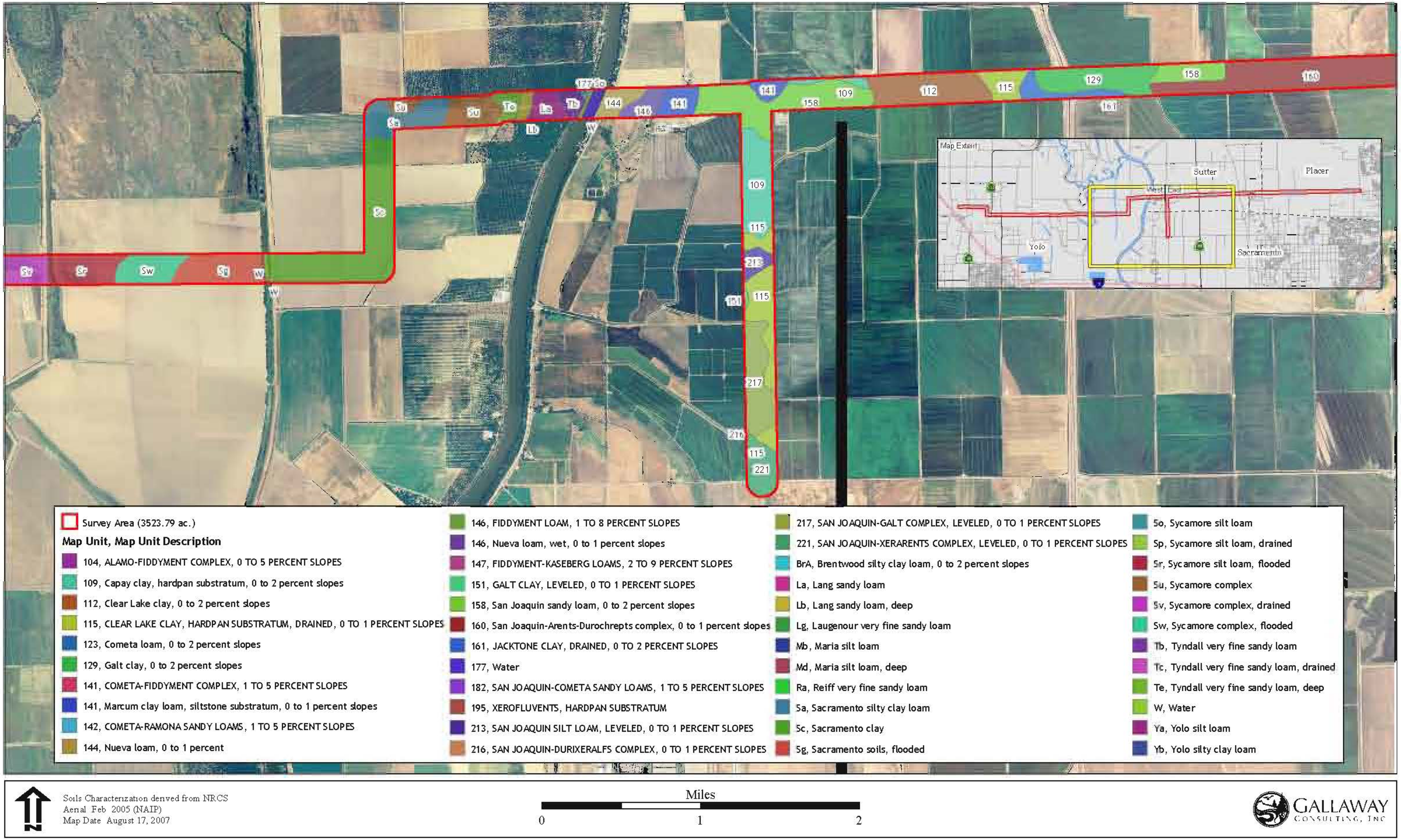
N

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

GALLAWAY CONSULTING, INC

Figure 2.

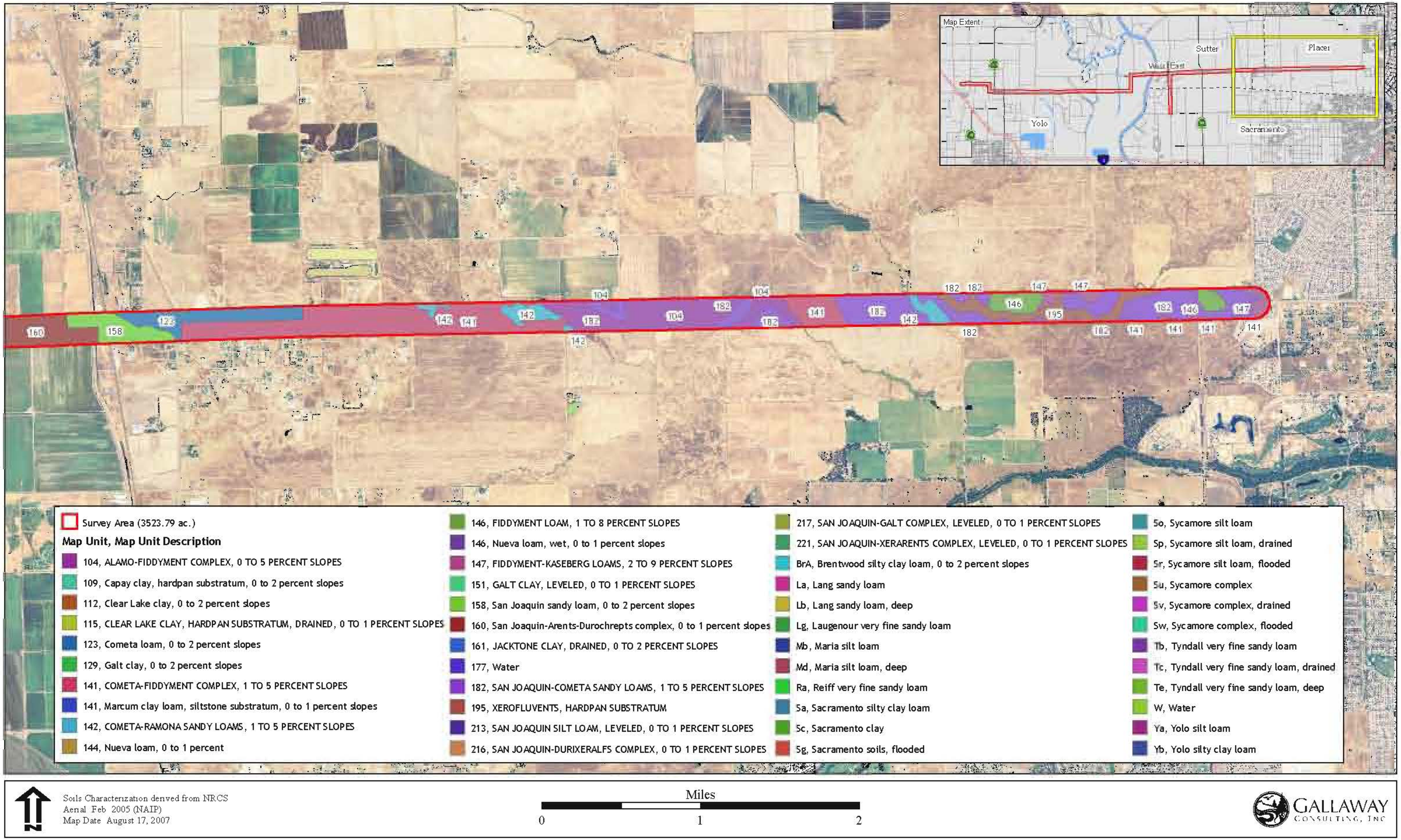

Map Extent
Sutter
Placer
Yolo
Sacramento
Survey Area (3523.79 ac.)
Map Unit, Map Unit Description
104, ALAMO-FIDDYMENT COMPLEX, 0 TO 5 PERCENT SLOPES
109, Capay clay, hardpan substratum, 0 to 2 percent slopes
112, Clear Lake clay, 0 to 2 percent slopes
115, CLEAR LAKE CLAY, HARDPAN SUBSTRATUM, DRAINED, 0 TO 1 PERCENT SLOPES
123, Cometa loam, 0 to 2 percent slopes
129, Galt clay, 0 to 2 percent slopes
141, COMETA-FIDDYMENT COMPLEX, 1 TO 5 PERCENT SLOPES
141, Marcum clay loam, siltstone substratum, 0 to 1 percent slopes
142, COMETA-RAMONA SANDY LOAMS, 1 TO 5 PERCENT SLOPES
144, Nueva loam, 0 to 1 percent
146, FIDDYMENT LOAM, 1 TO 8 PERCENT SLOPES
146, Nueva loam, wet, 0 to 1 percent slopes
147, FIDDYMENT-KASEBERG LOAMS, 2 TO 9 PERCENT SLOPES
151, GALT CLAY, LEVELED, 0 TO 1 PERCENT SLOPES
158, San Joaquin sandy loam, 0 to 2 percent slopes
160, San Joaquin-Arents-Durochrepts complex, 0 to 1 percent slopes
161, JACKTONE CLAY, DRAINED, 0 TO 2 PERCENT SLOPES
177, Water
182, SAN JOAQUIN-COMETA SANDY LOAMS, 1 TO 5 PERCENT SLOPES
195, XEROFLUVENTS, HARDPAN SUBSTRATUM
213, SAN JOAQUIN SILT LOAM, LEVELED, 0 TO 1 PERCENT SLOPES
216, SAN JOAQUIN-DURIXERALFS COMPLEX, 0 TO 1 PERCENT SLOPES
217, SAN JOAQUIN-GALT COMPLEX, LEVELED, 0 TO 1 PERCENT SLOPES
221, SAN JOAQUIN-XERARENTS COMPLEX, LEVELED, 0 TO 1 PERCENT SLOPES
BrA, Brentwood silty clay loam, 0 to 2 percent slopes
La, Lang sandy loam
Lb, Lang sandy loam, deep
Lg, Laugenour very fine sandy loam
Mb, Maria silt loam
Md, Maria silt loam, deep
Ra, Reiff very fine sandy loam
Sa, Sacramento silty clay loam
Sc, Sacramento clay
Sg, Sacramento soils, flooded
So, Sycamore silt loam
Sp, Sycamore silt loam, drained
Sr, Sycamore silt loam, flooded
Su, Sycamore complex
Sv, Sycamore complex, drained
Sw, Sycamore complex, flooded
Tb, Tyndall very fine sandy loam
Tc, Tyndall very fine sandy loam, drained
Te, Tyndall very fine sandy loam, deep
W, Water
Ya, Yolo silt loam
Yb, Yolo silty clay loam
Soils Characterization derived from NRCS
Aerial Feb 2005 (NAIP)
Map Date August 17, 2007
Miles
0
1
2
N
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.

Traditional Navigable Waters

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.

Relatively Permanent Waters

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

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

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.

Contents

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.

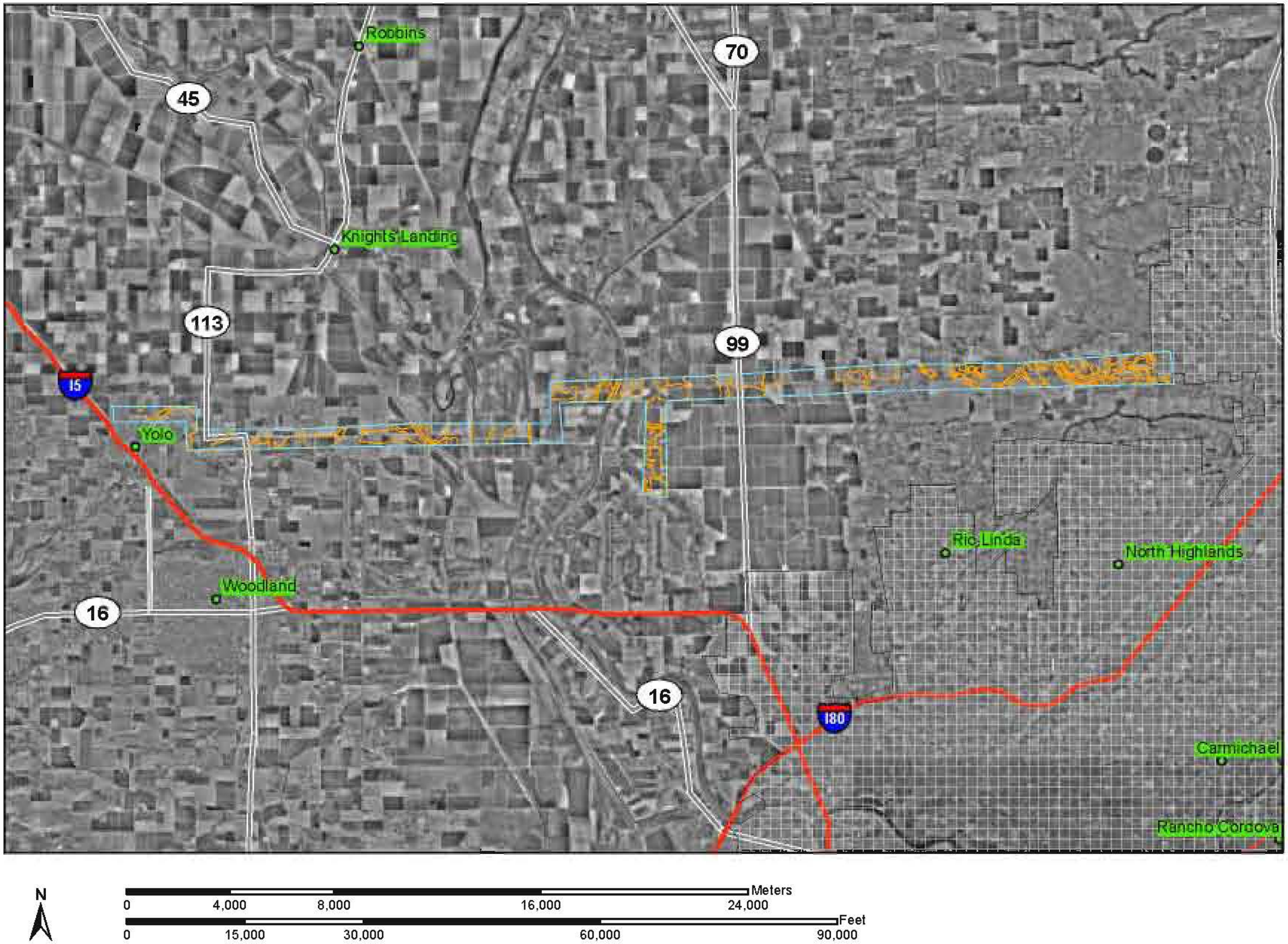
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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.

Soil Map


Robbins
70
45
Knights Landing
113
99
15
Yolo
Rio Linda
North Highlands
Woodland
16
16
180
Carmichael
Rancho Cordova
N
Meters
0
4,000
8,000
16,000
24,000
Feet
0
15,000
30,000
60,000
90,000

Legend

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.

[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.

[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: .

[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: l.
☐ 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: .

[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**

[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 ☒ 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: .

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.

[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

Type	Designation	Label	Avg. Width (ft.)	Length (ft.)	Area (ft.^{2})	Acres
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**

Attachment A. Wetland Delineation Map

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

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

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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 JO,SI,EA Survey Dates 7/21, 24 - 28, 8/10 & 25, 2006
Aerial Feb. 2005 (NAIP) Map Date August 6, 2007 Revised August 21, 2007

Feet
0 100 200

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
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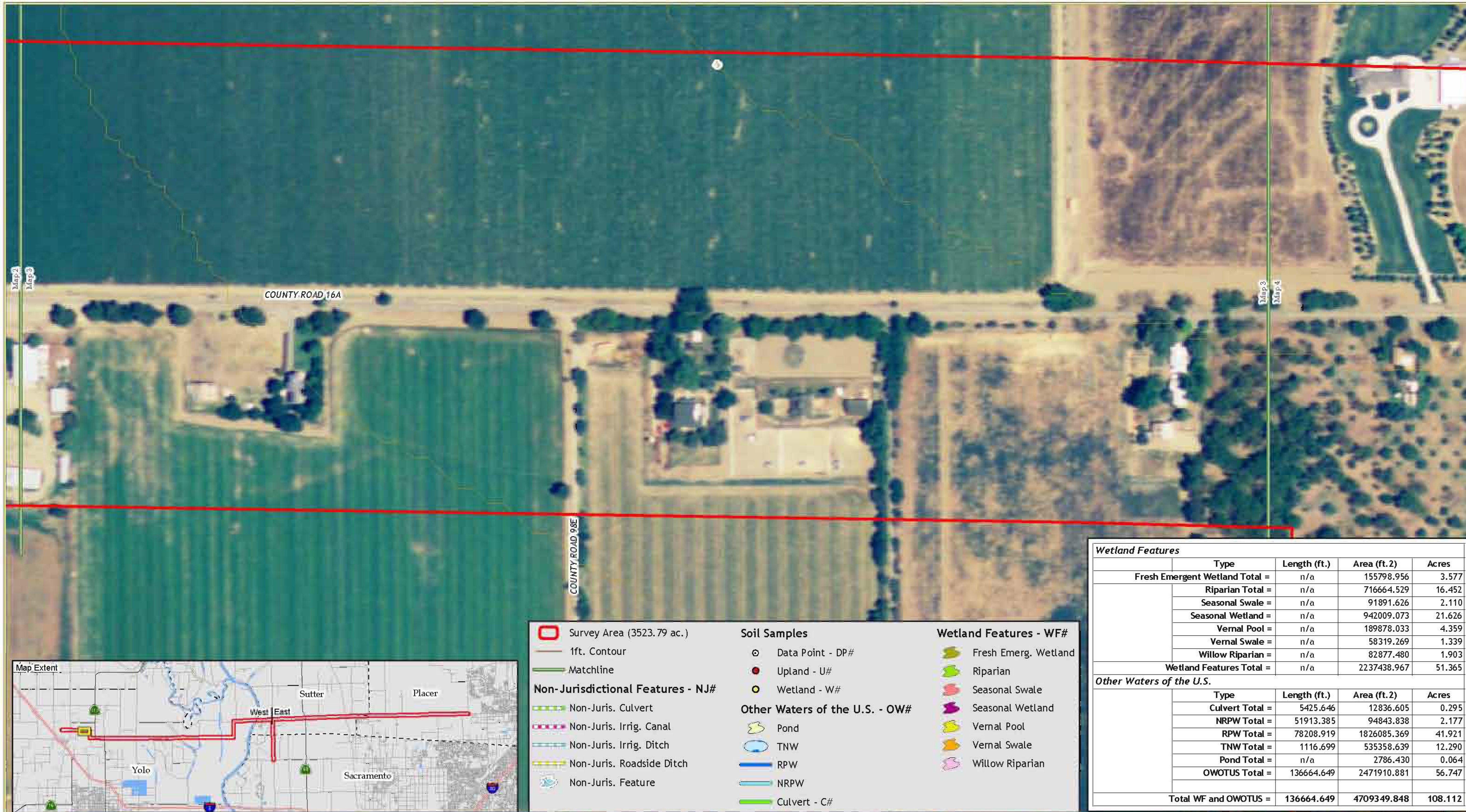

Survey Area (3523.79 ac.)
1ft. Contour
Matchline

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- Non-Juris. Irrig. Canal
- Non-Juris. Irrig. Ditch
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- 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#
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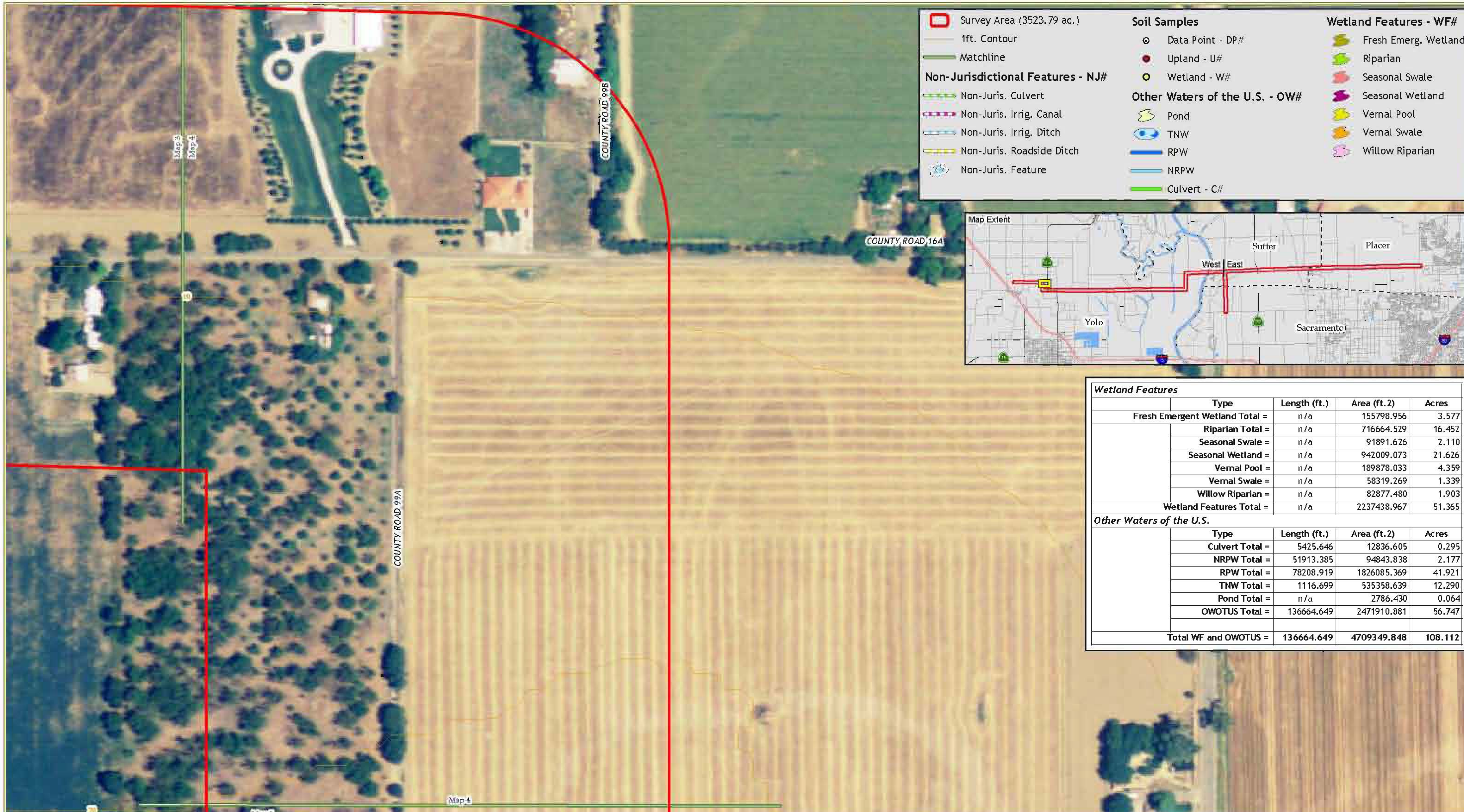

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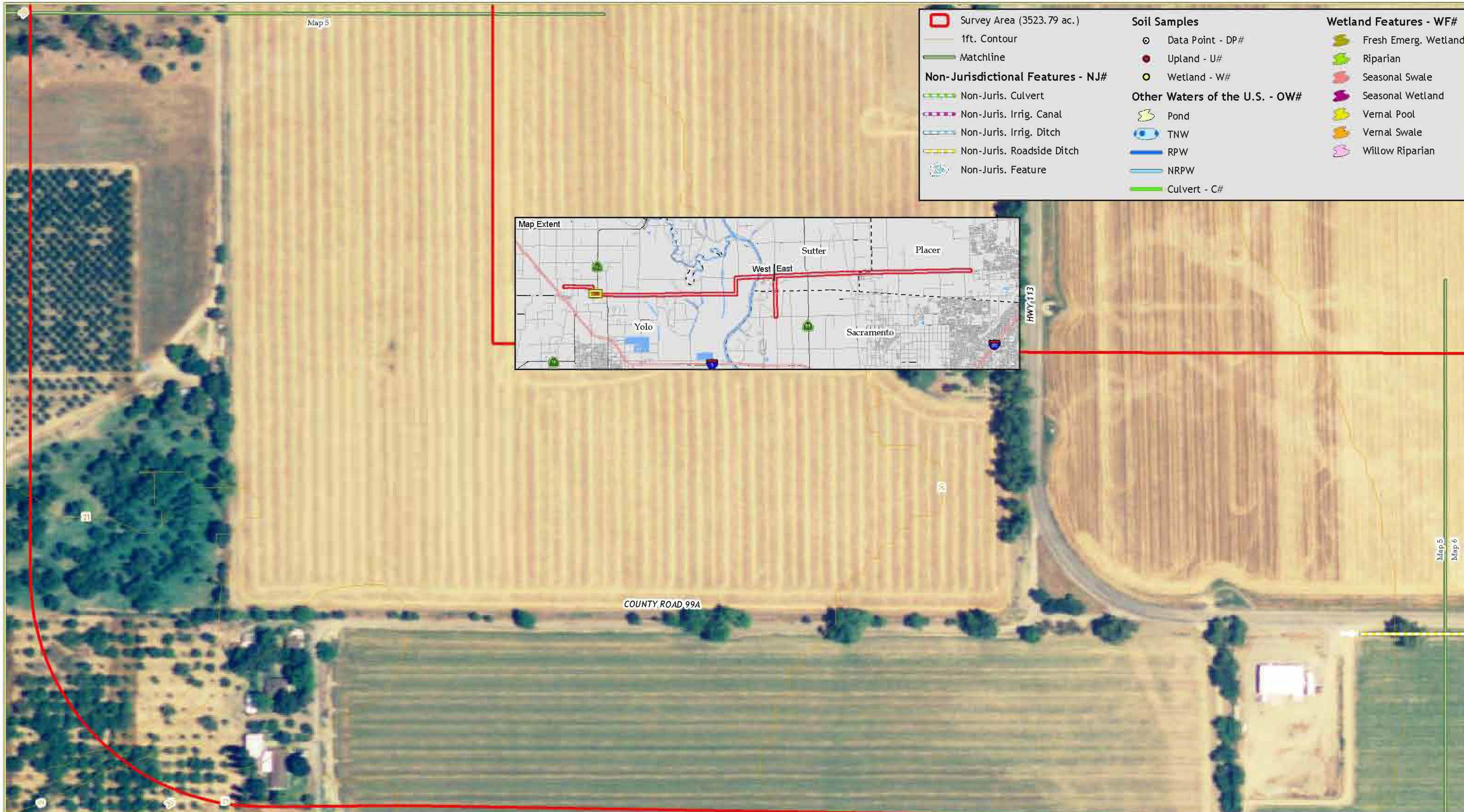

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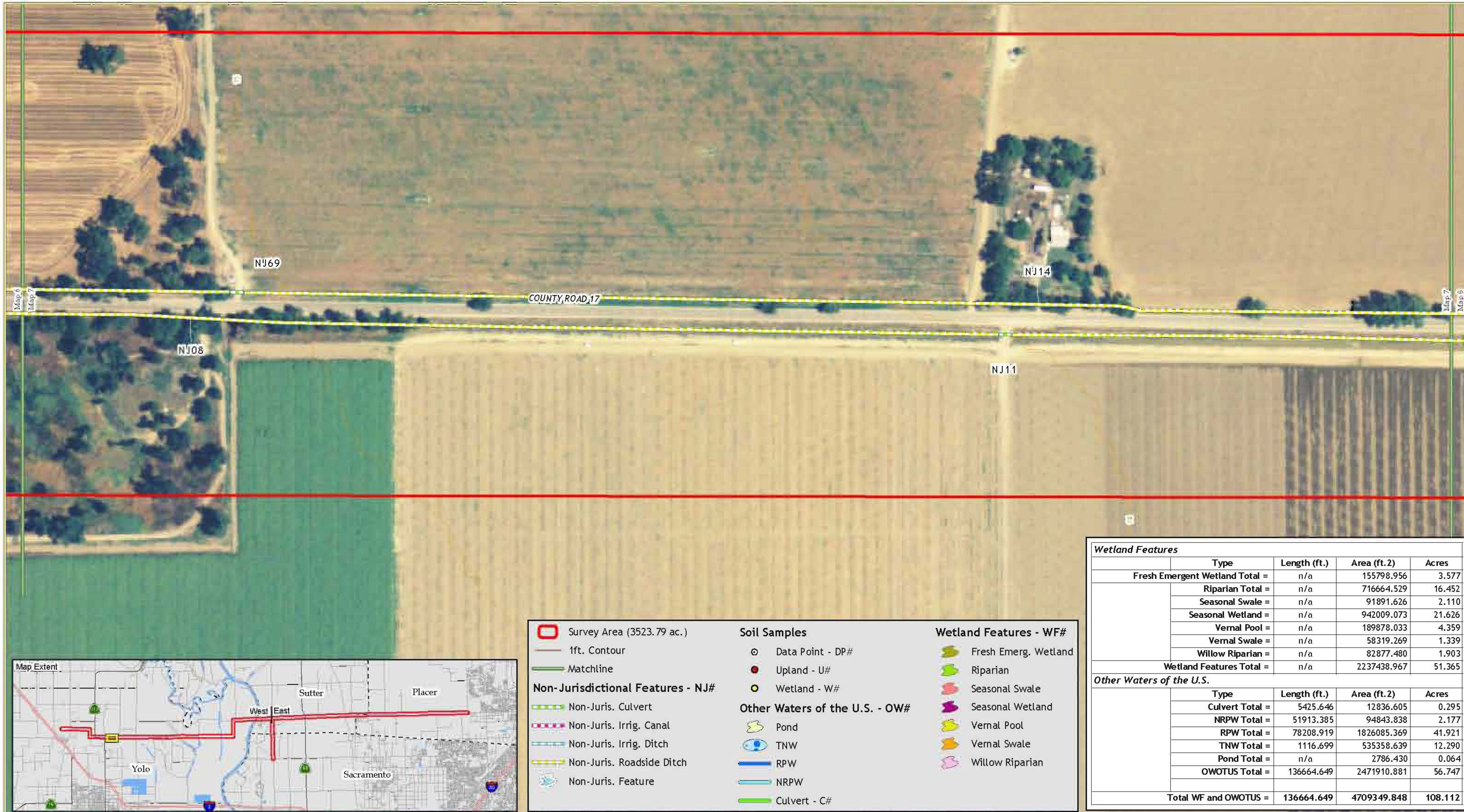

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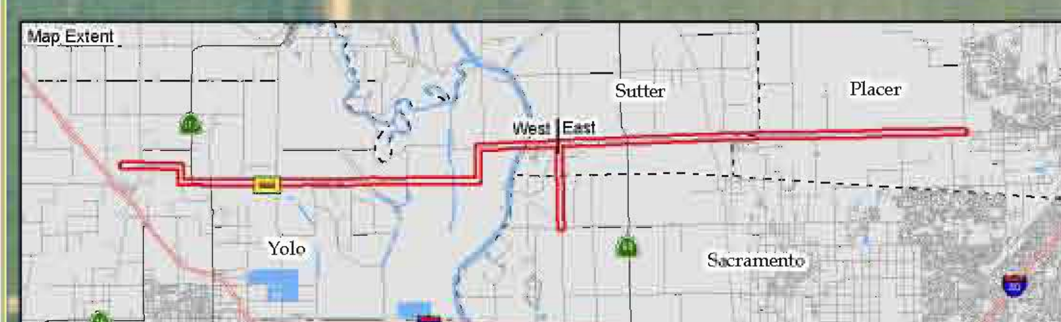

- Survey Area (3523.79 ac.)
- 1ft. Contour
- Matchline

Non-Jurisdictional Features - NJ#

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- Non-Juris. Irrig. Canal
- Non-Juris. Irrig. Ditch
- Non-Juris. Roadside Ditch
- Non-Juris. Feature

Soil Samples

- Data Point - DP#
- Upland - U#
- Wetland - W#

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- Pond
- TNW
- RPW
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- Culvert - C#

Wetland Features - WF#

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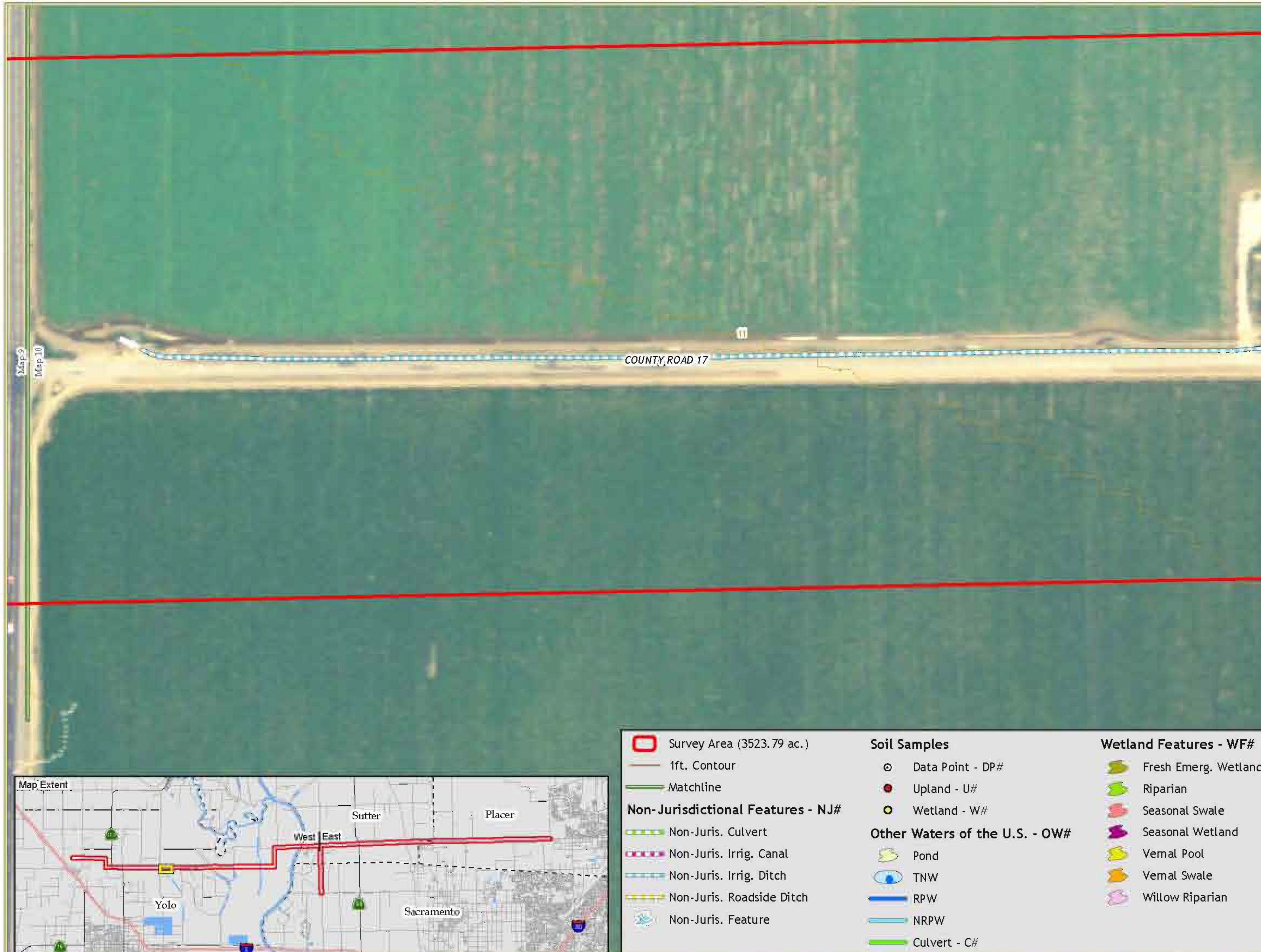

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CONSULTING, INC.

Attachment A

Survey Area (3523.79 ac.)
1ft. Contour
Matchline

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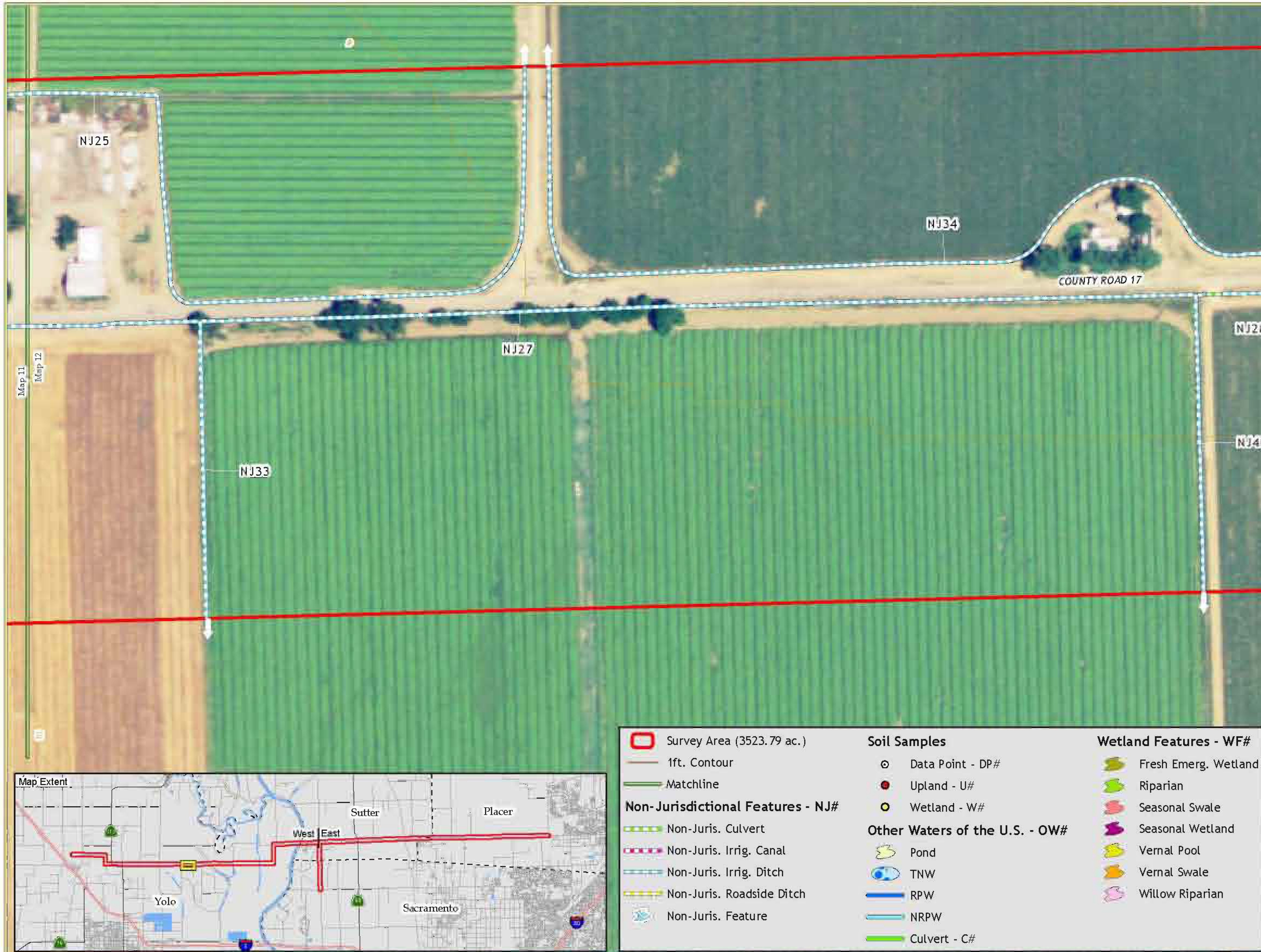

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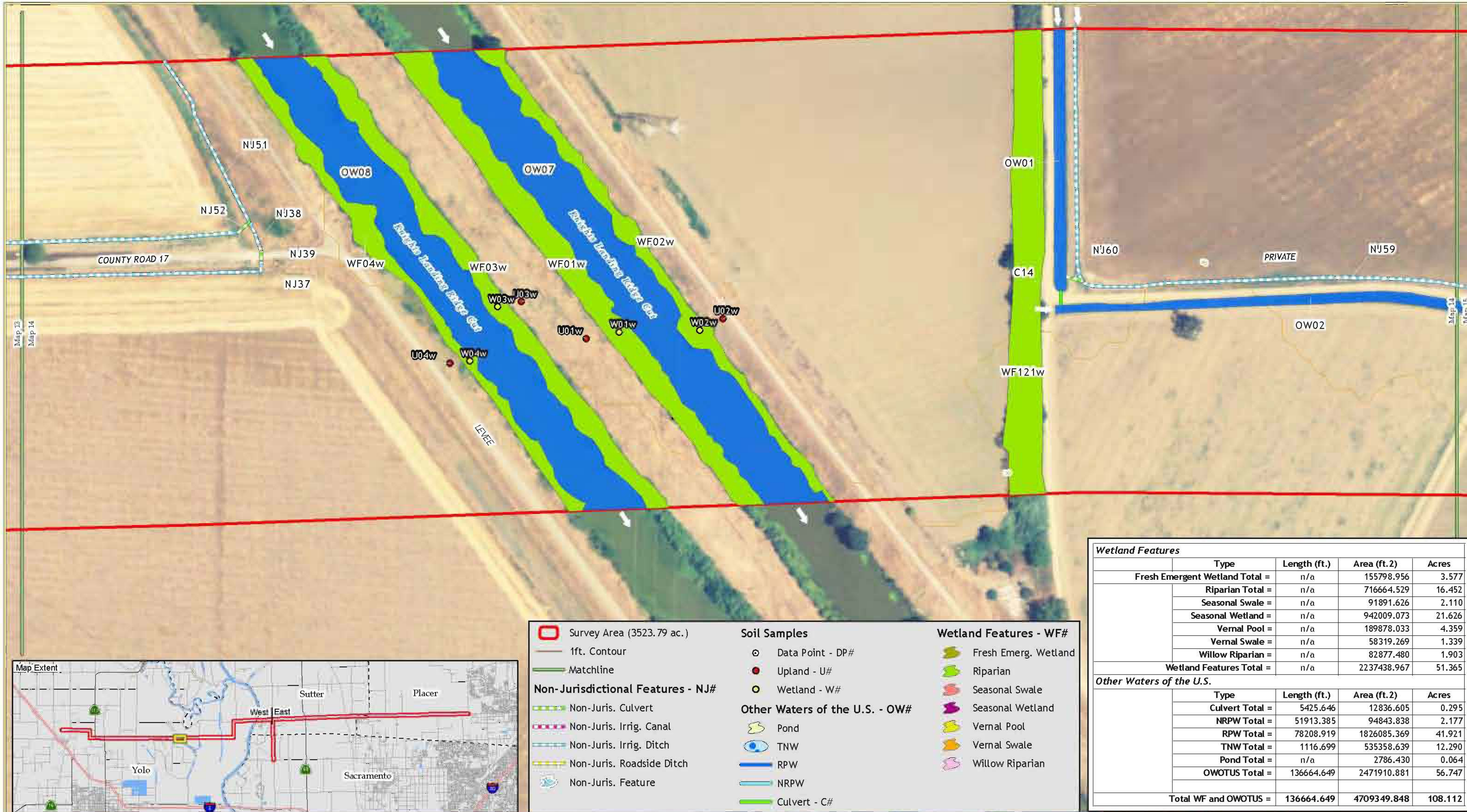

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Vernal Pool =	n/a	189878.033	4.359
Vernal Swale =	n/a	58319.269	1.339
Willow Riparian =	n/a	82877.480	1.903
Wetland Features Total =	n/a	2237438.967	51.365

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

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Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007 Revised: August 21, 2007

Feet
0 100 200

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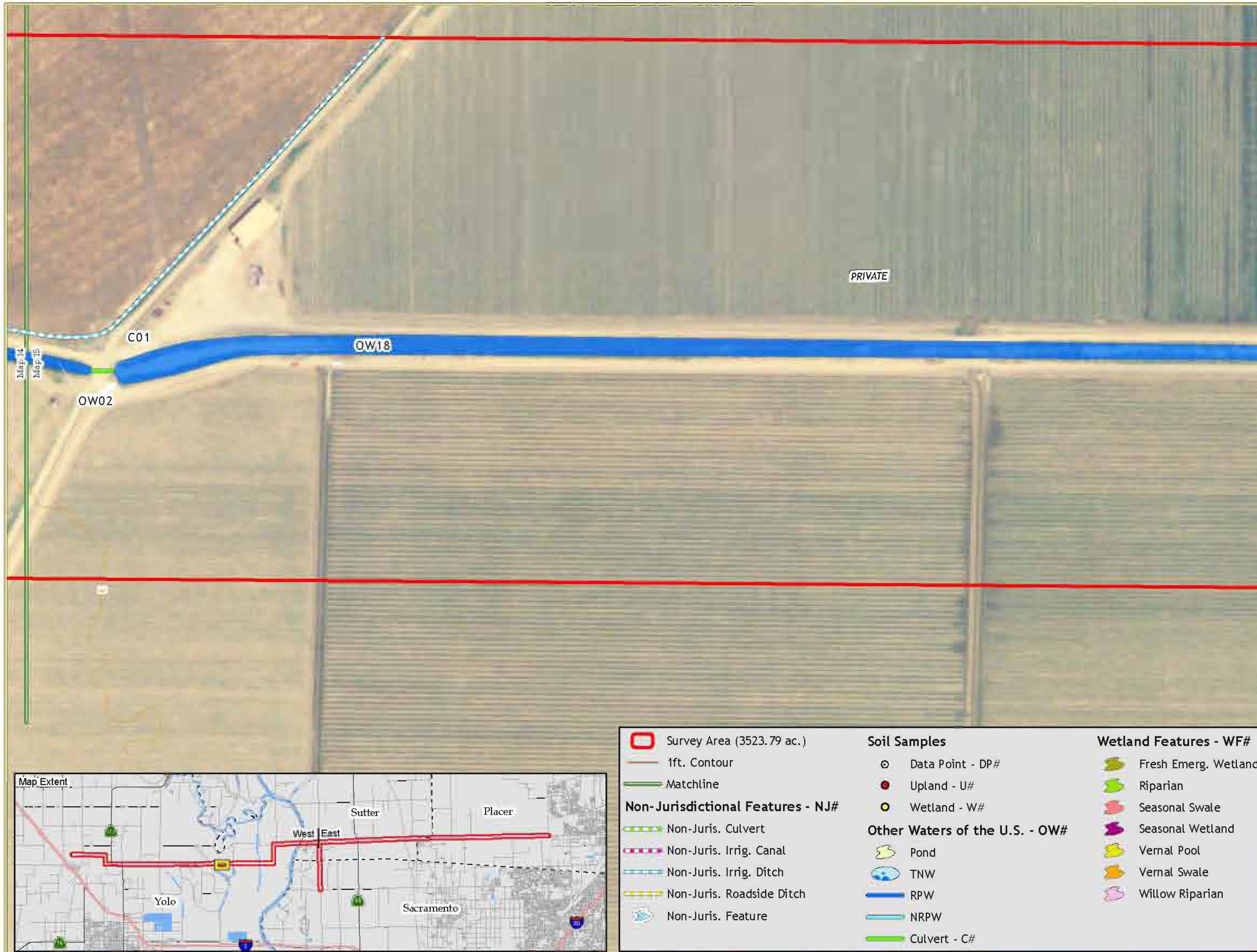

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Attachment A

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
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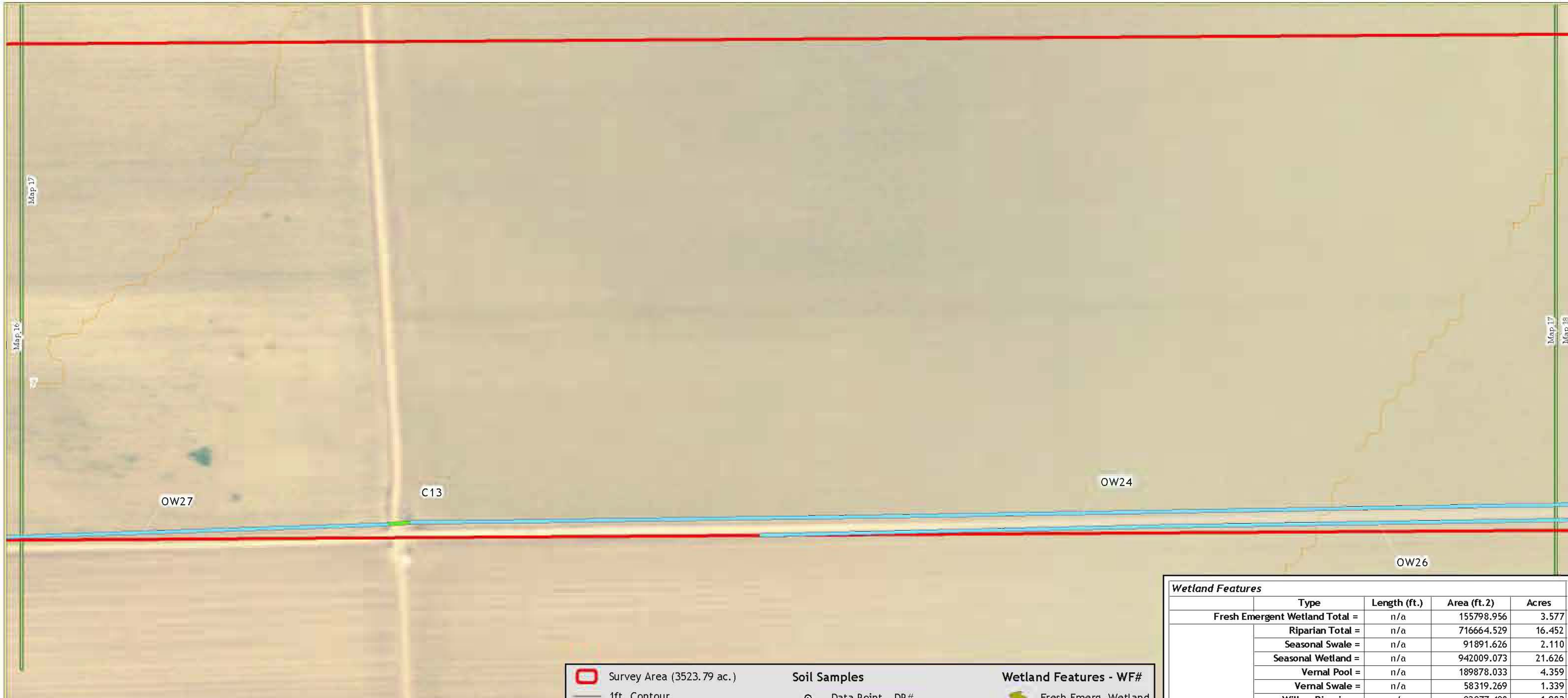

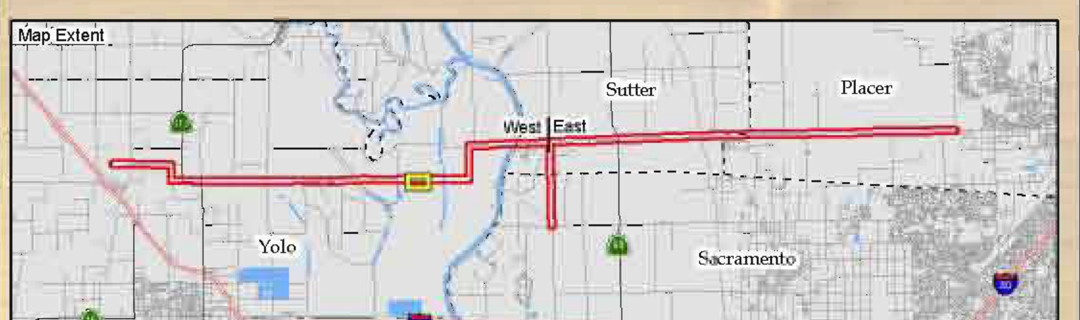

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Wetland - W#

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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0 100 200

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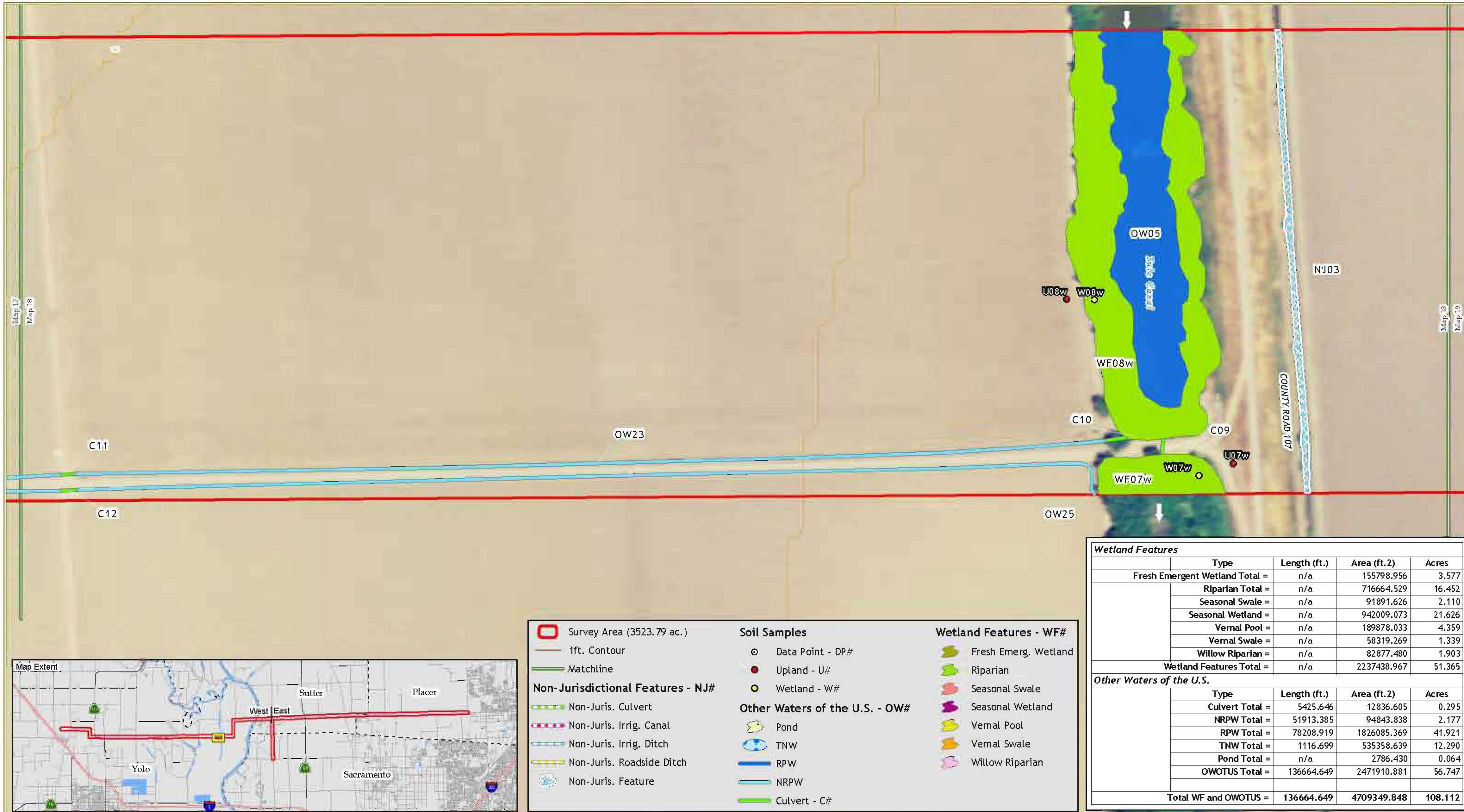

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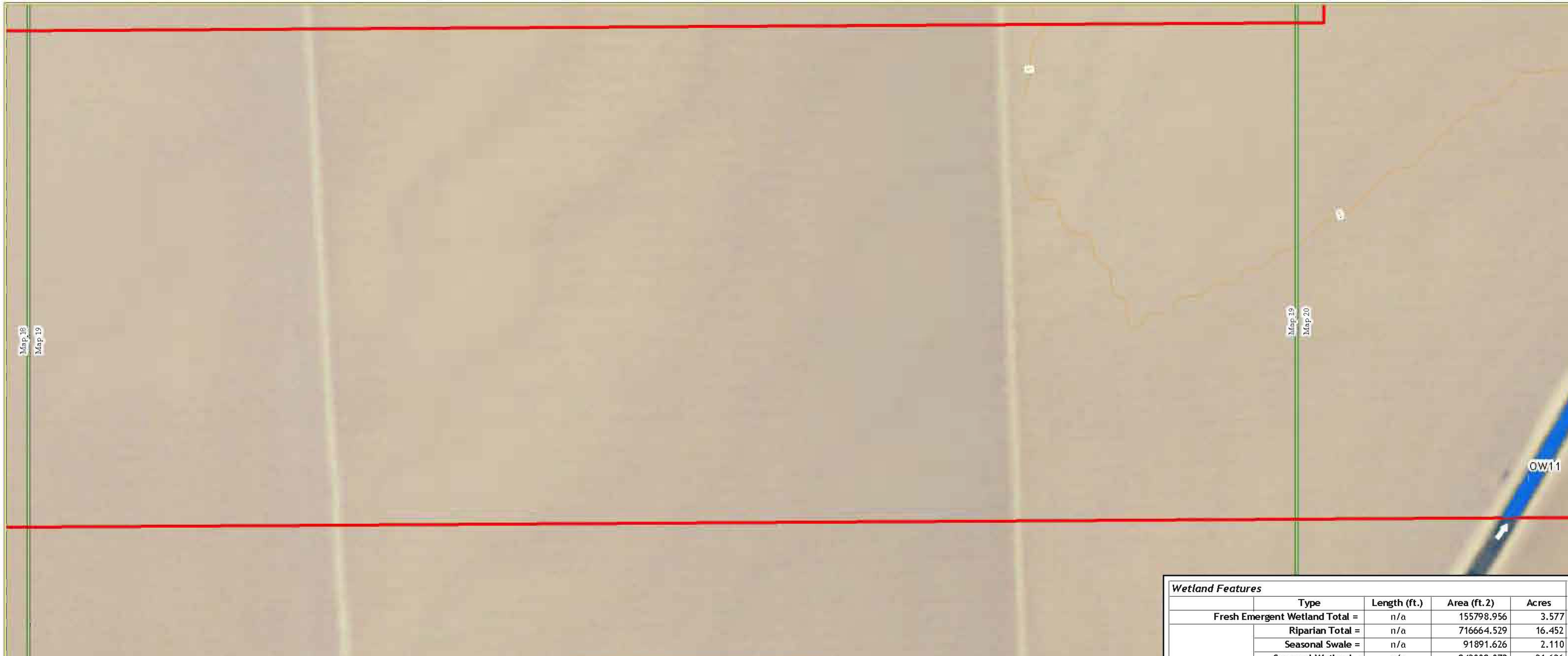

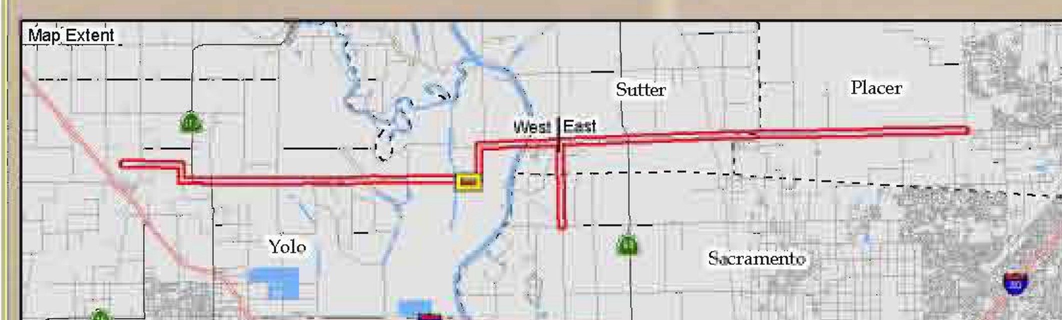

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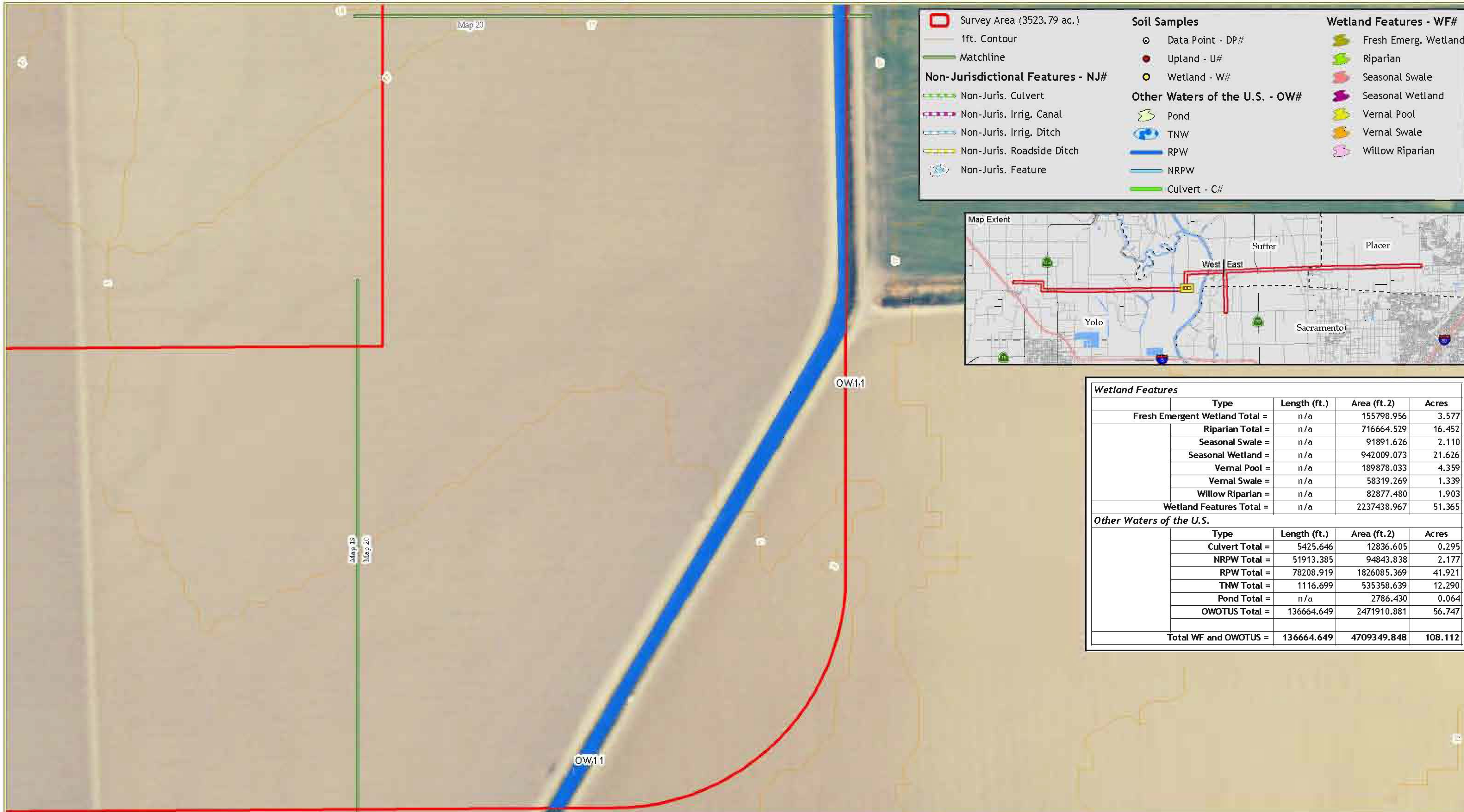

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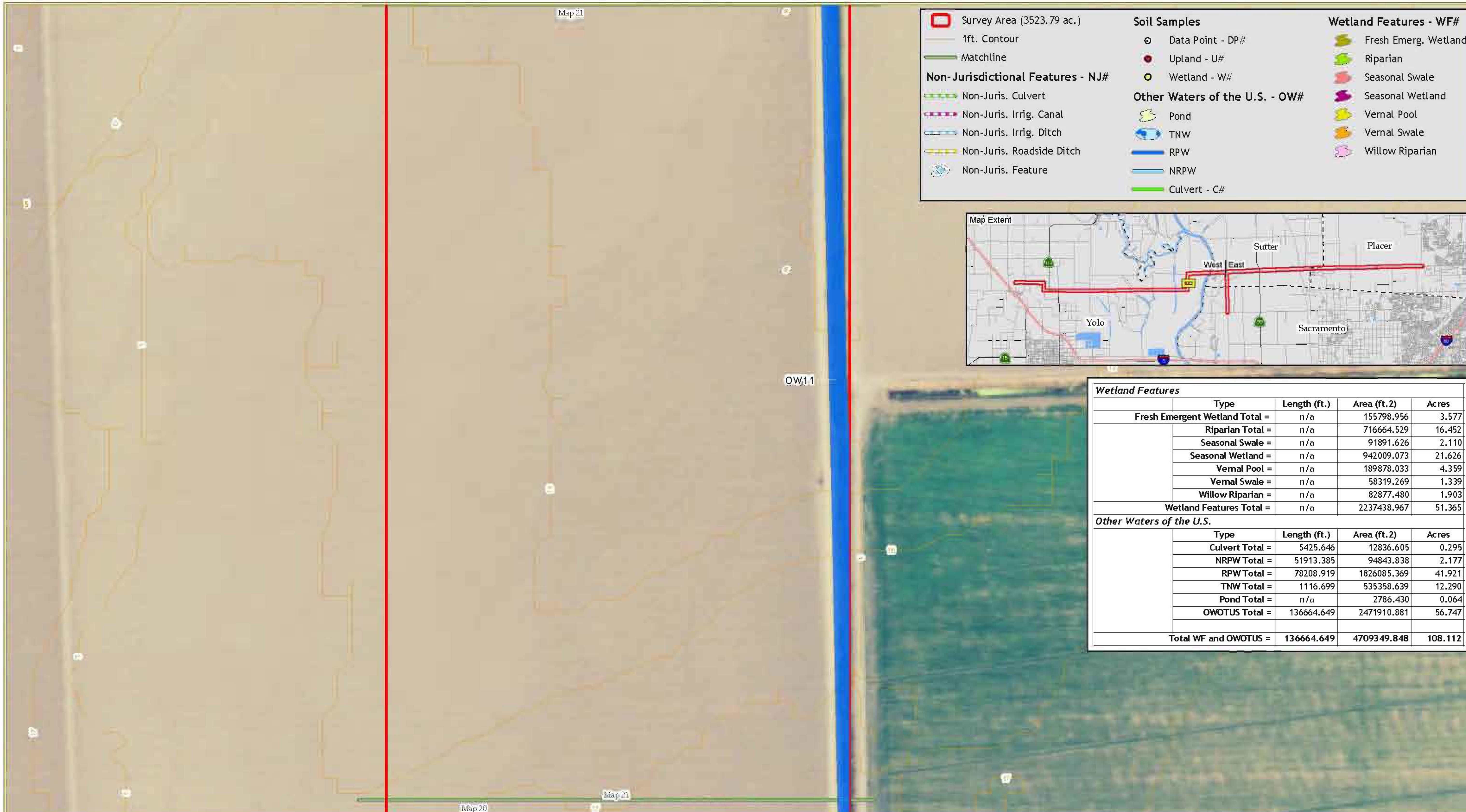

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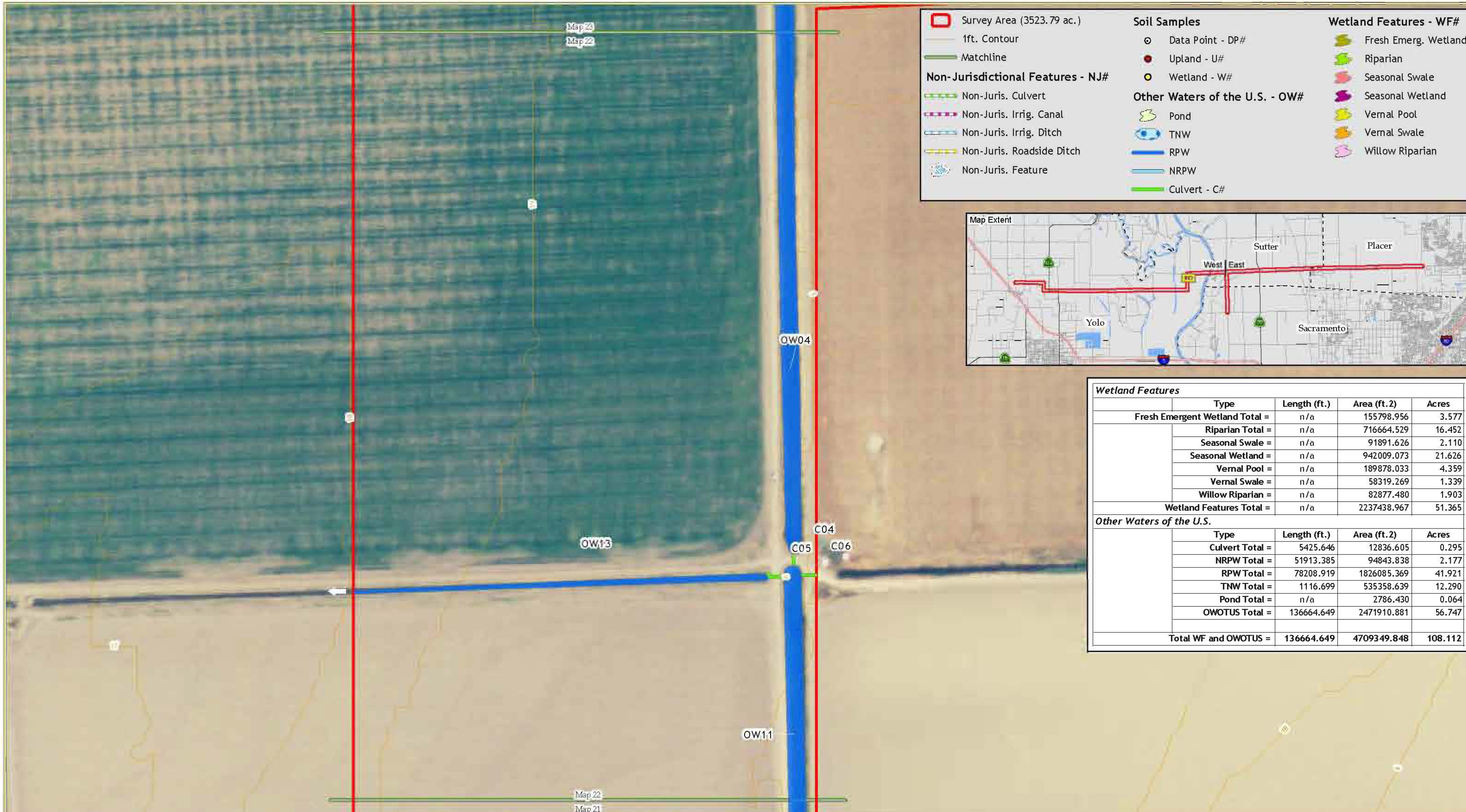

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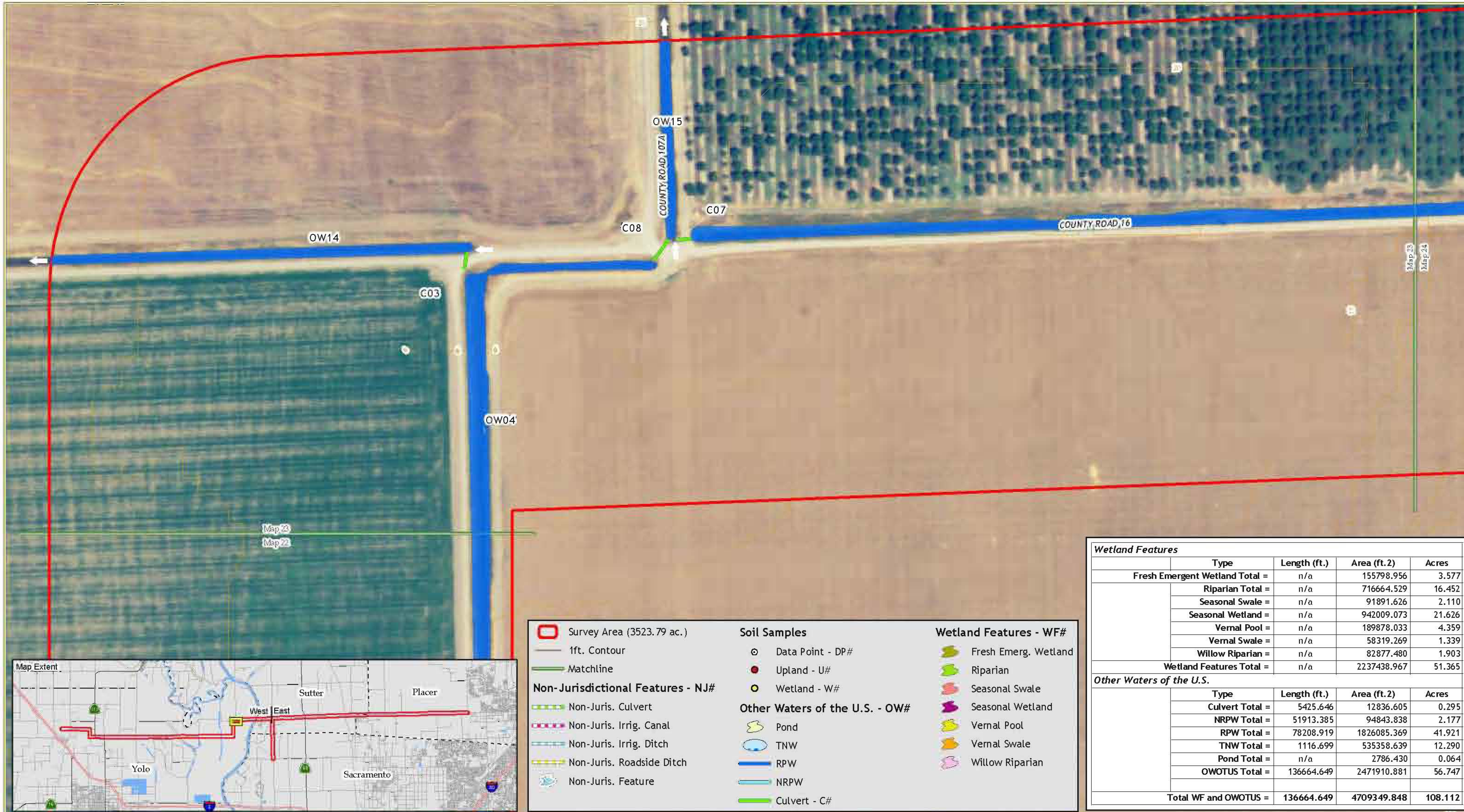

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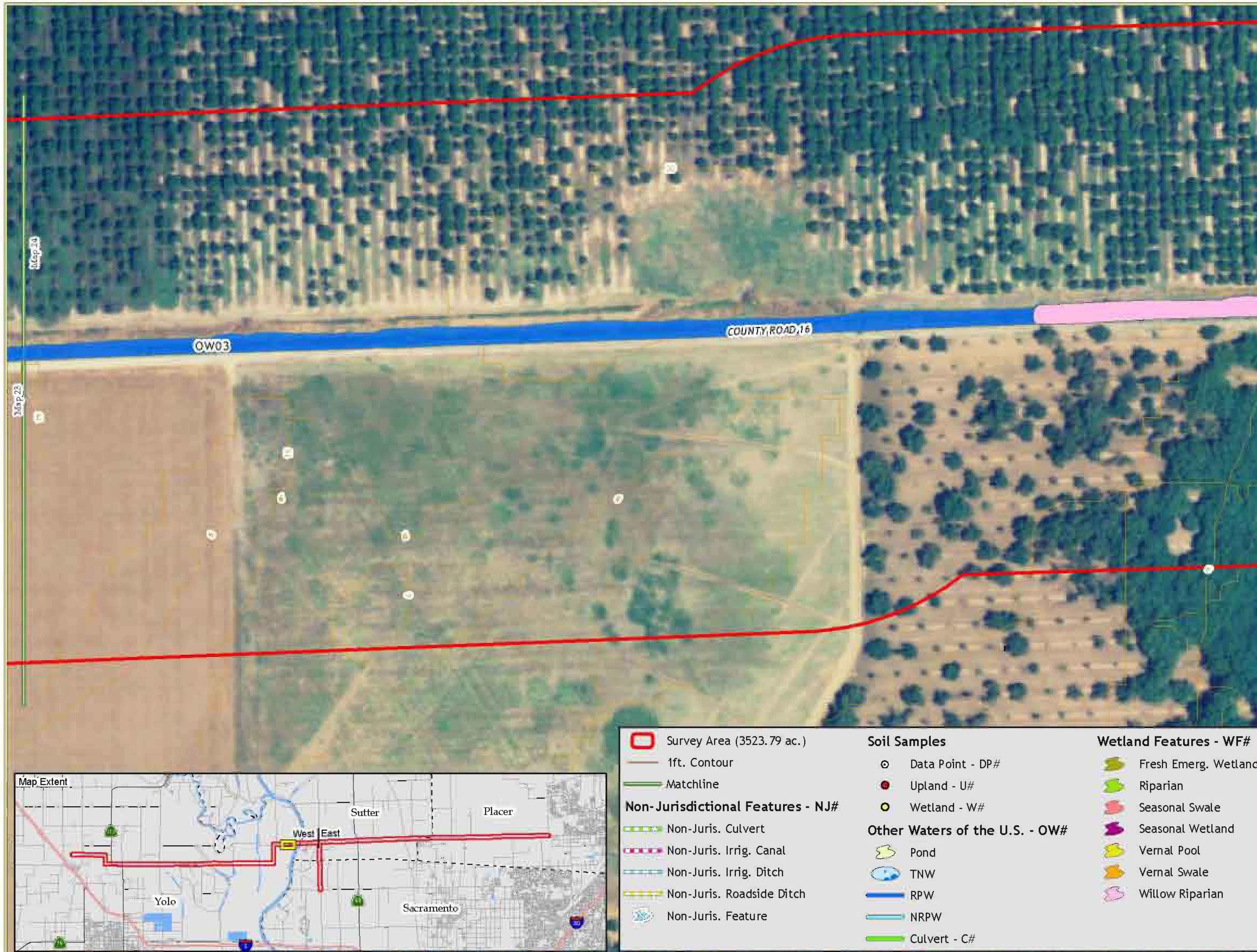

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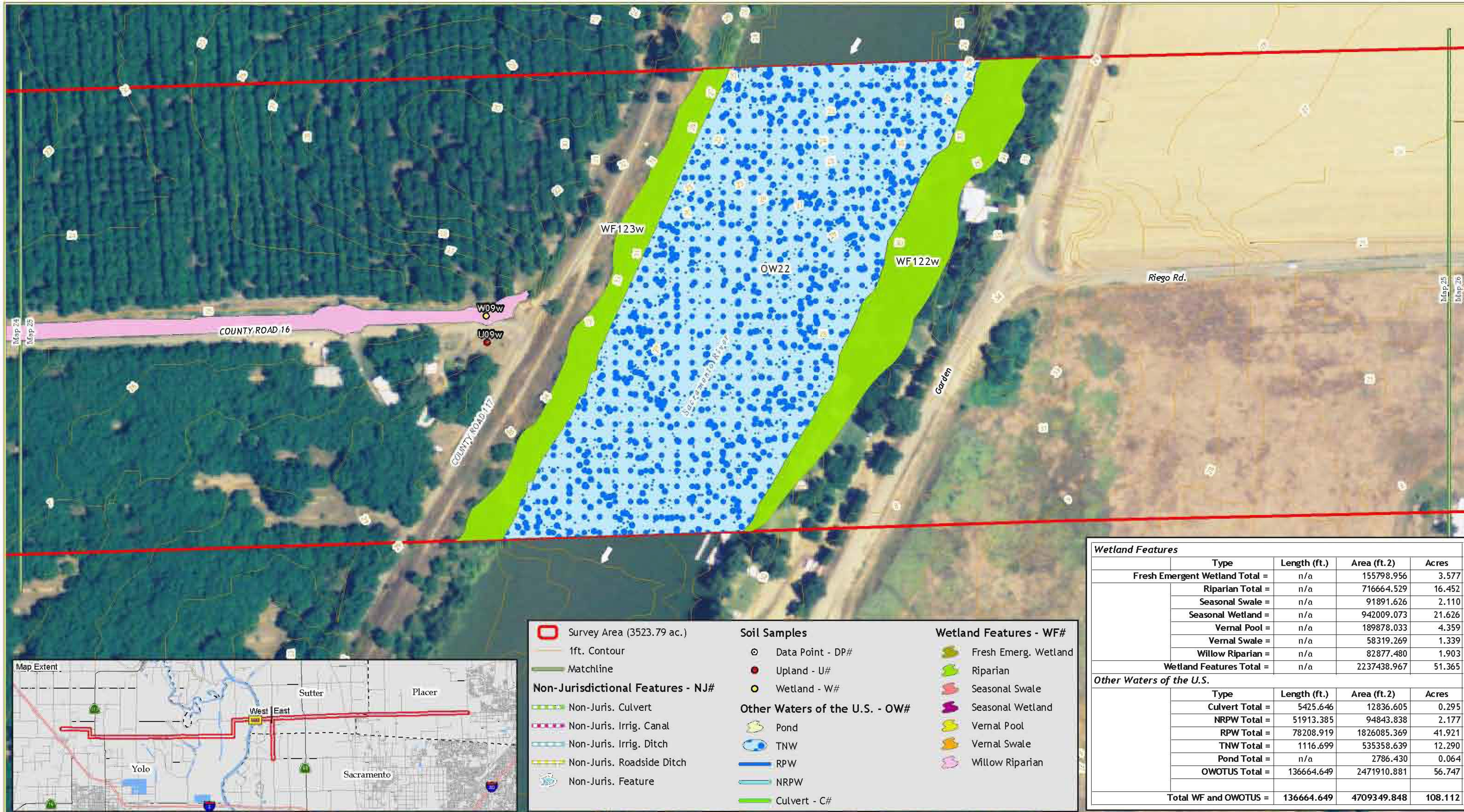

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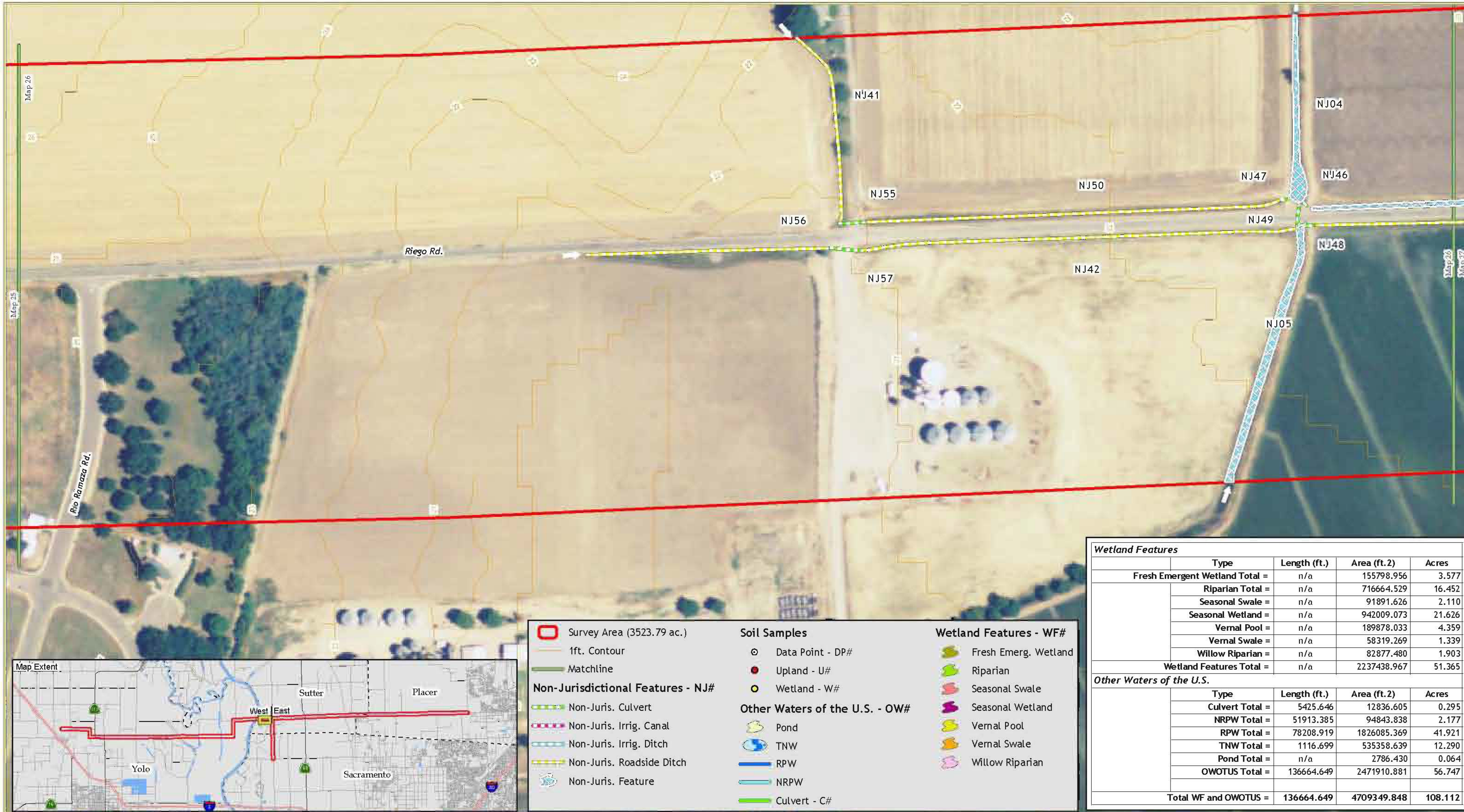

Wetland Features

Type	Length (ft.)	Area (ft.2)	Acres
Fresh Emergent Wetland Total =	n/a	155798.956	3.577
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

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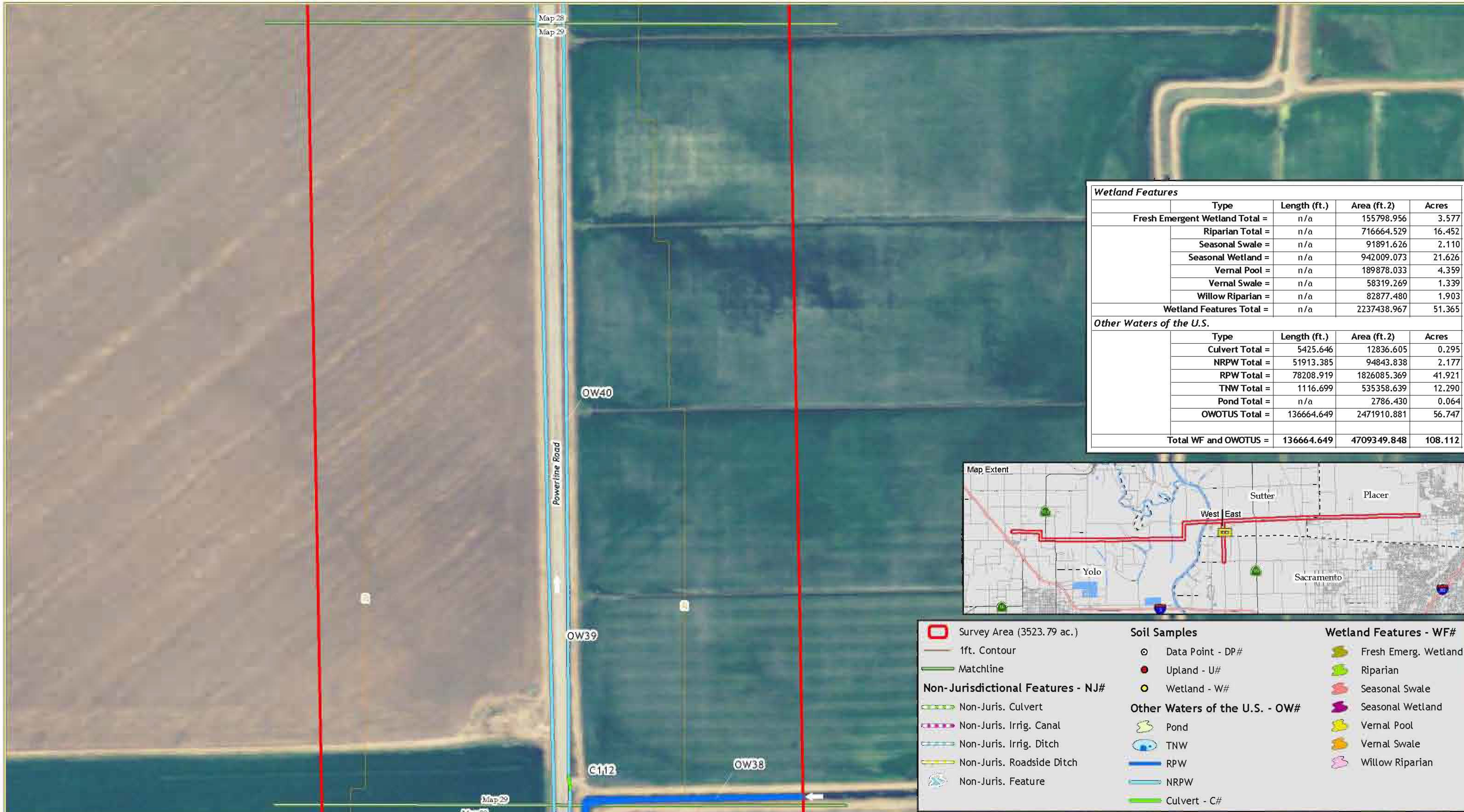

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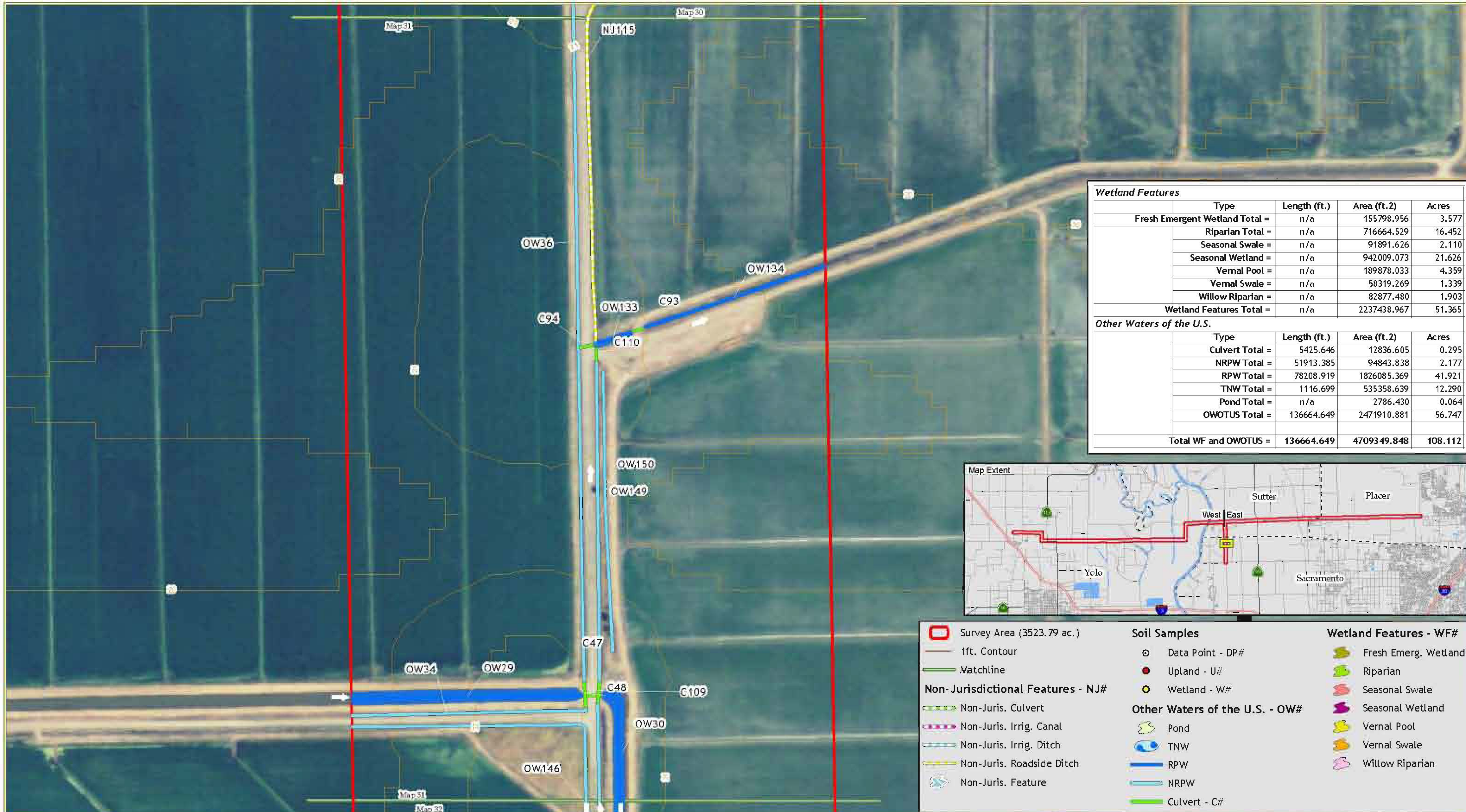

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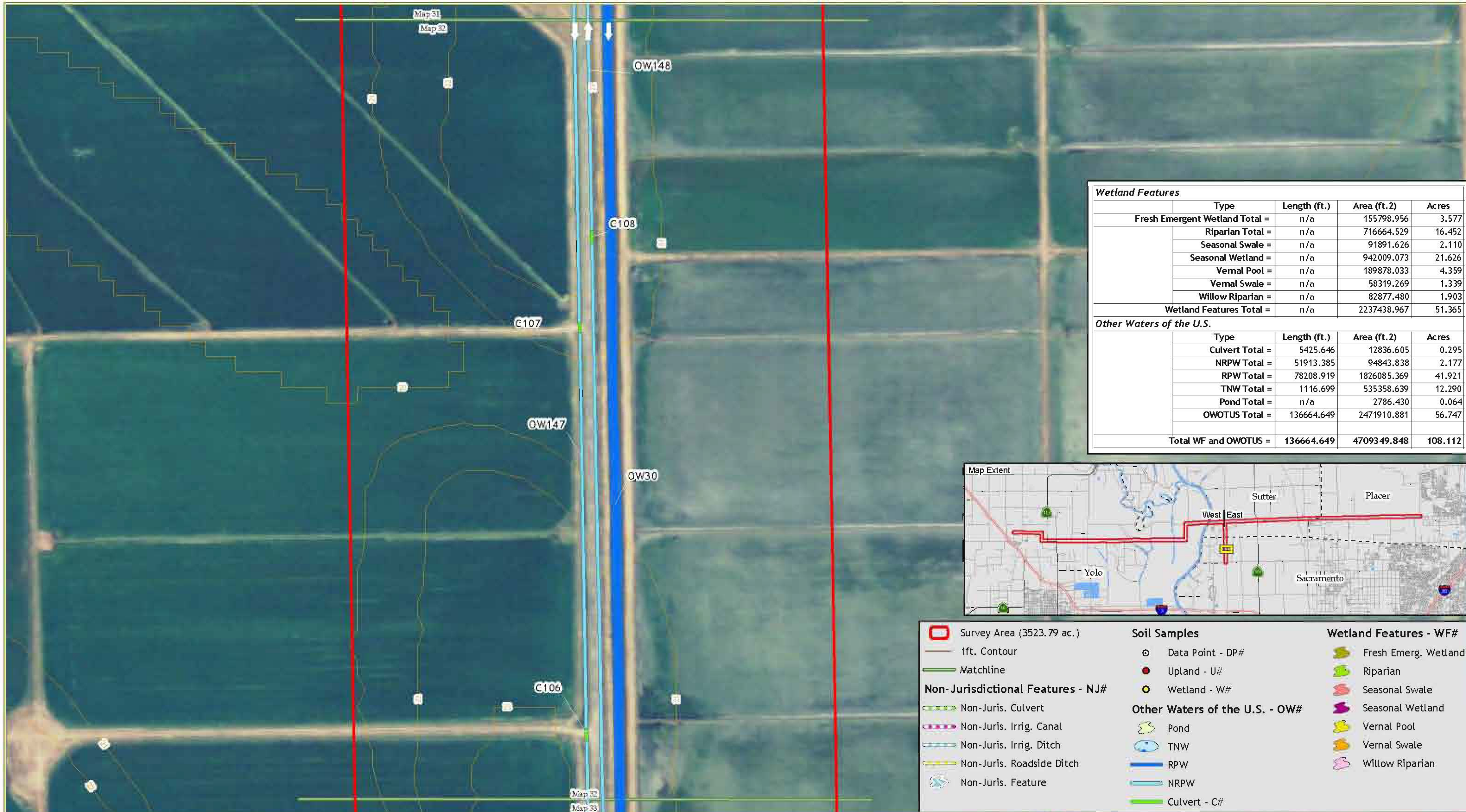

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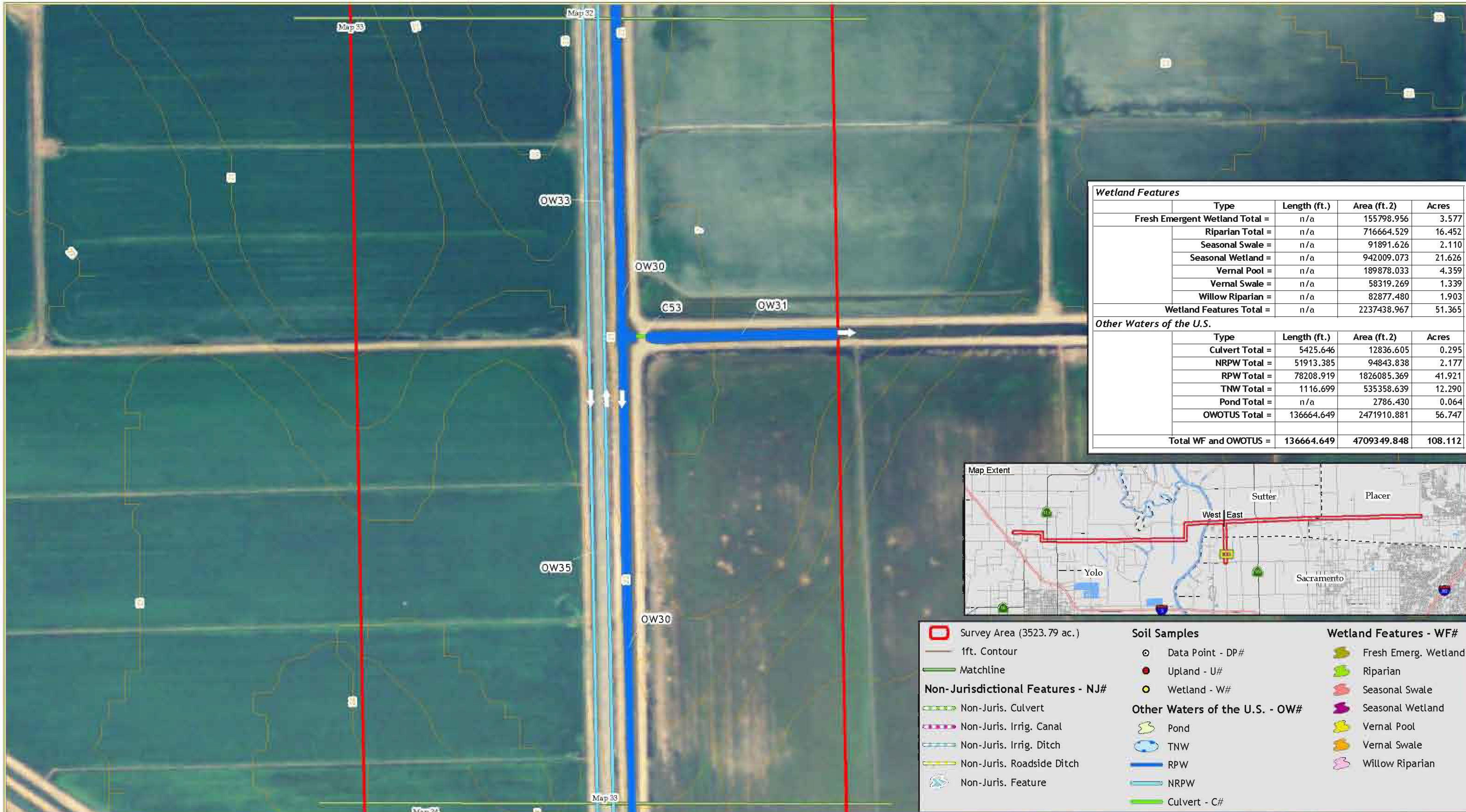

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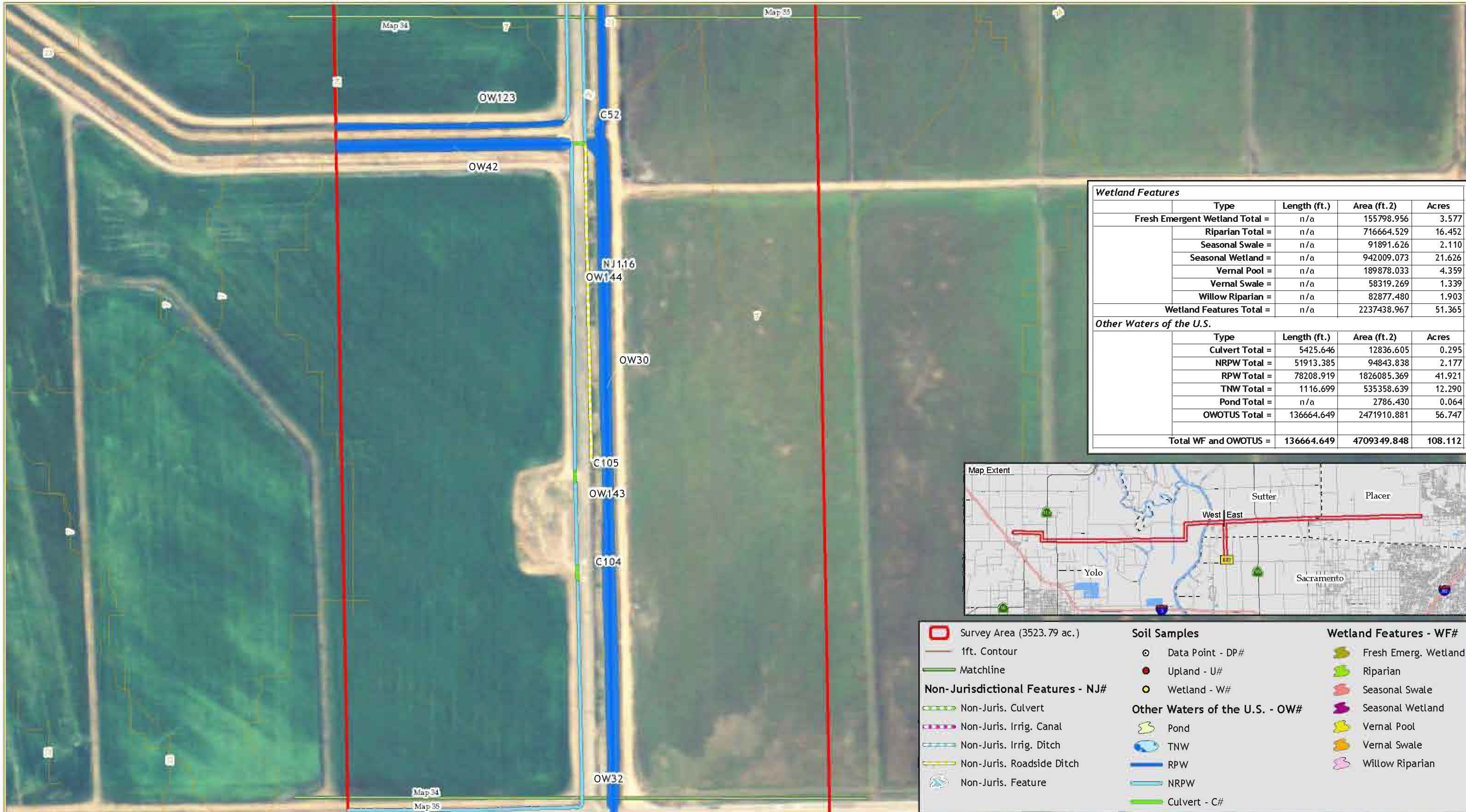

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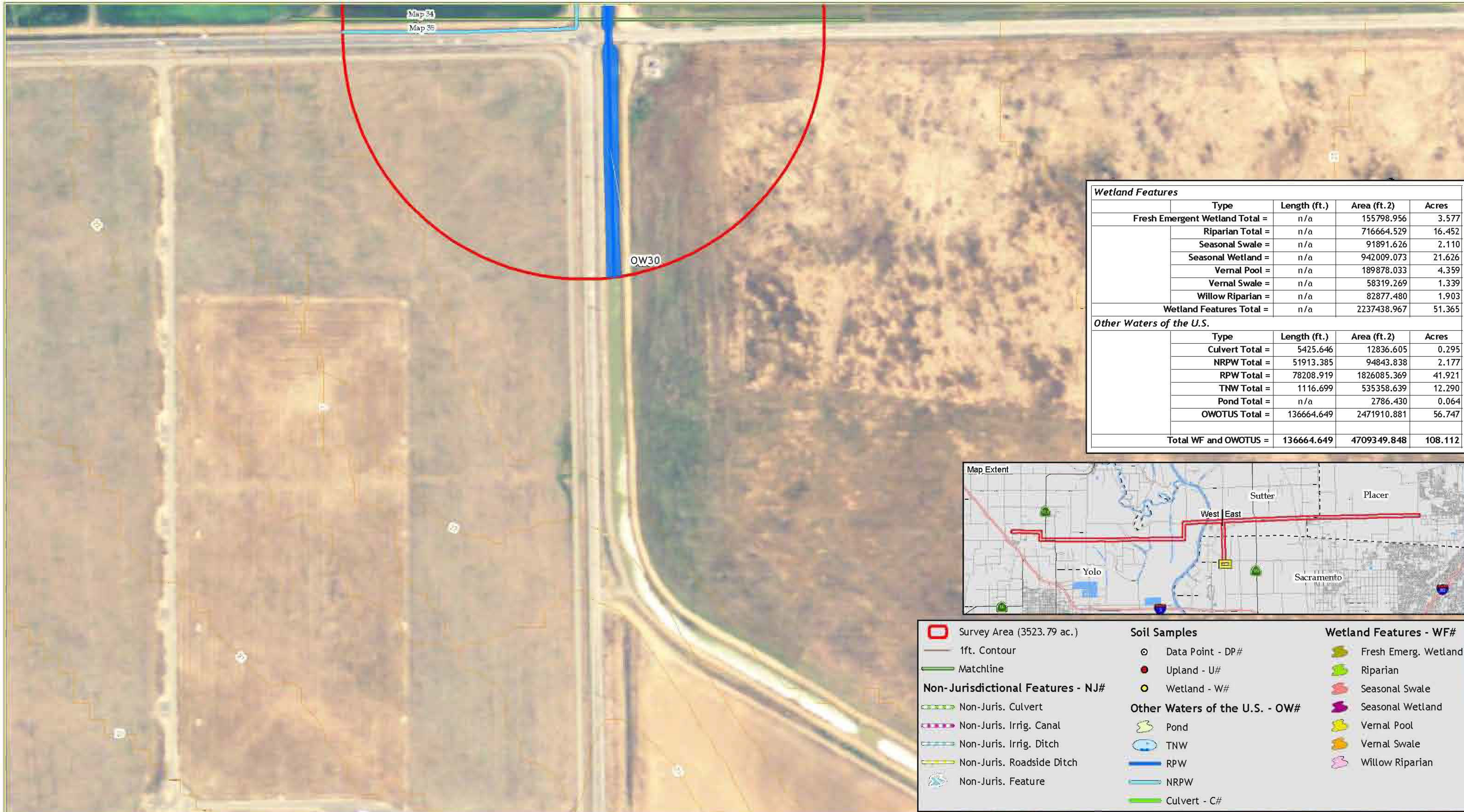

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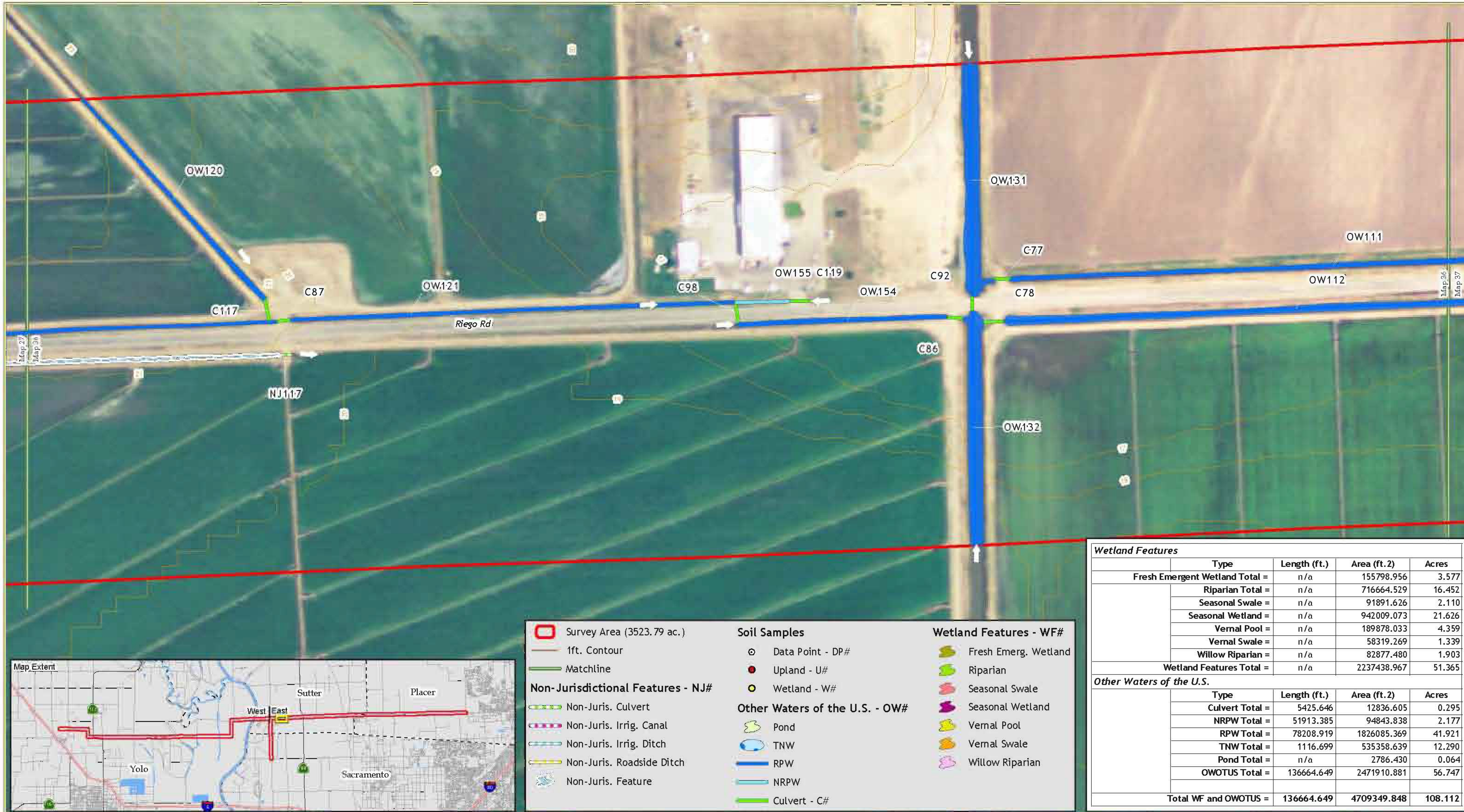

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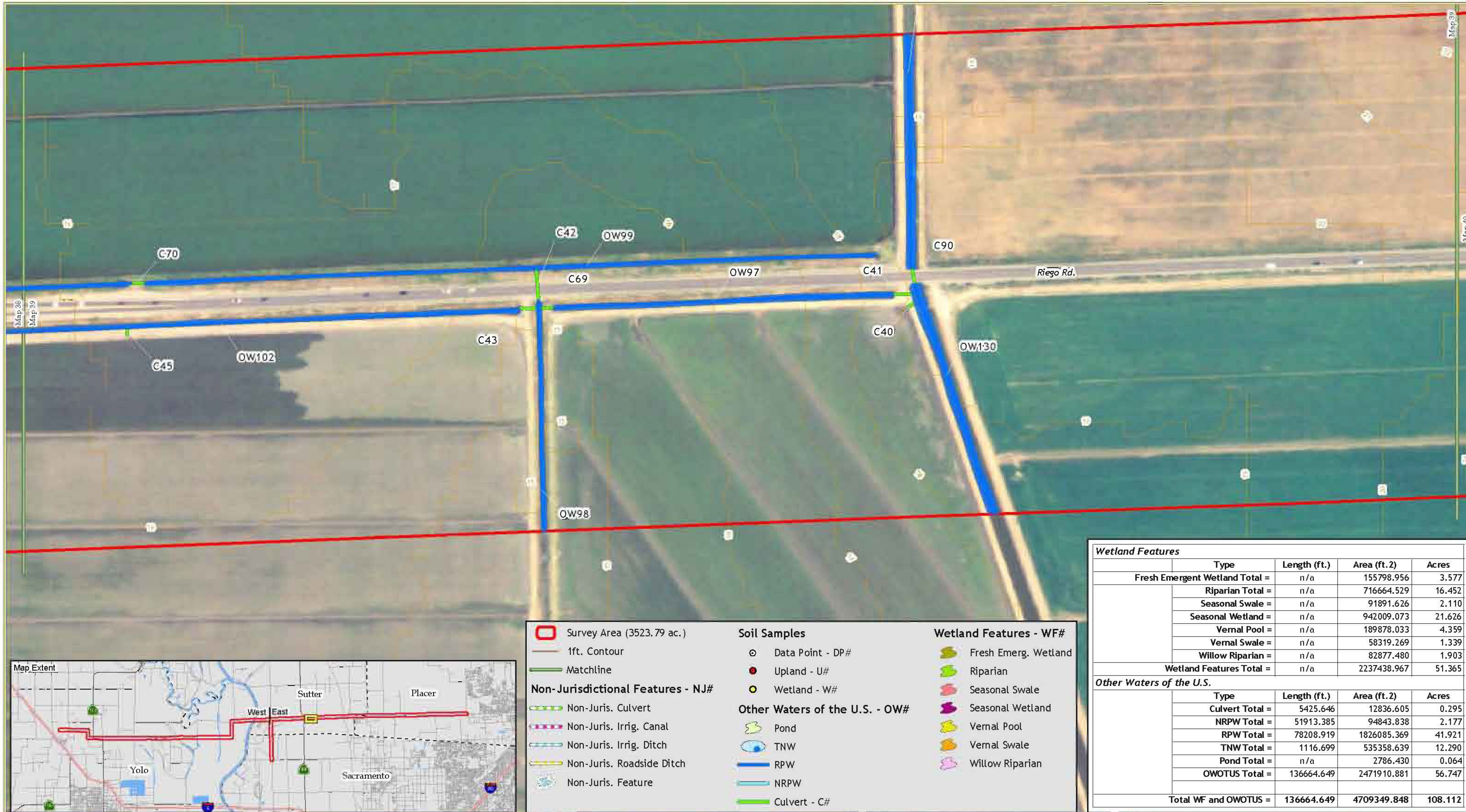

Survey Area (3523.79 ac.)	Soil Samples	Wetland Features - WF#
1ft. Contour	Data Point - DP#	Fresh Emerg. Wetland
Matchline	Upland - U#	Riparian
Non-Jurisdictional Features - NJ#	Wetland - W#	Seasonal Swale
Non-Juris. Culvert	**Other Waters of the U.S. - OW#**	Seasonal Wetland
Non-Juris. Irrig. Canal	Pond	Vernal Pool
Non-Juris. Irrig. Ditch	TNW	Vernal Swale
Non-Juris. Roadside Ditch	RPW	Willow Riparian
Non-Juris. Feature	NRPW	
	Culvert - C#	

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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

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**

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Feet
0 100 200

GALLAWAY CONSULTING, INC.

Survey Area (3523.79 ac.)
1ft. Contour
Matchline

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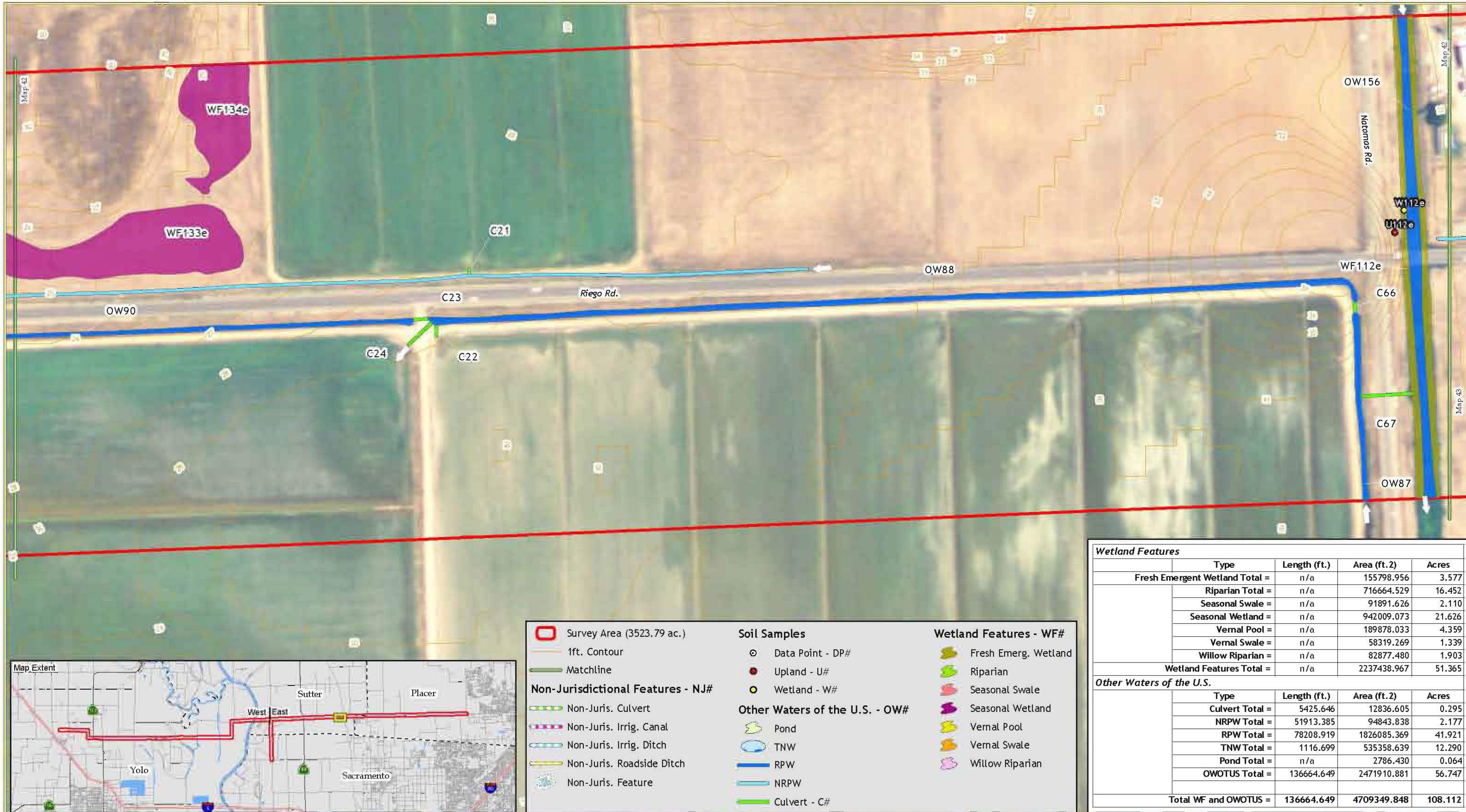
Attachment A



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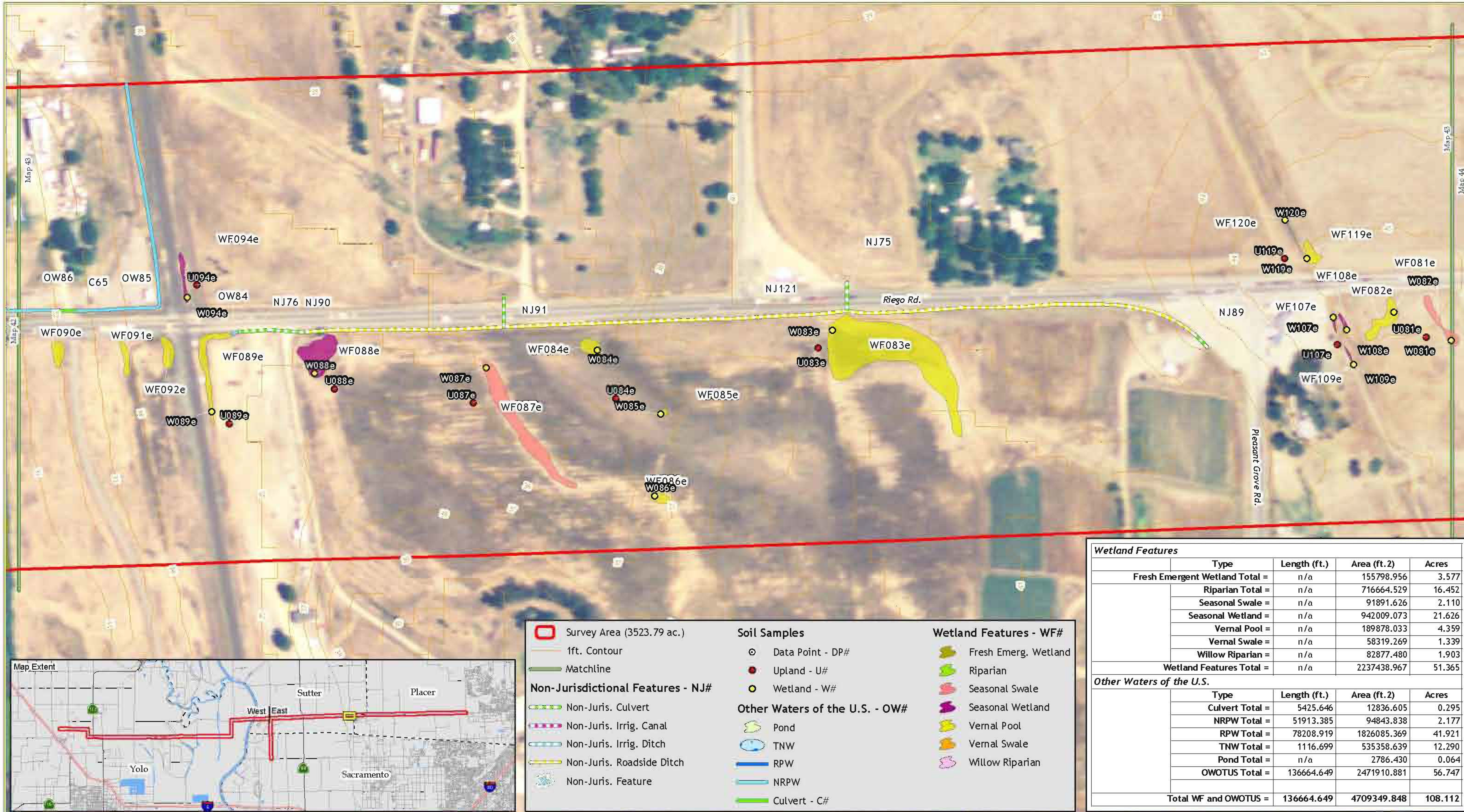

Survey Area (3523.79 ac.)
1ft. Contour
Matchline

Non-Jurisdictional Features - NJ#
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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
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Seasonal Swale
Seasonal Wetland
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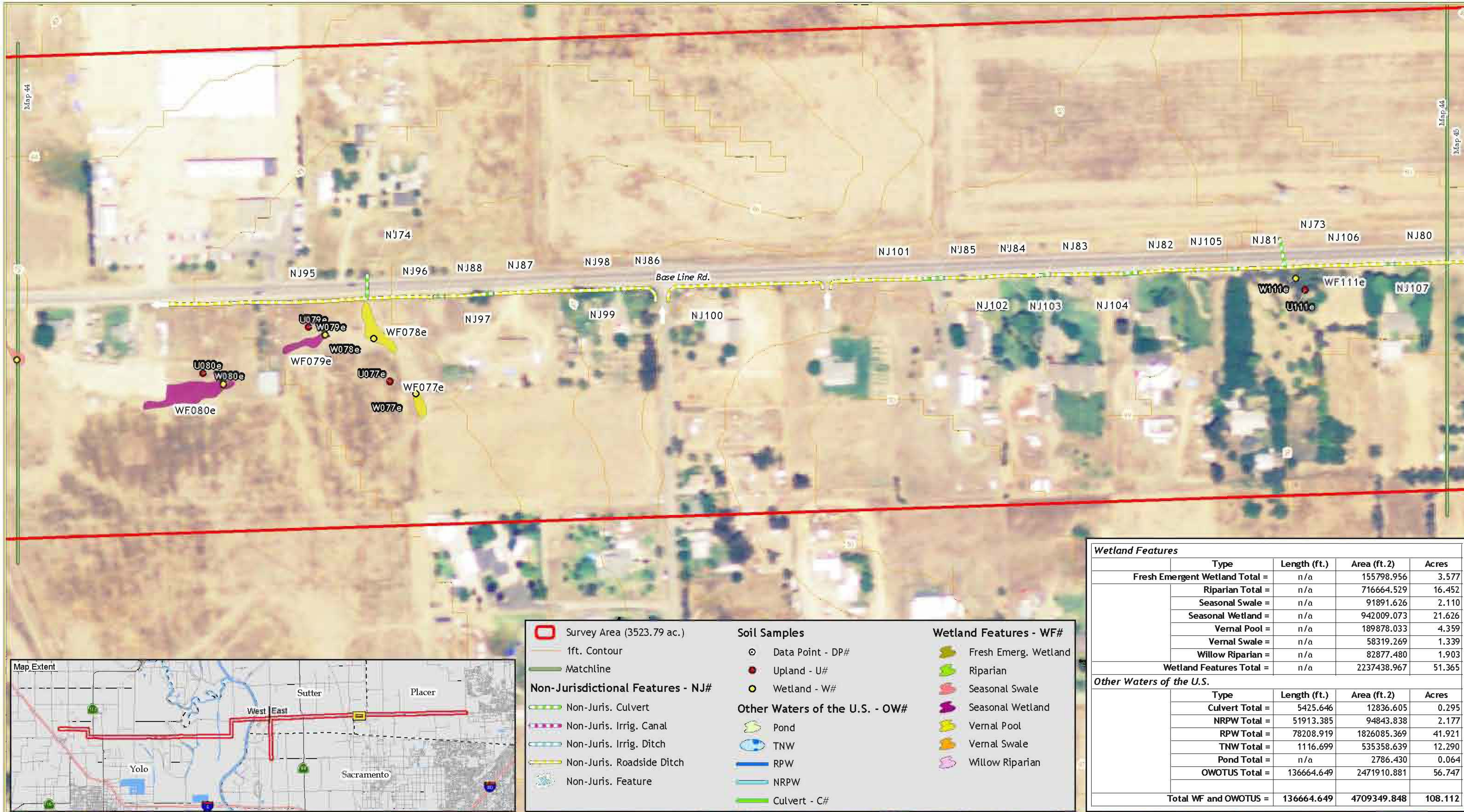

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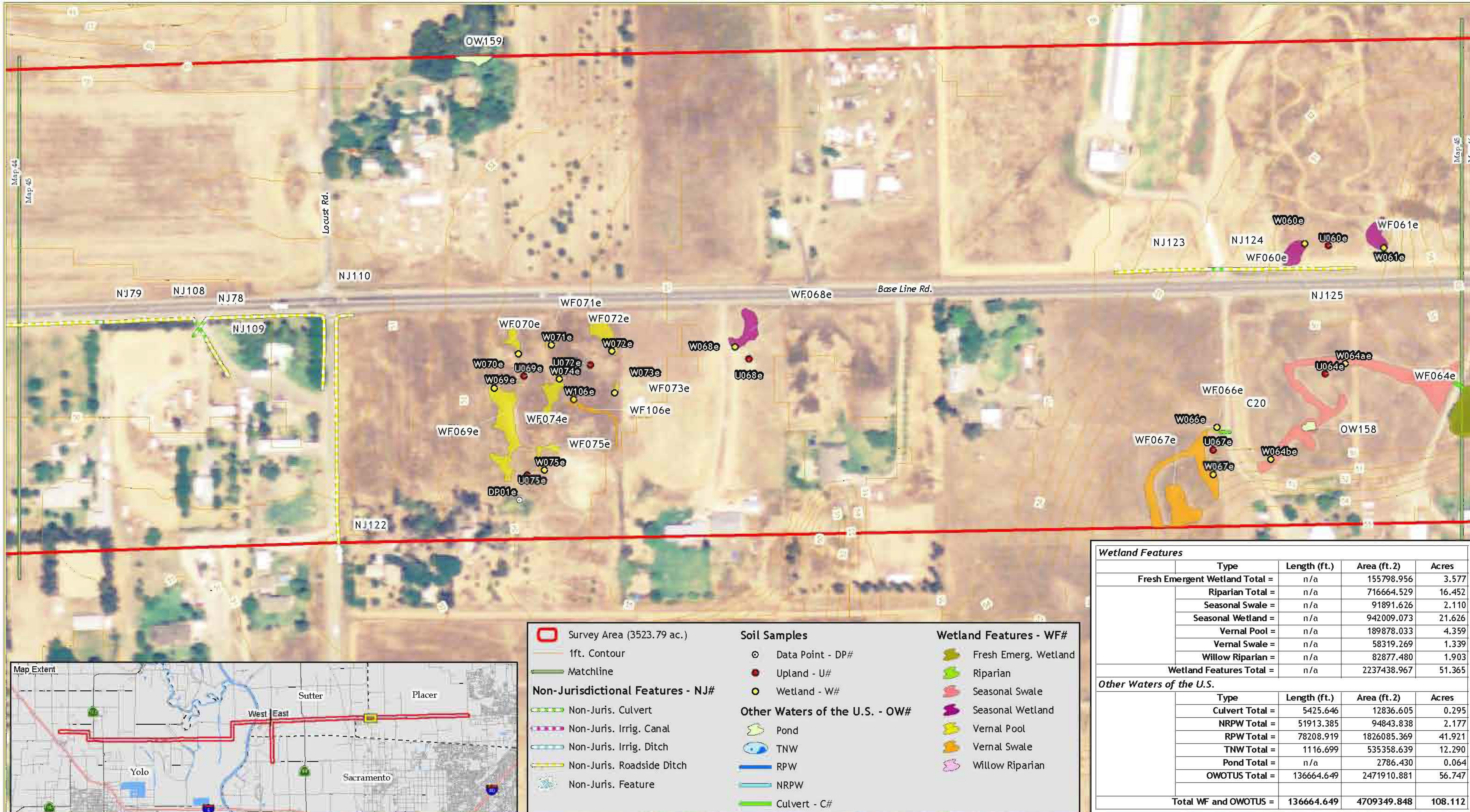

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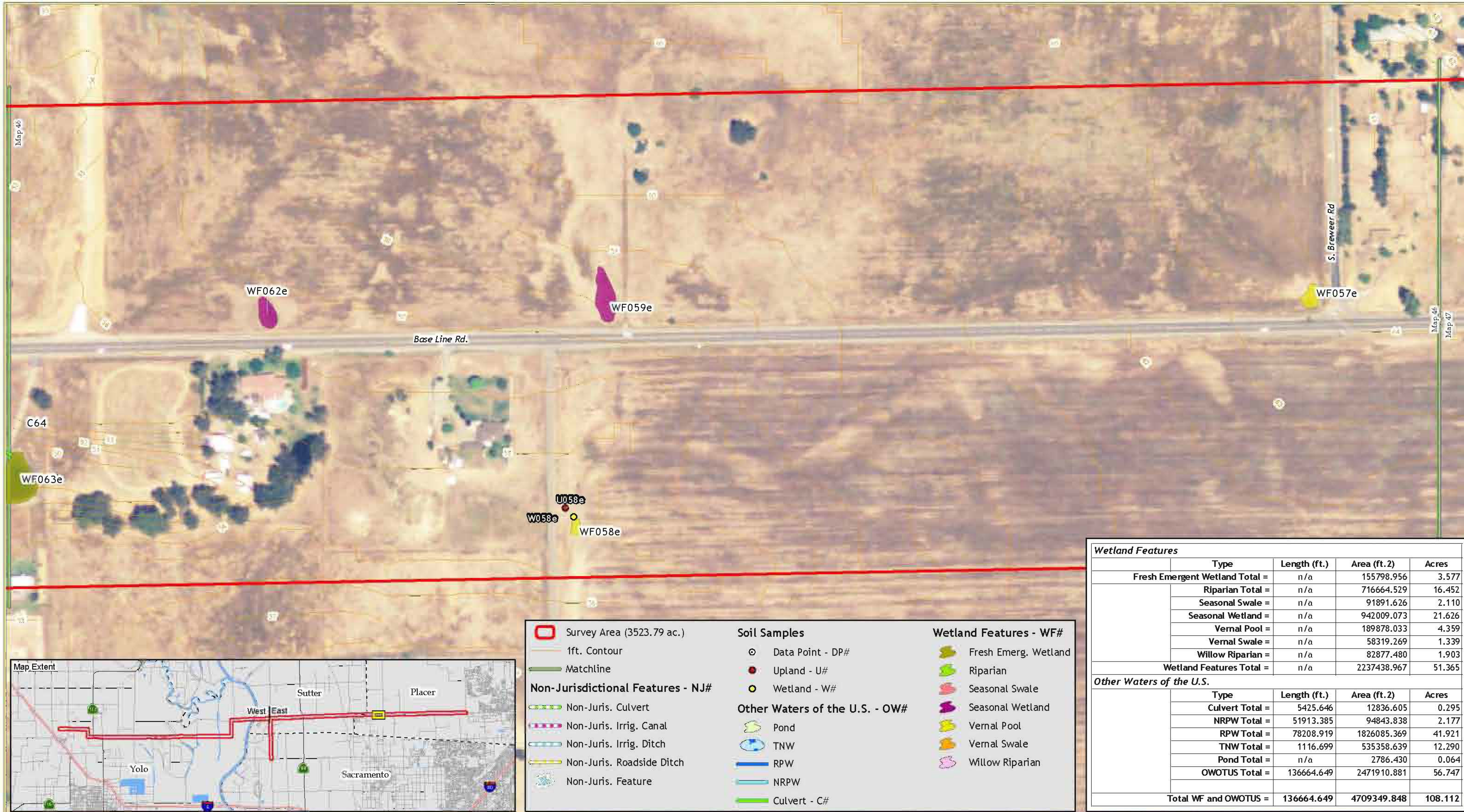

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Attachment A

Survey Area (3523.79 ac.)
1ft. Contour
Matchline

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- Non-Juris. Roadside Ditch
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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#

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Wetland Features

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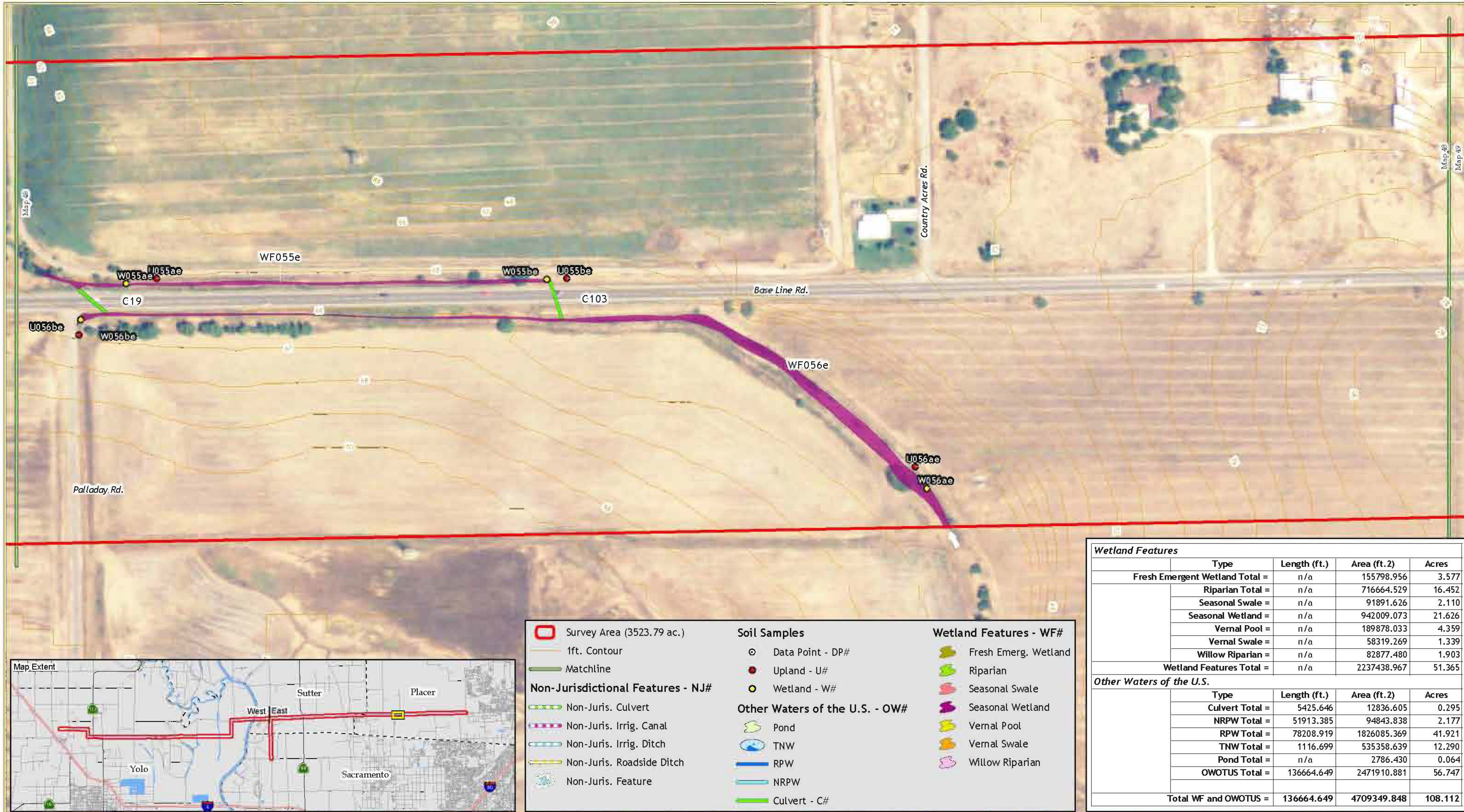

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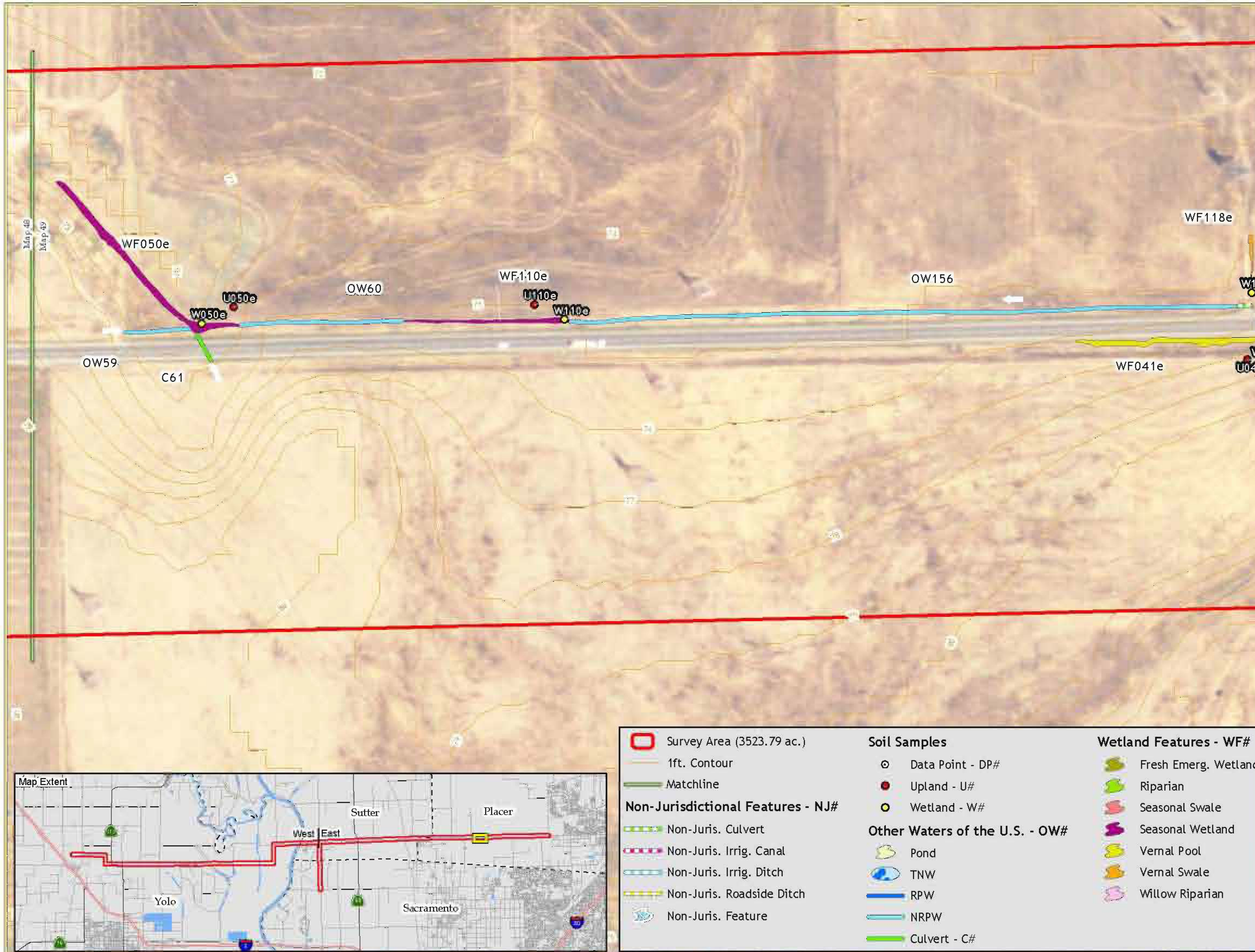

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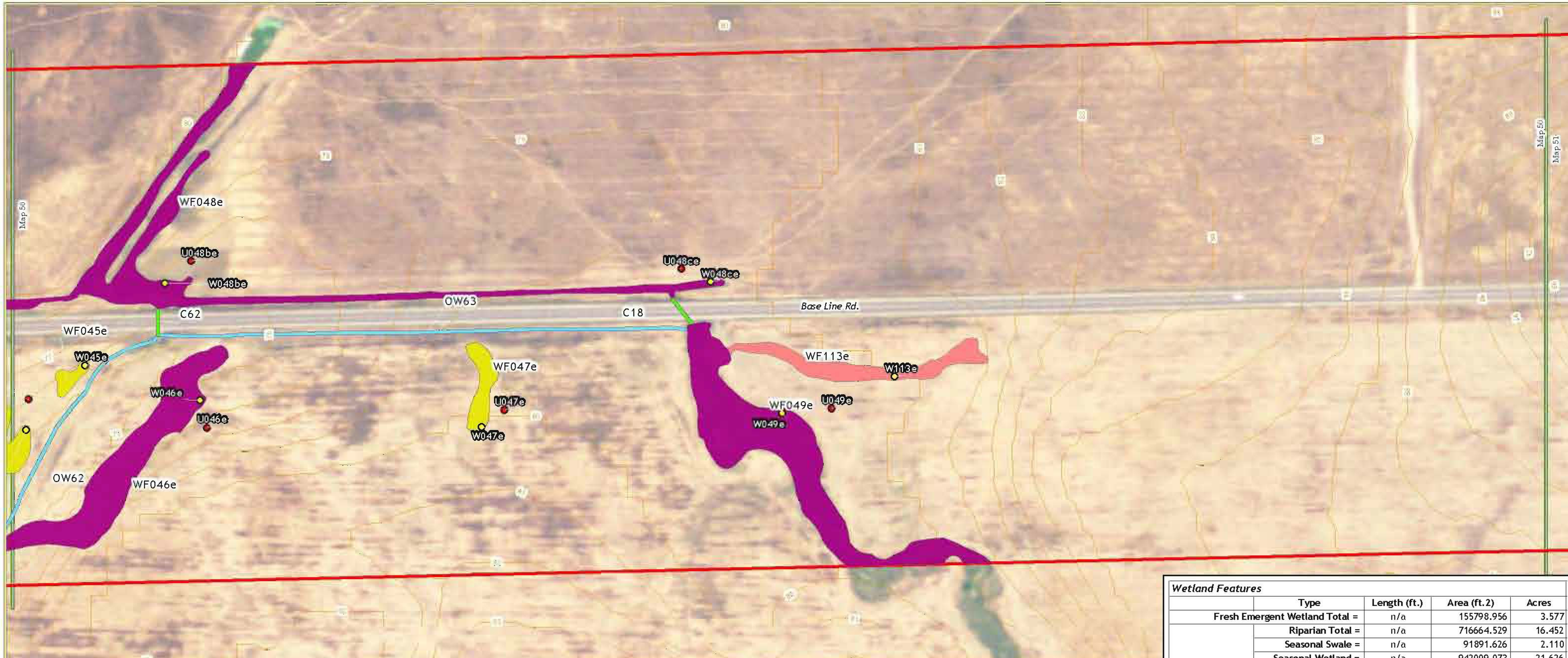

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GALLAWAY
CONSULTING, INC.

Survey Area (3523.79 ac.)	Soil Samples	Wetland Features - WF#
1ft. Contour	Data Point - DP#	Fresh Emerg. Wetland
Matchline	Upland - U#	Riparian
Non-Jurisdictional Features - NJ#	Wetland - W#	Seasonal Swale
Non-Juris. Culvert	**Other Waters of the U.S. - OW#**	Seasonal Wetland
Non-Juris. Irrig. Canal	Pond	Vernal Pool
Non-Juris. Irrig. Ditch	TNW	Vernal Swale
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Non-Juris. Feature	NRPW	
	Culvert - C#	

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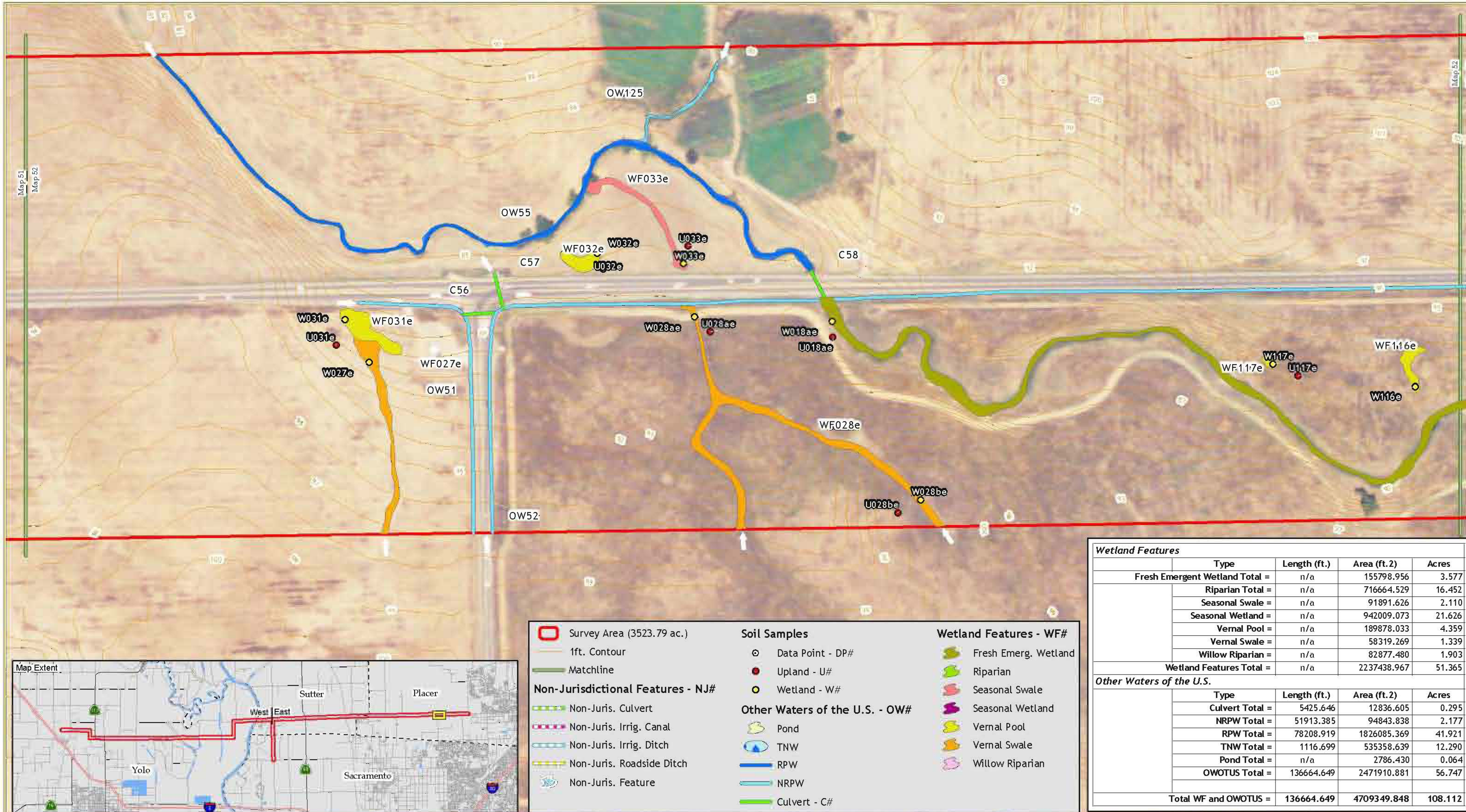
NRPW Total =	51913.385	94843.838	2.177
RPW Total =	78208.919	1826085.369	41.921
TNW Total =	1116.699	535358.639	12.290
Pond Total =	n/a	2786.430	0.064
OWOTUS Total =	136664.649	2471910.881	56.747
Total WF and OWOTUS =	136664.649	4709349.848	108.112

All features to remain preliminary until written verification from the USACE
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 7/21, 24 - 28, 8/10 & 25, 2006
Aerial Feb. 2005 (NAIP) Map Date August 6, 2007 Revised August 21, 2007

Feet
0 100 200

GALLAWAY CONSULTING, INC.

Attachment A



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
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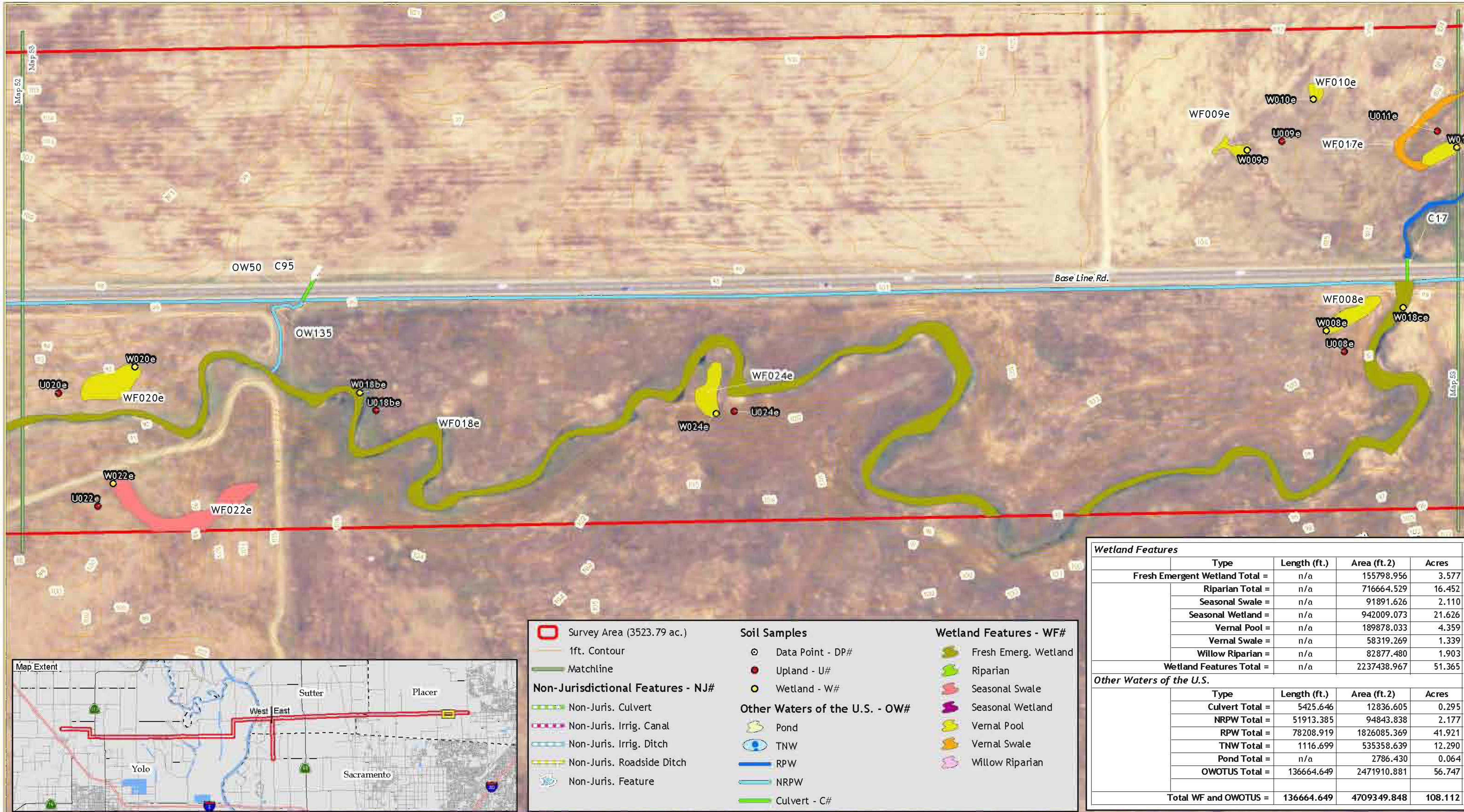
Feet
0 100 200

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
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	Vernal Pool =	n/a	189878.033	4.359
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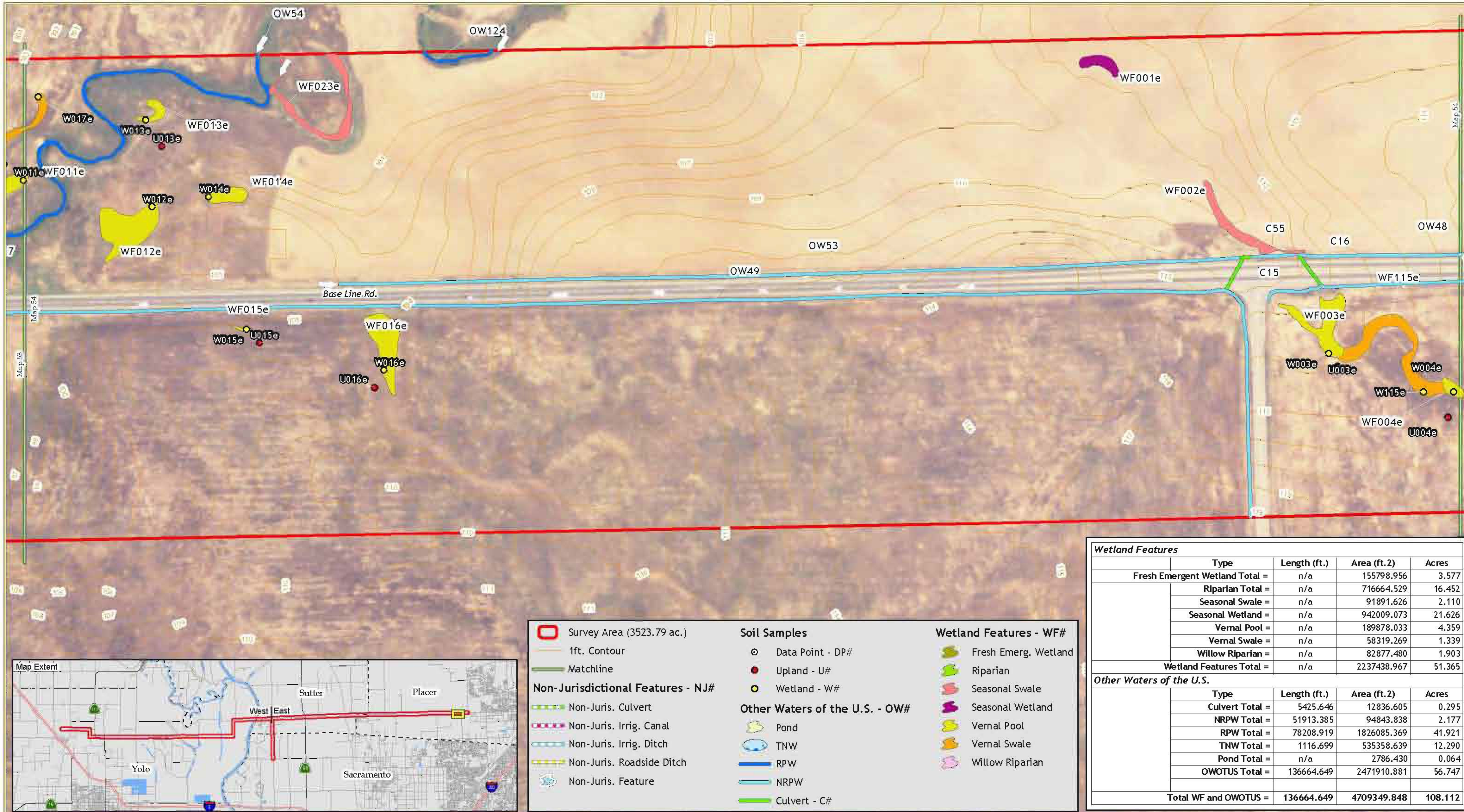

Survey Area (3523.79 ac.)
1ft. Contour
Matchline

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

Wetland Features

Type	Length (ft.)	Area (ft.2)	Acres
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Willow Riparian =	n/a	82877.480	1.903
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Feet
0 100 200

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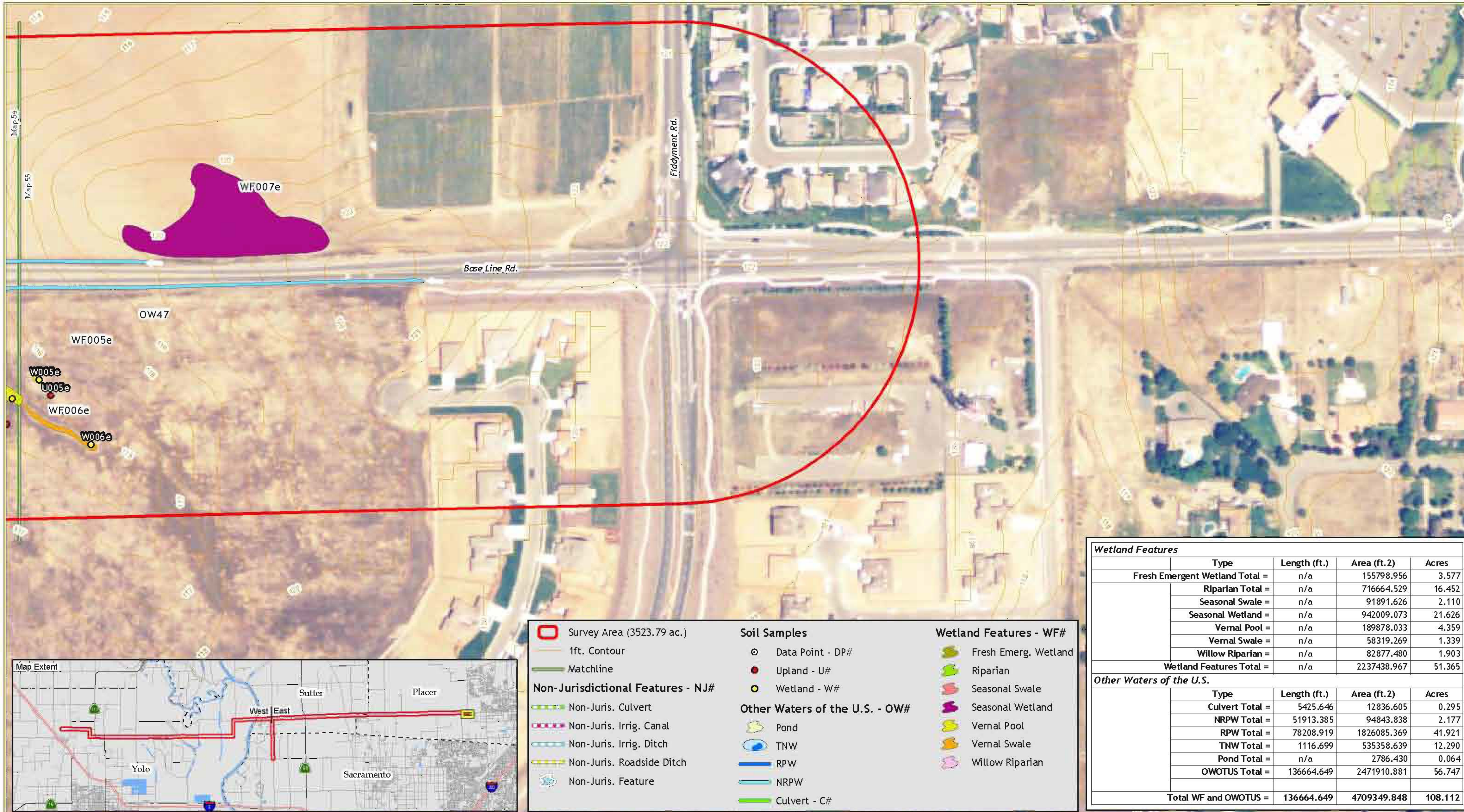

Survey Area (3523.79 ac.)
1ft. Contour
Matchline

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

Wetland Features

	Type	Length (ft.)	Area (ft.2)	Acres
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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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	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**

N

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Feet
0 100 200

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,

B. Owens

Breanna Owens
Biologist/Range Specialist

Encl: **Attachments A, B, C, & D**

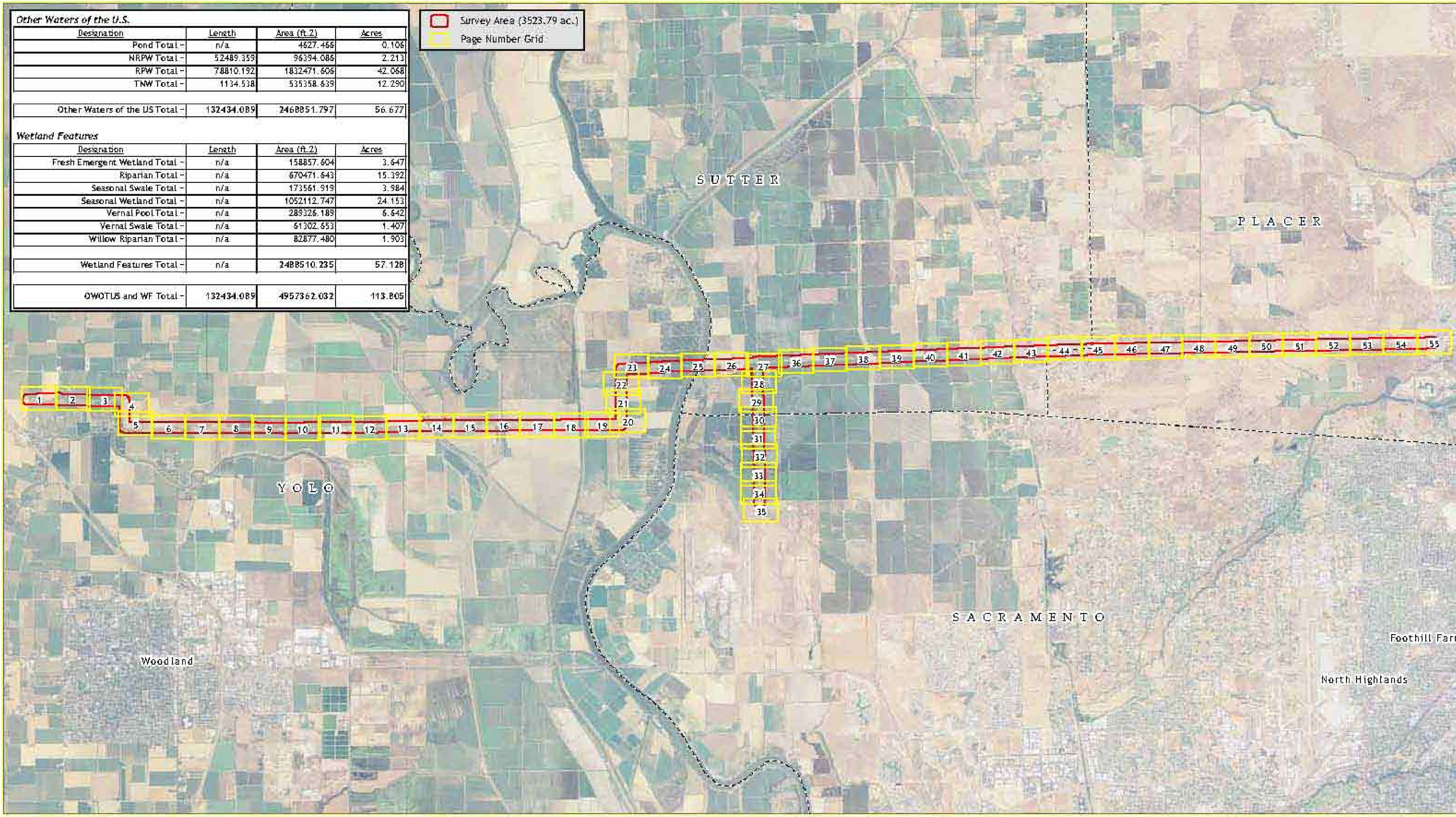
Cc: Benjamin Hart

Other Waters of the U.S.

Designation	Length	Area (ft.2)	Acres
Pond Total -	n/a	4627.456	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



All features to remain preliminary until written verification from the USACE.
Survey area derived from 300 ft buffer of roadway.
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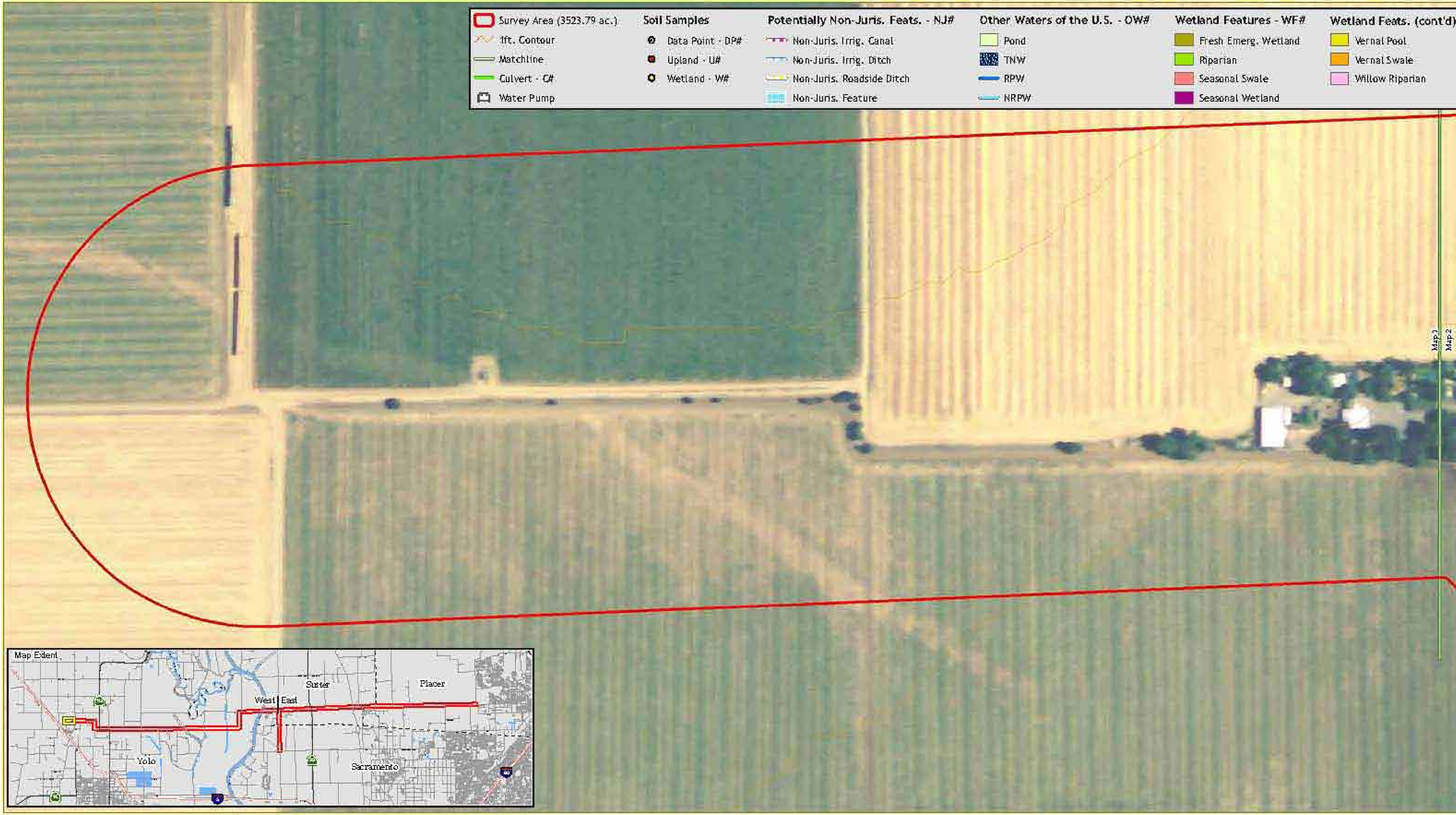
GALLAWAY CONSULTING, INC.



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Feet
0 100 200

GALLAWAY CONSULTING, INC.

Attachment A

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Feet
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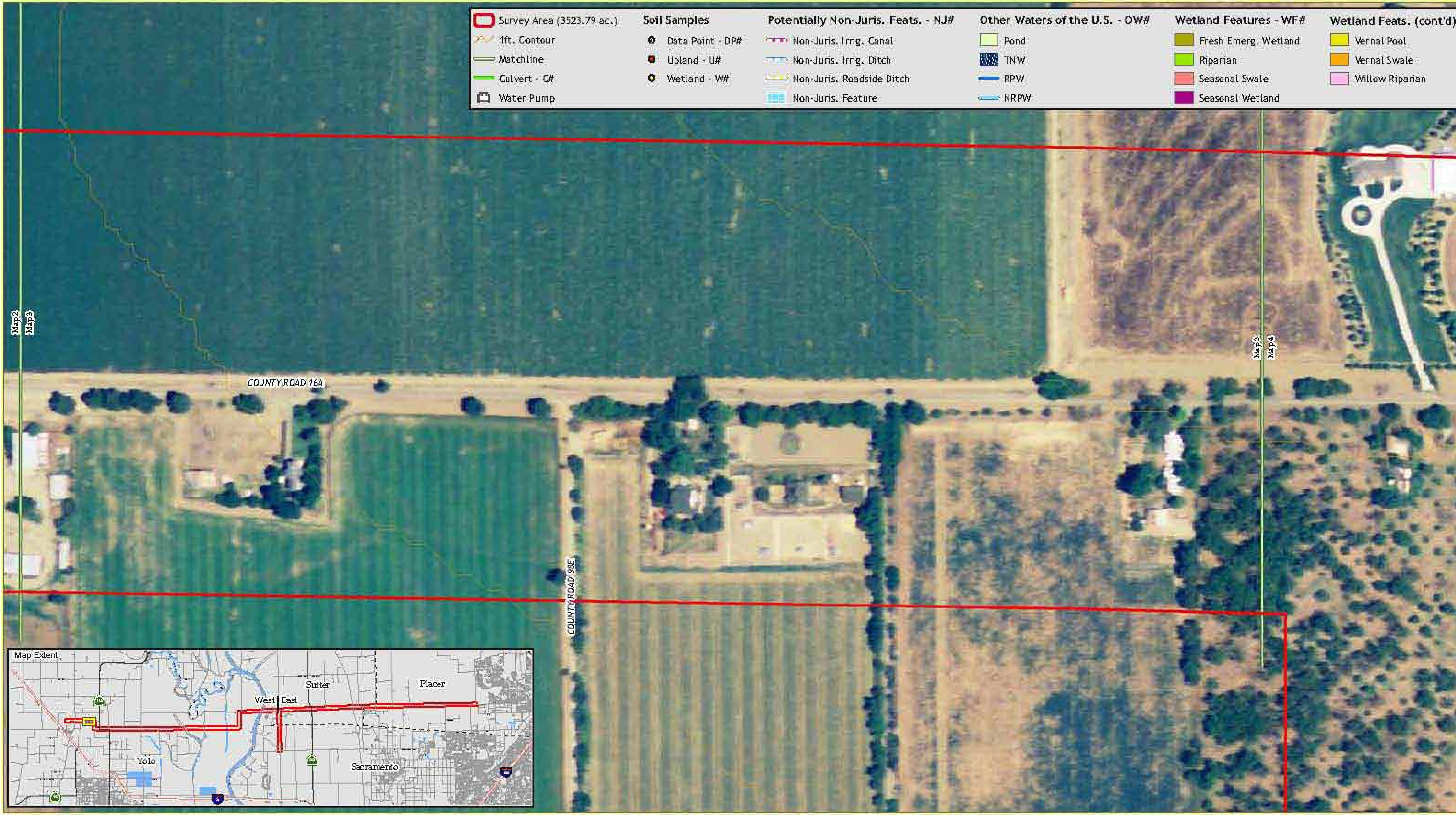
Attachment A



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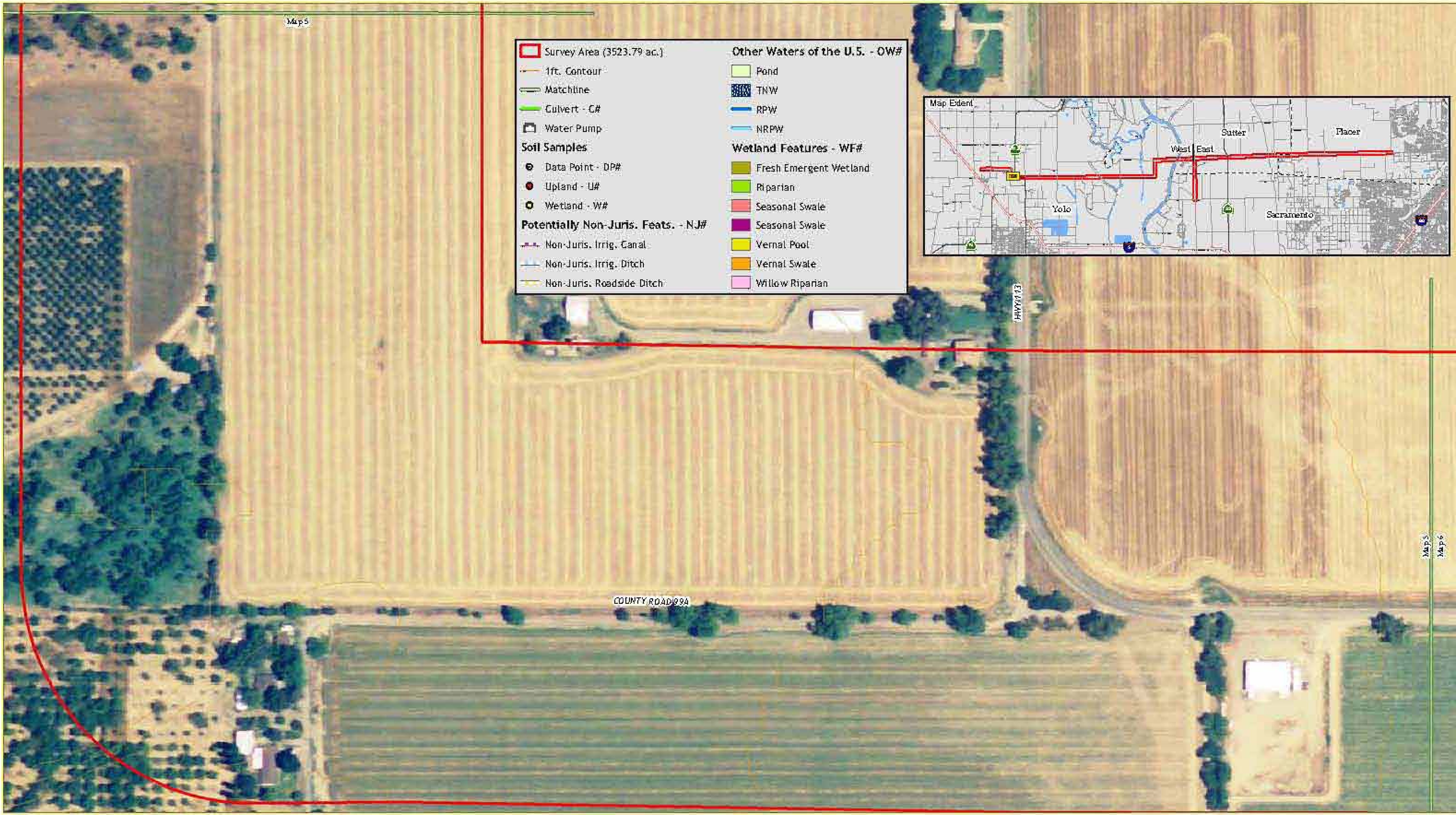

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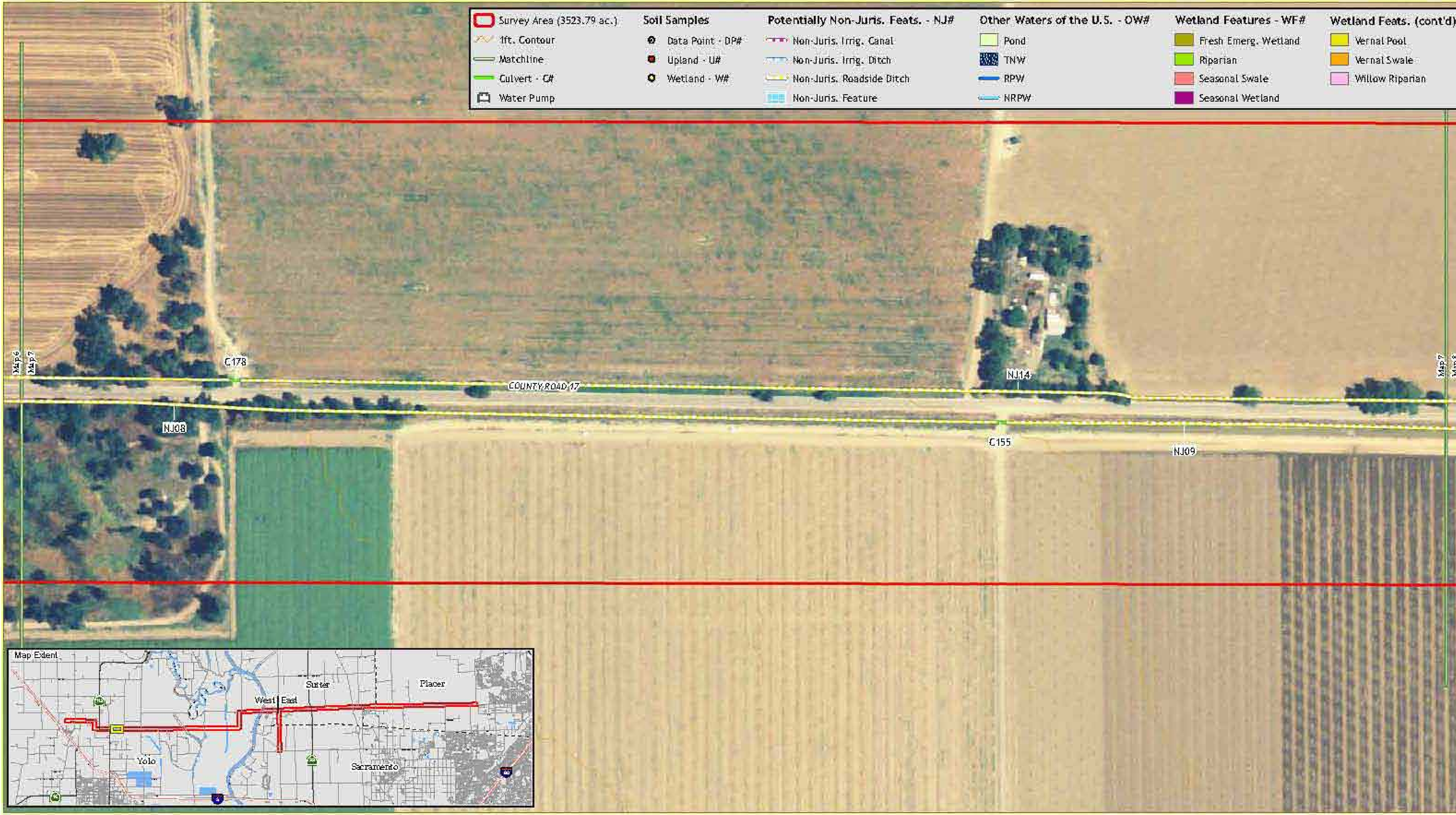

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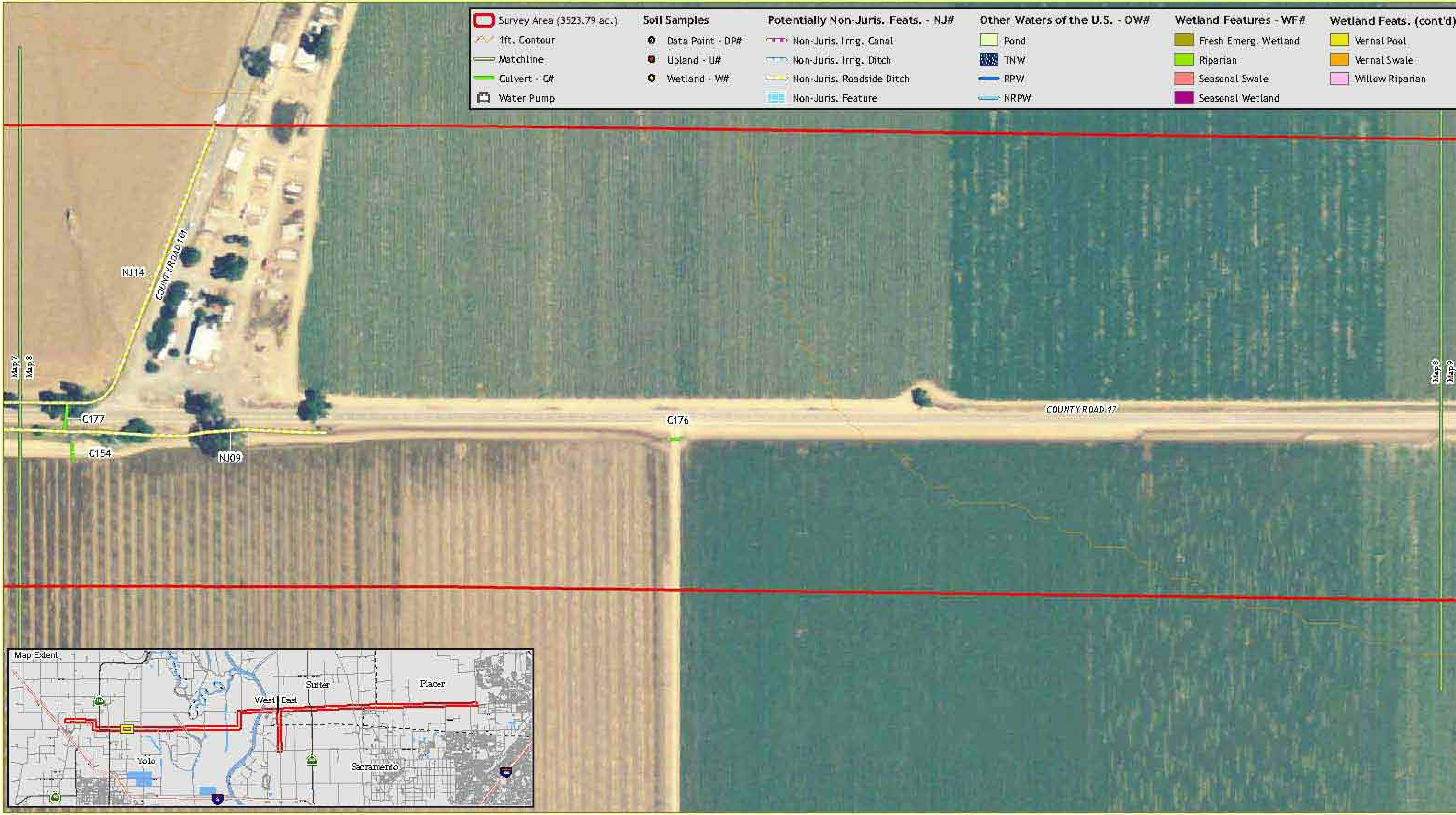

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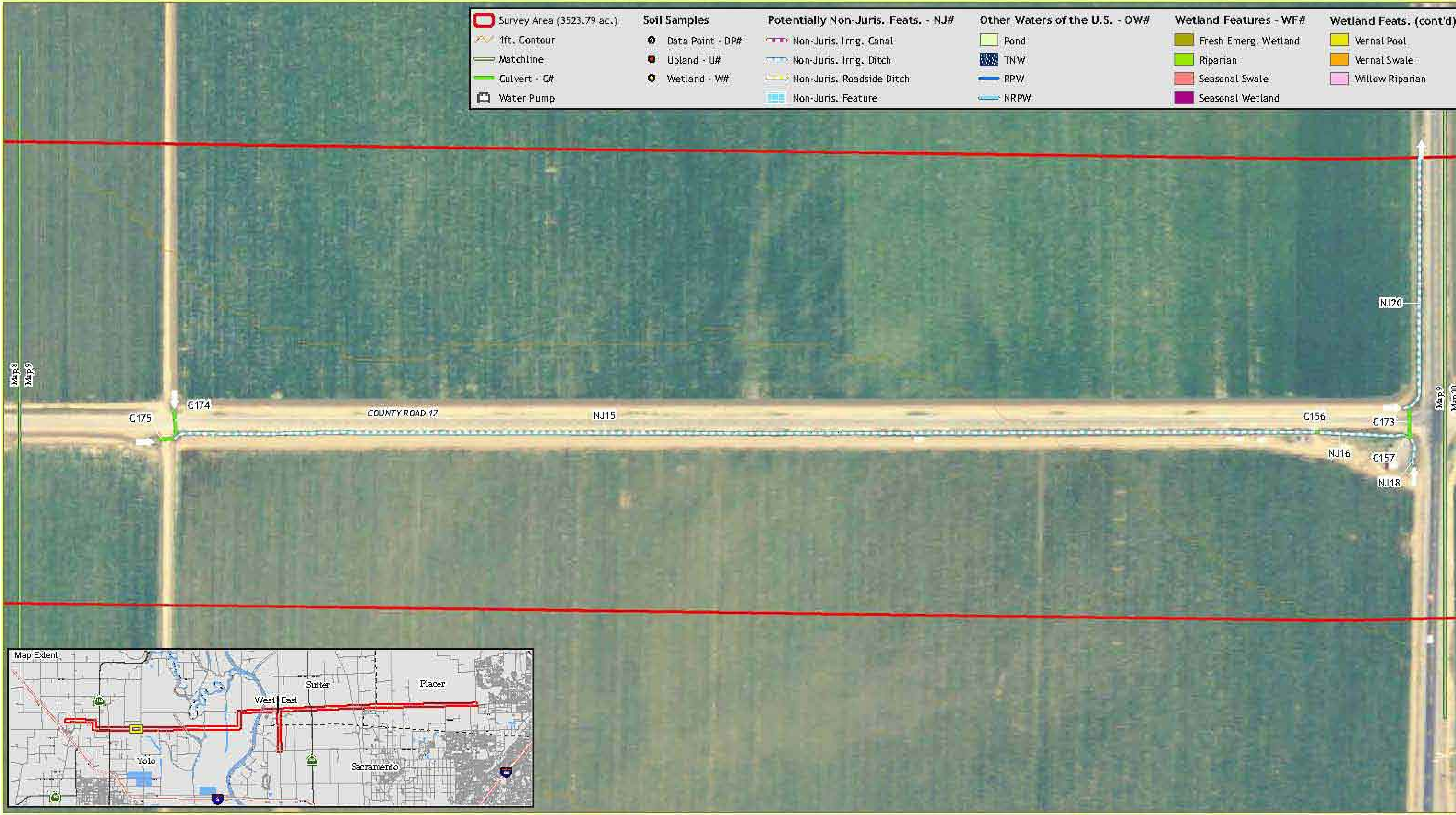

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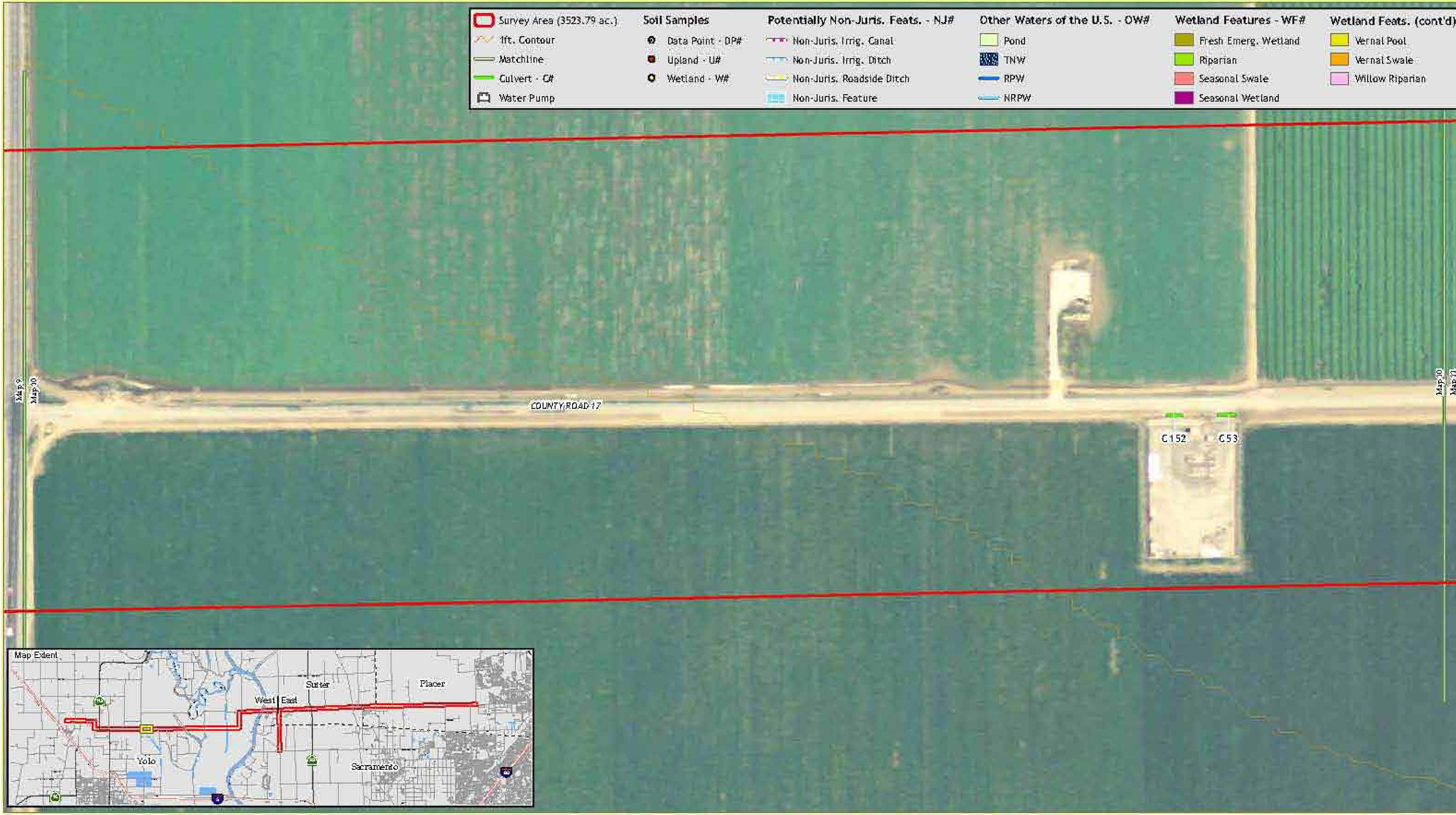

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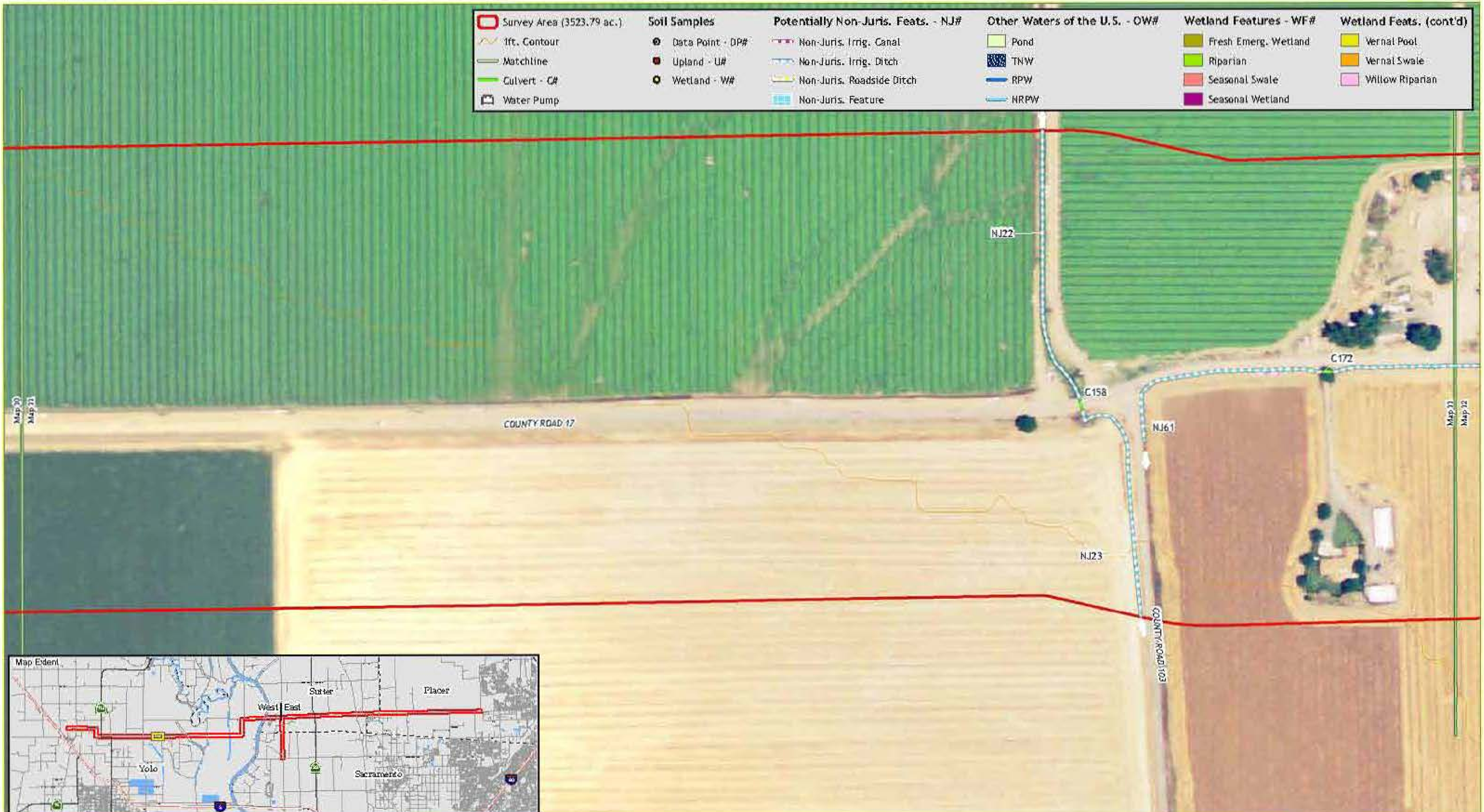

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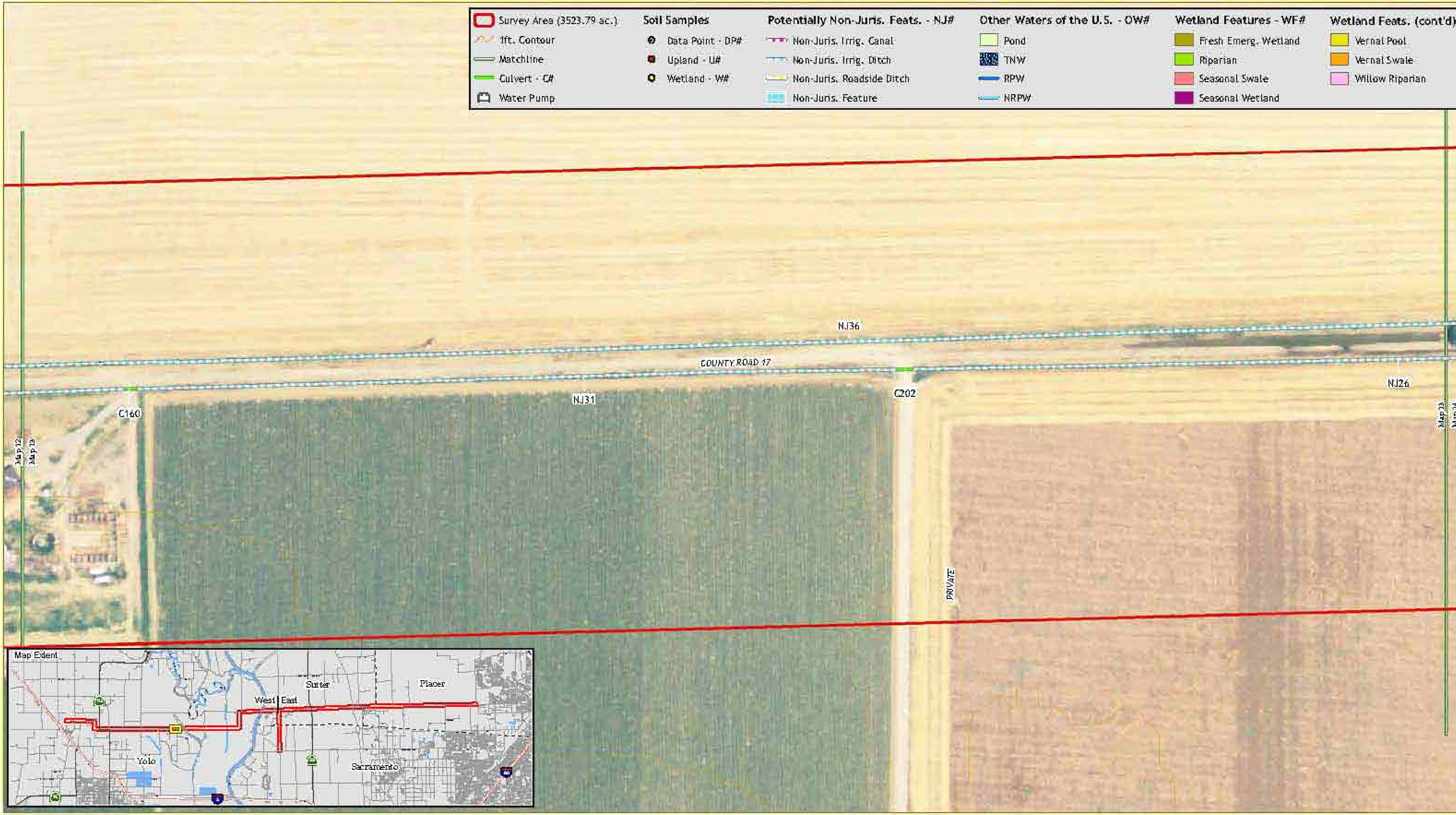

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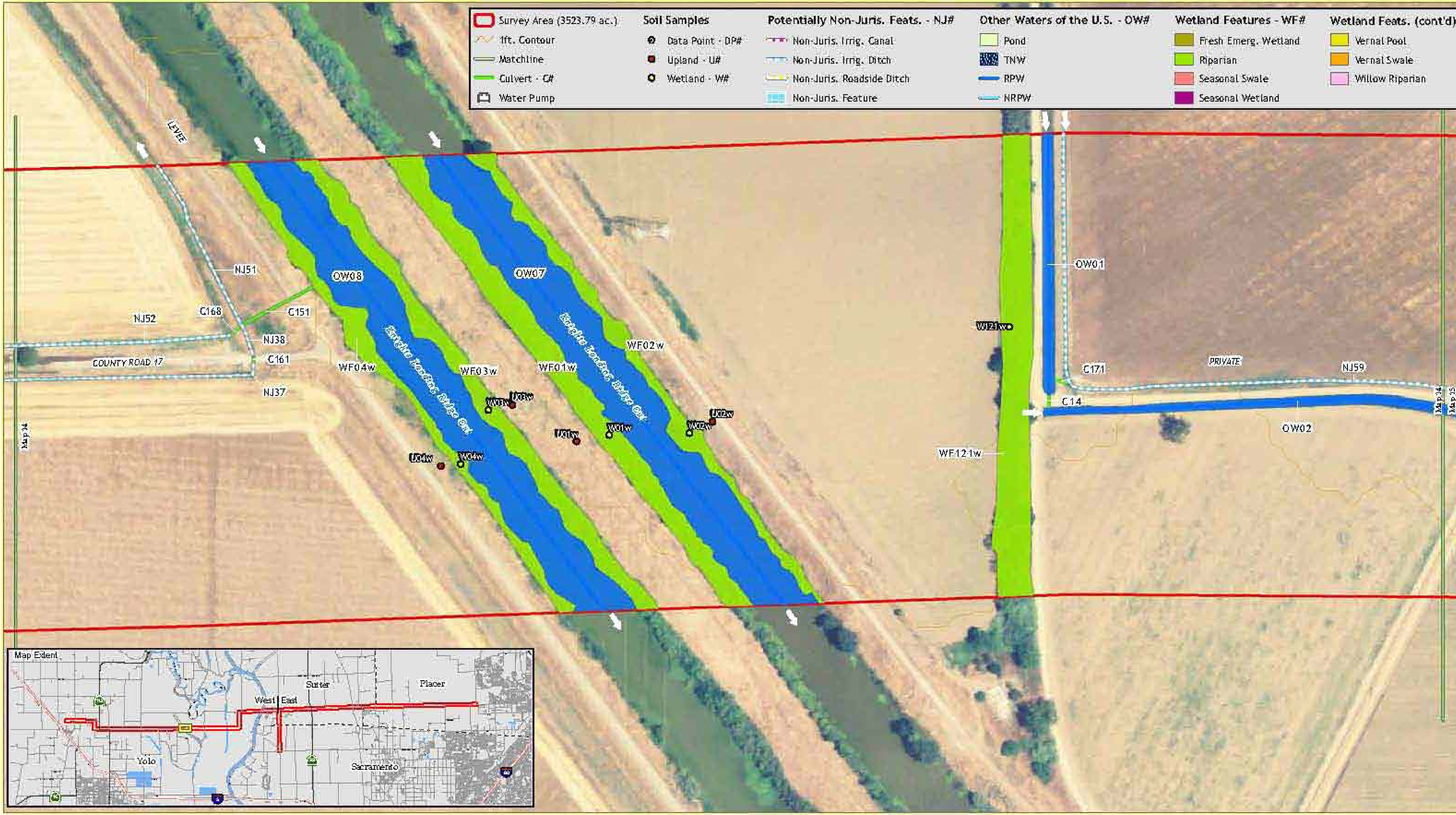

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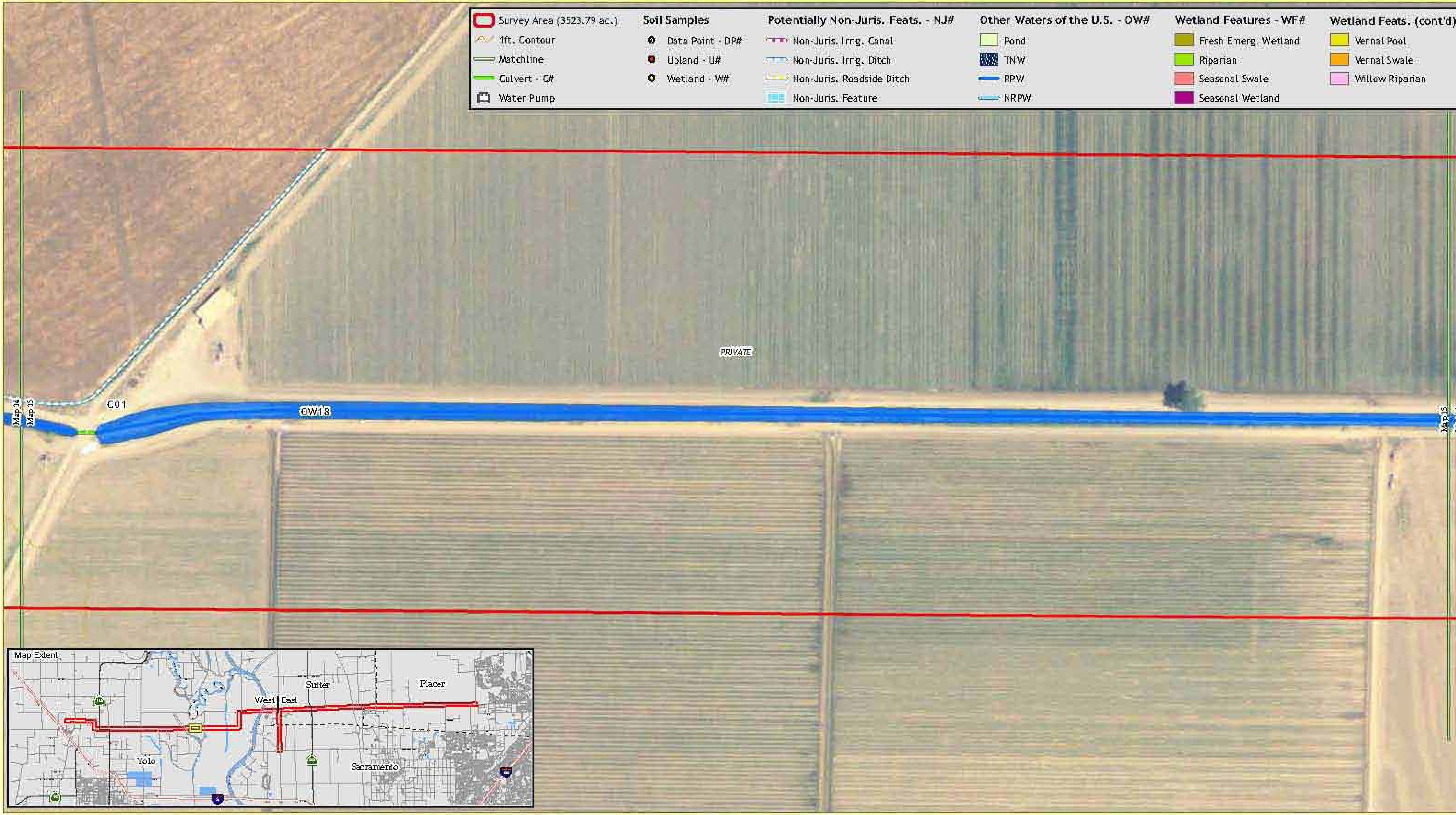

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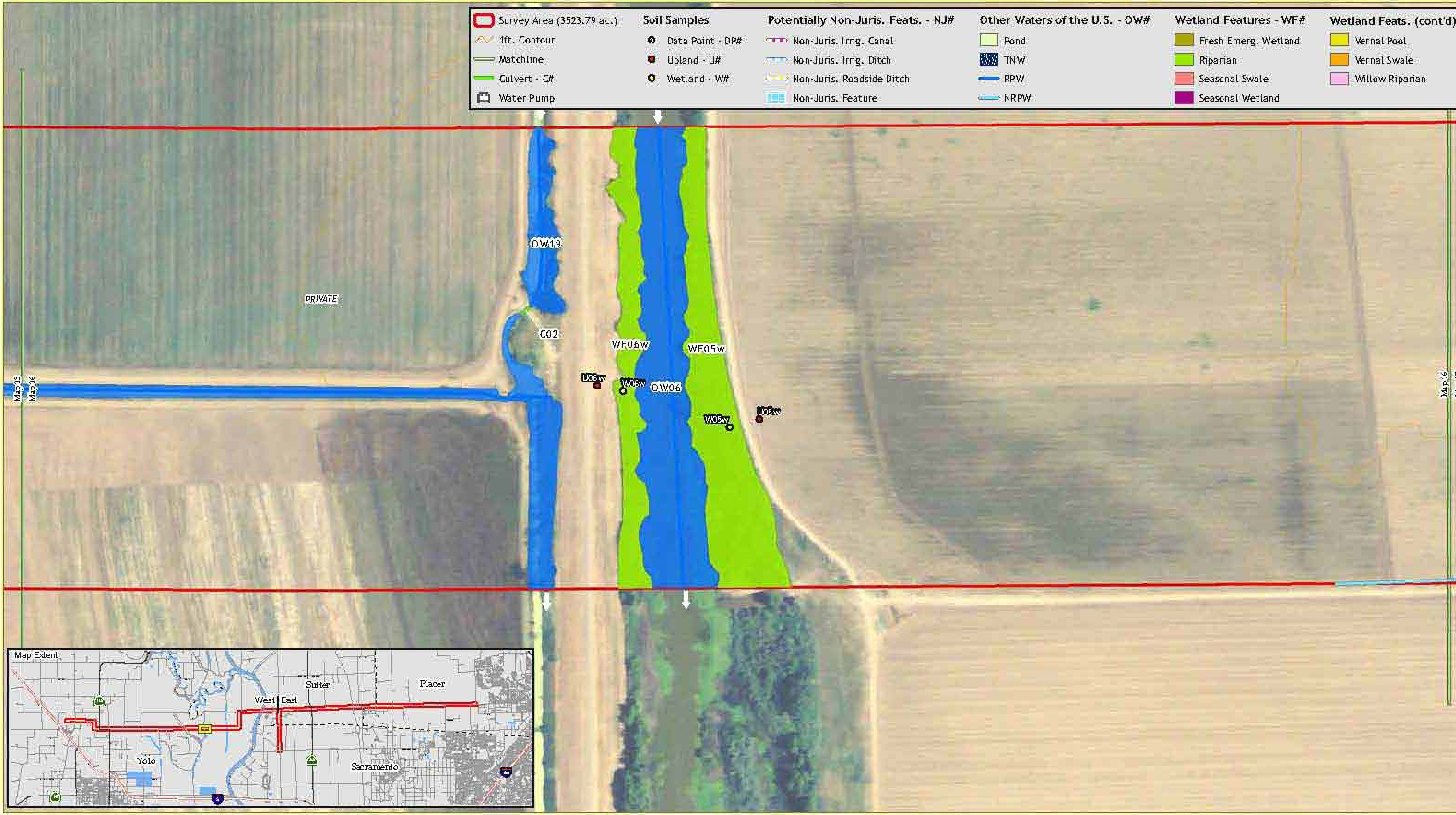

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Feet

0 100 200

GALLAWAY CONSULTING, INC.

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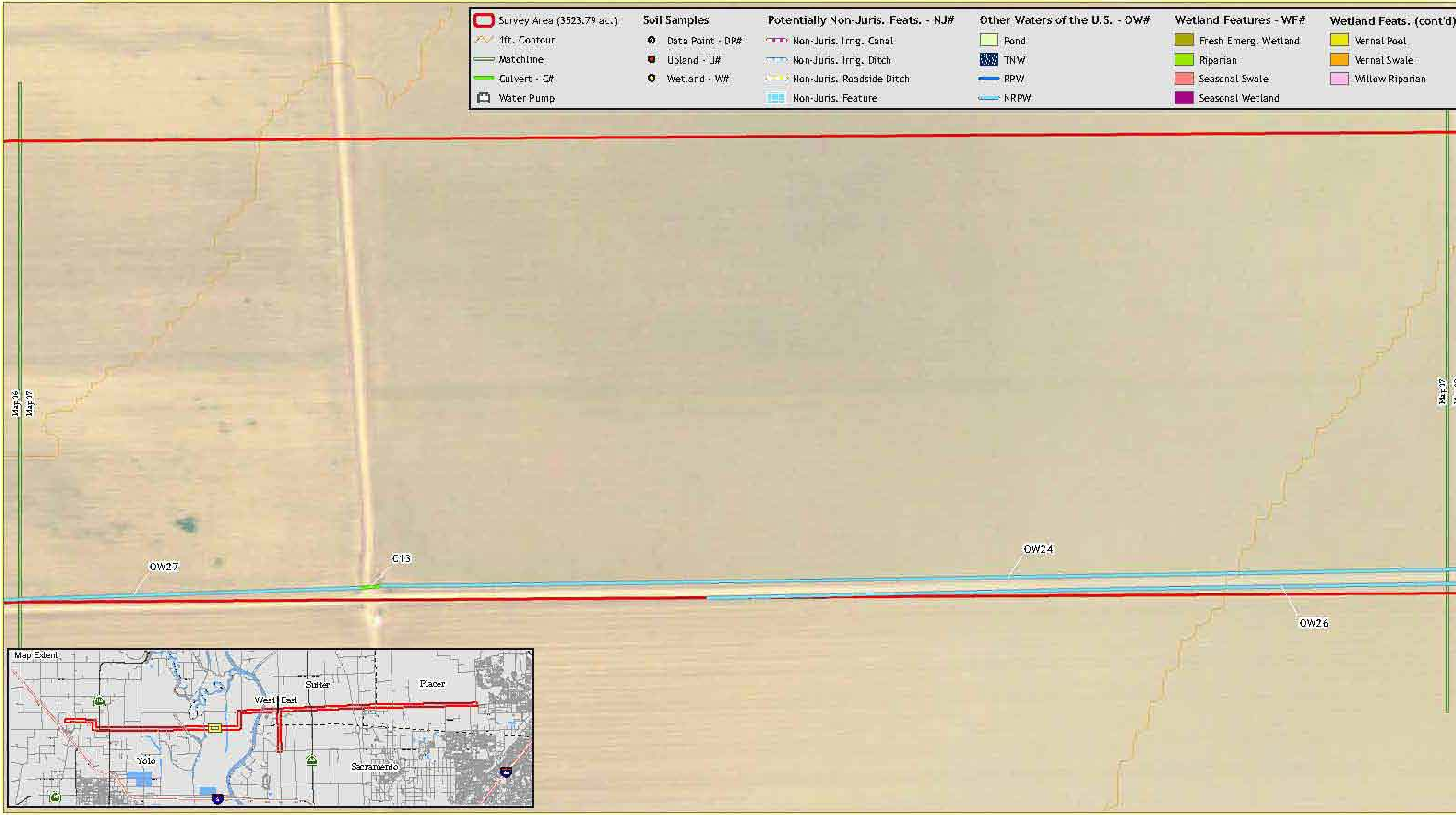

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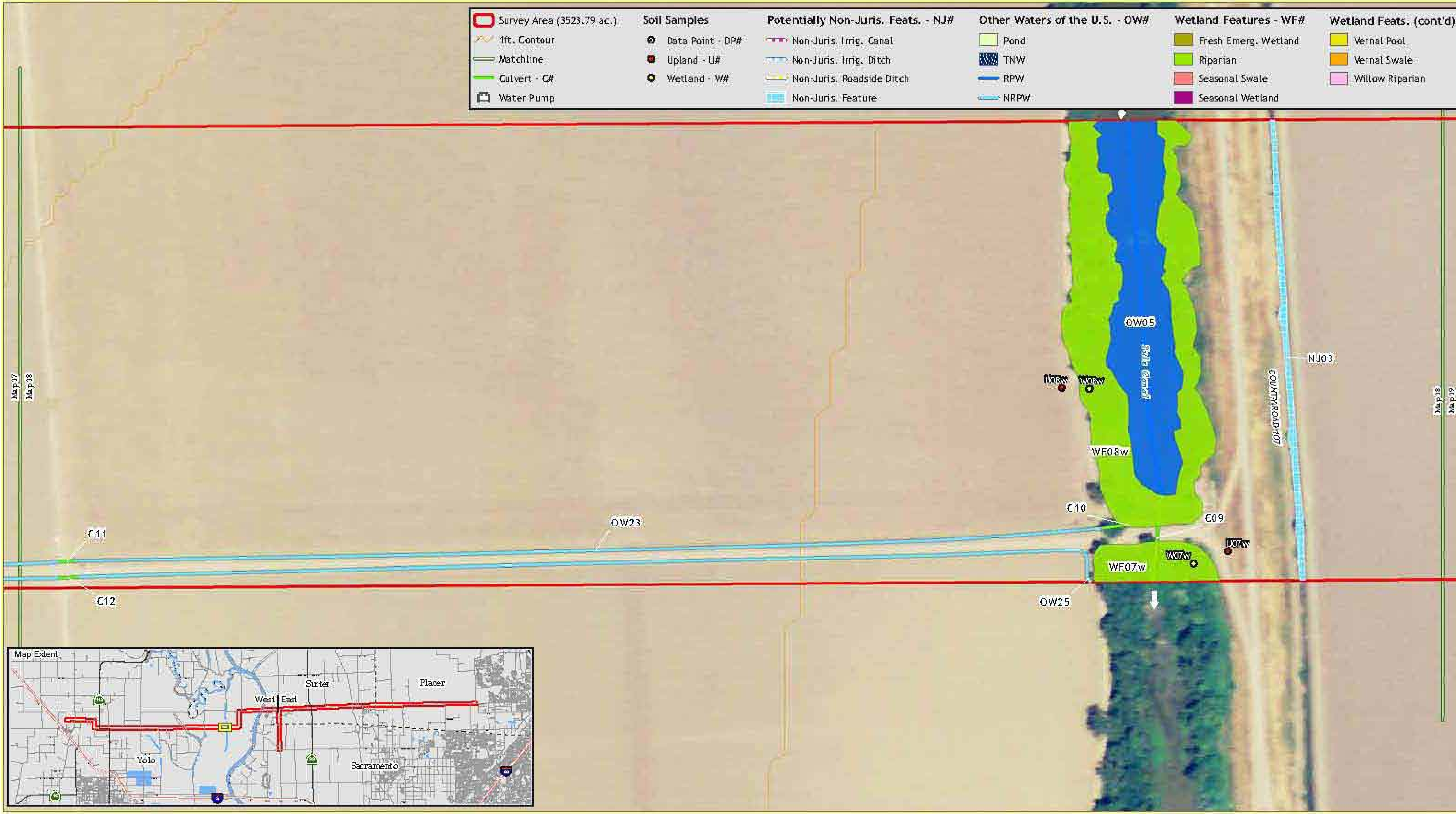

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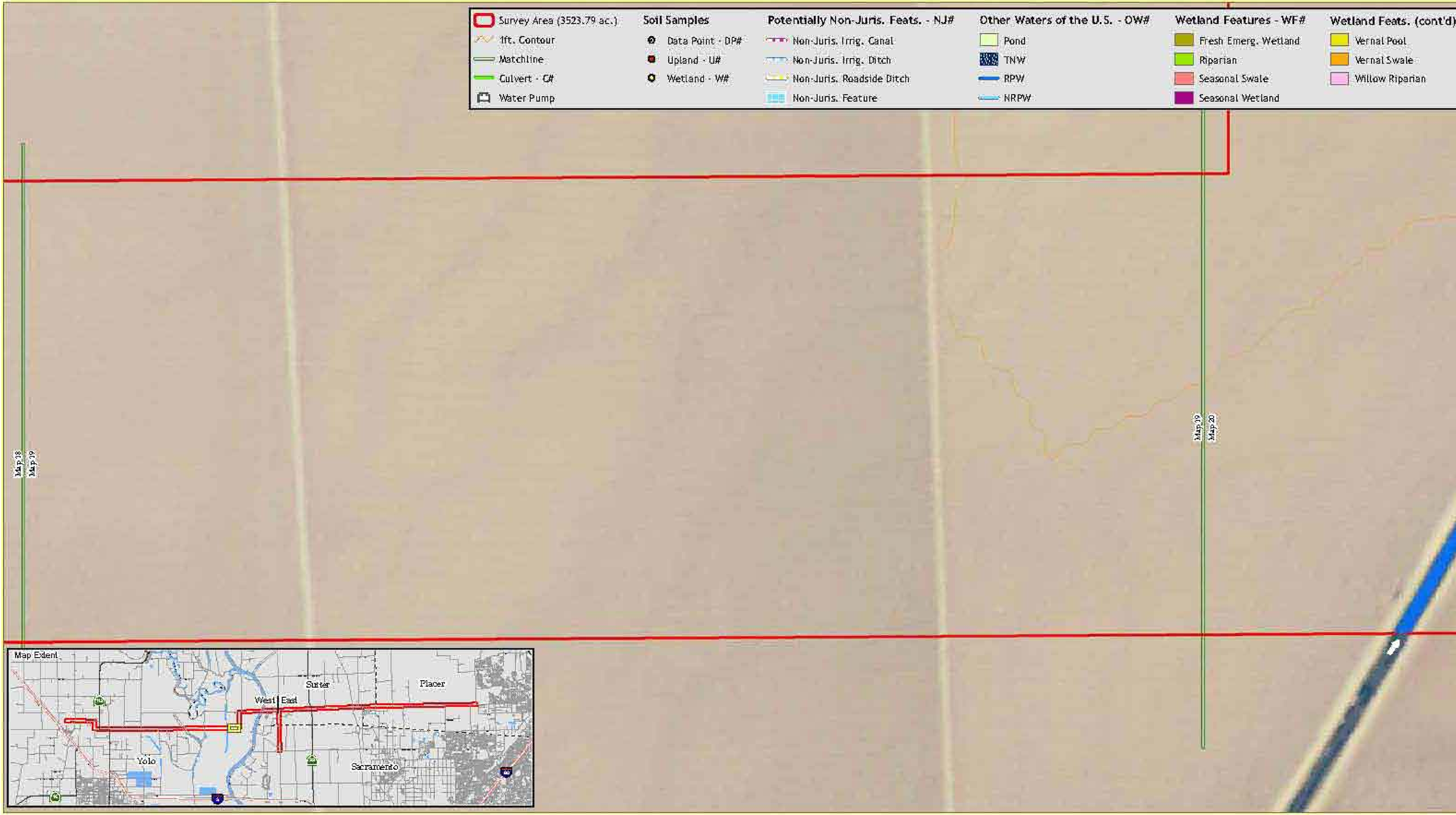

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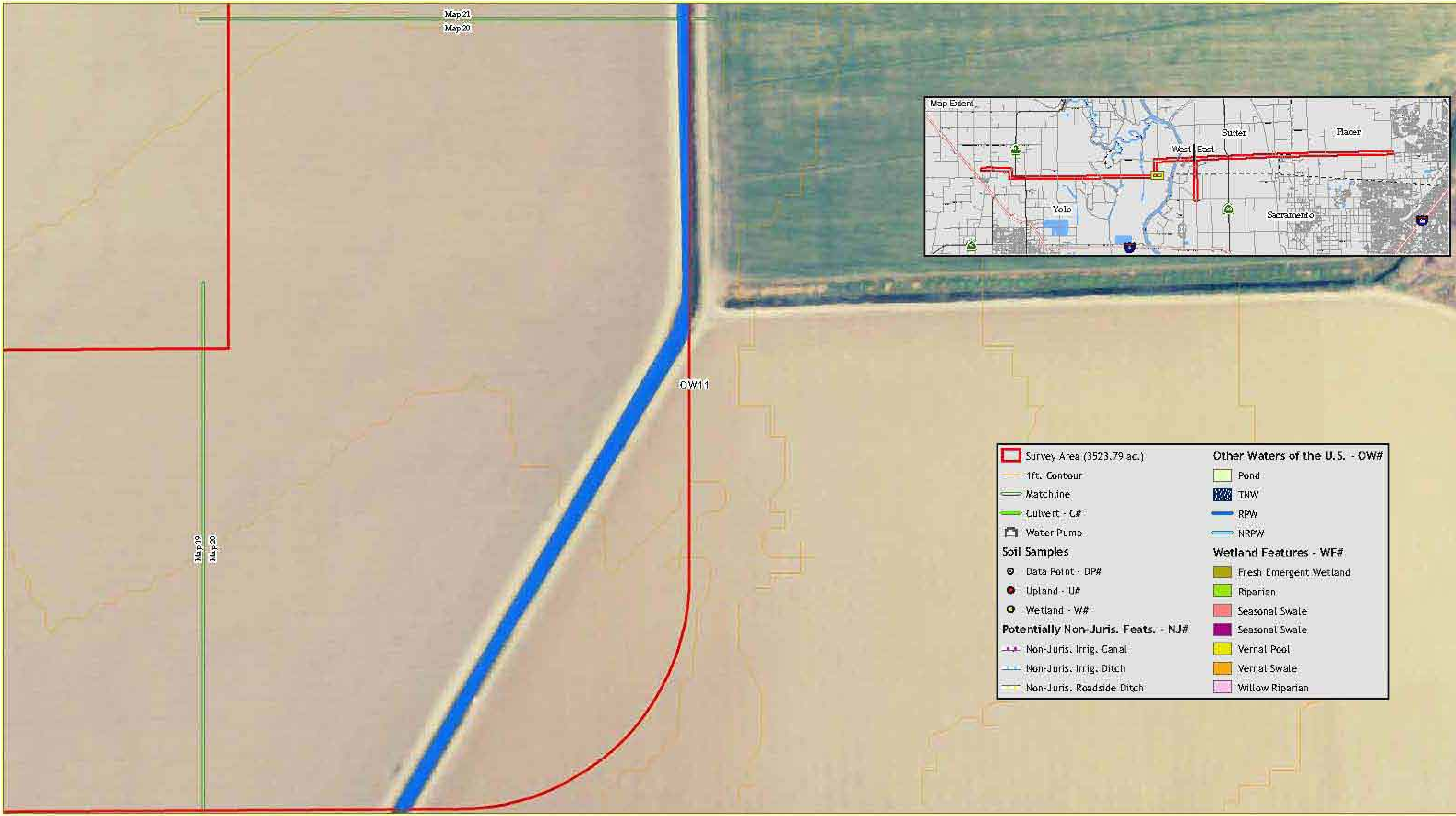

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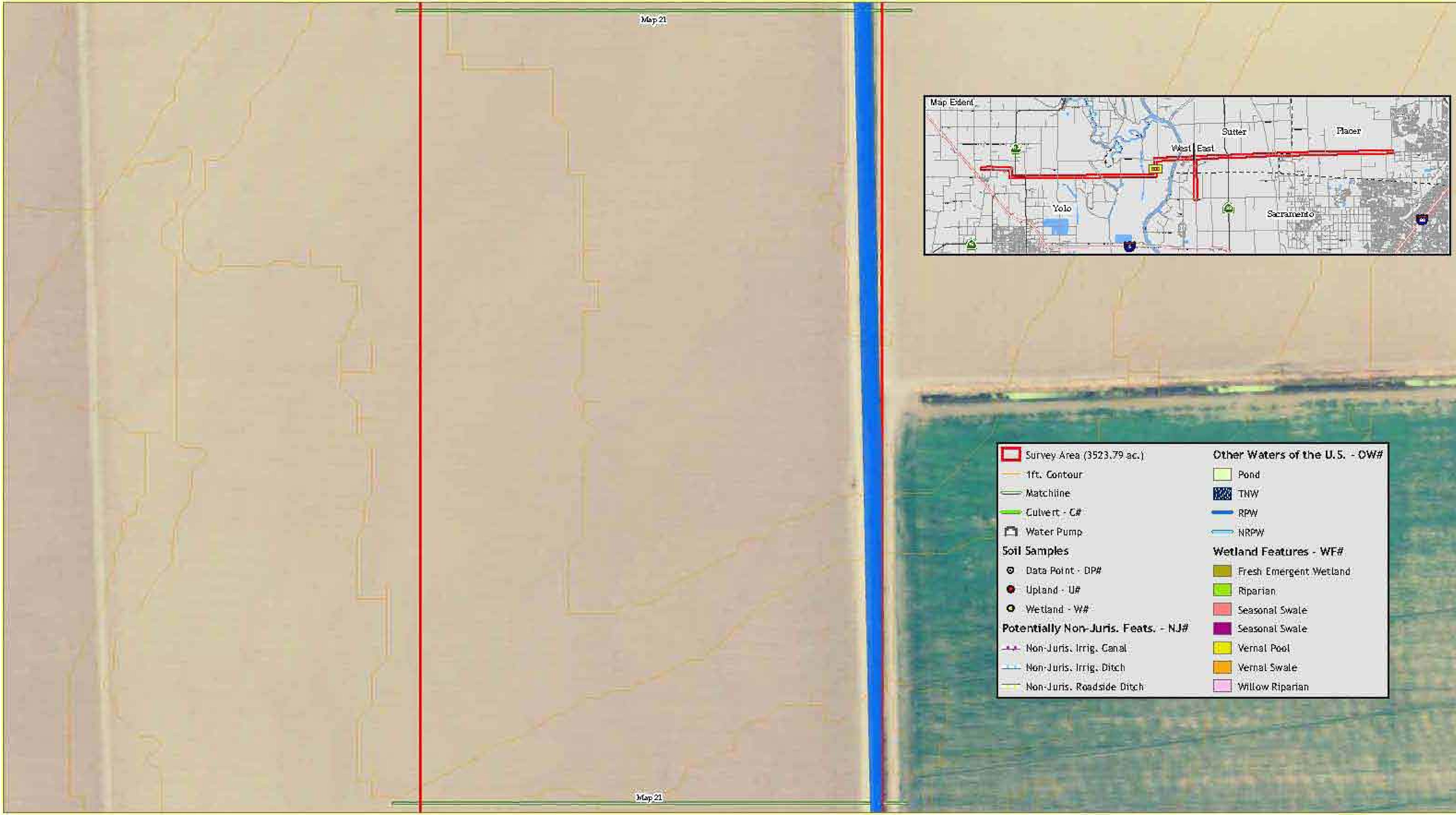

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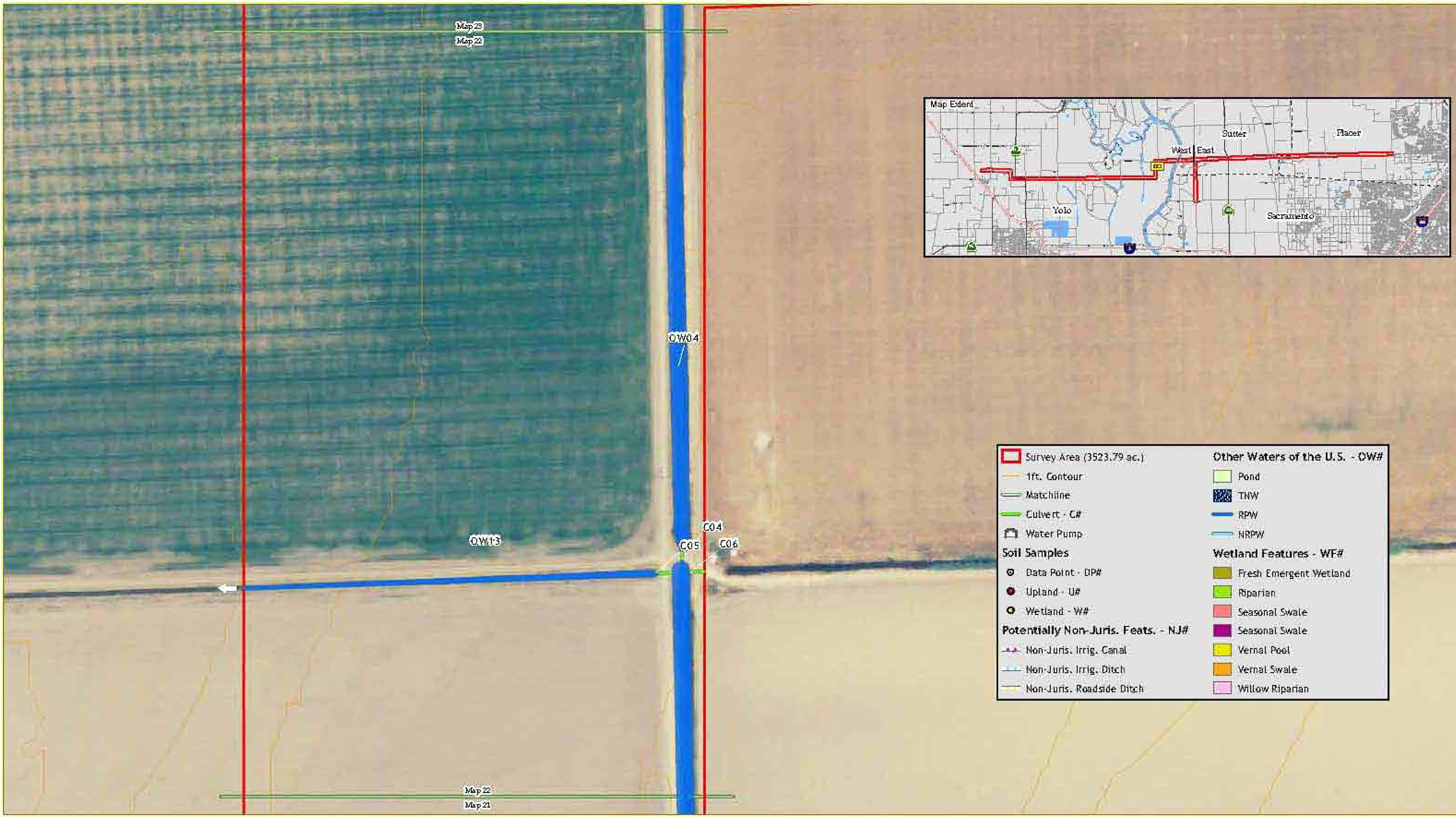

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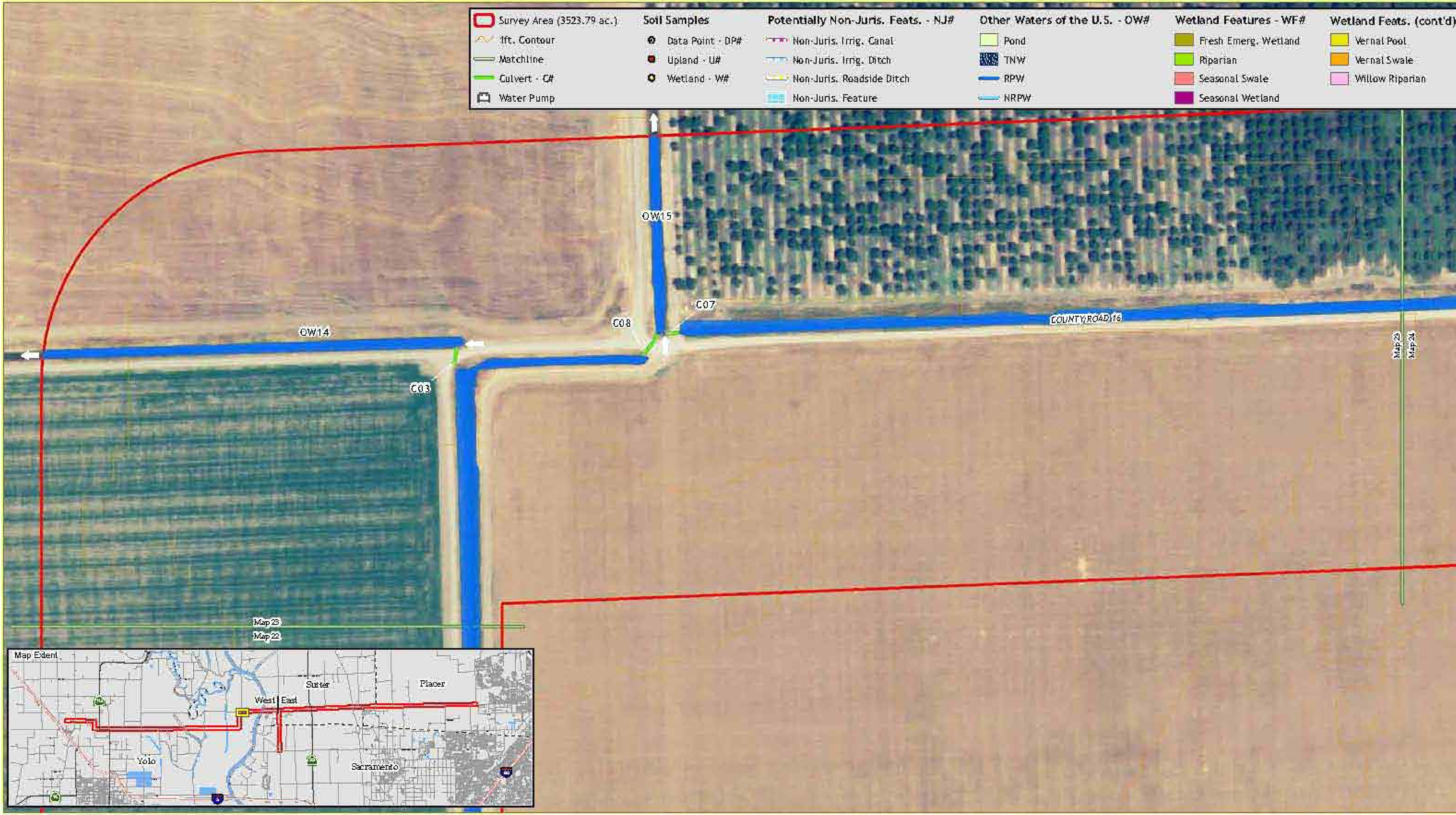

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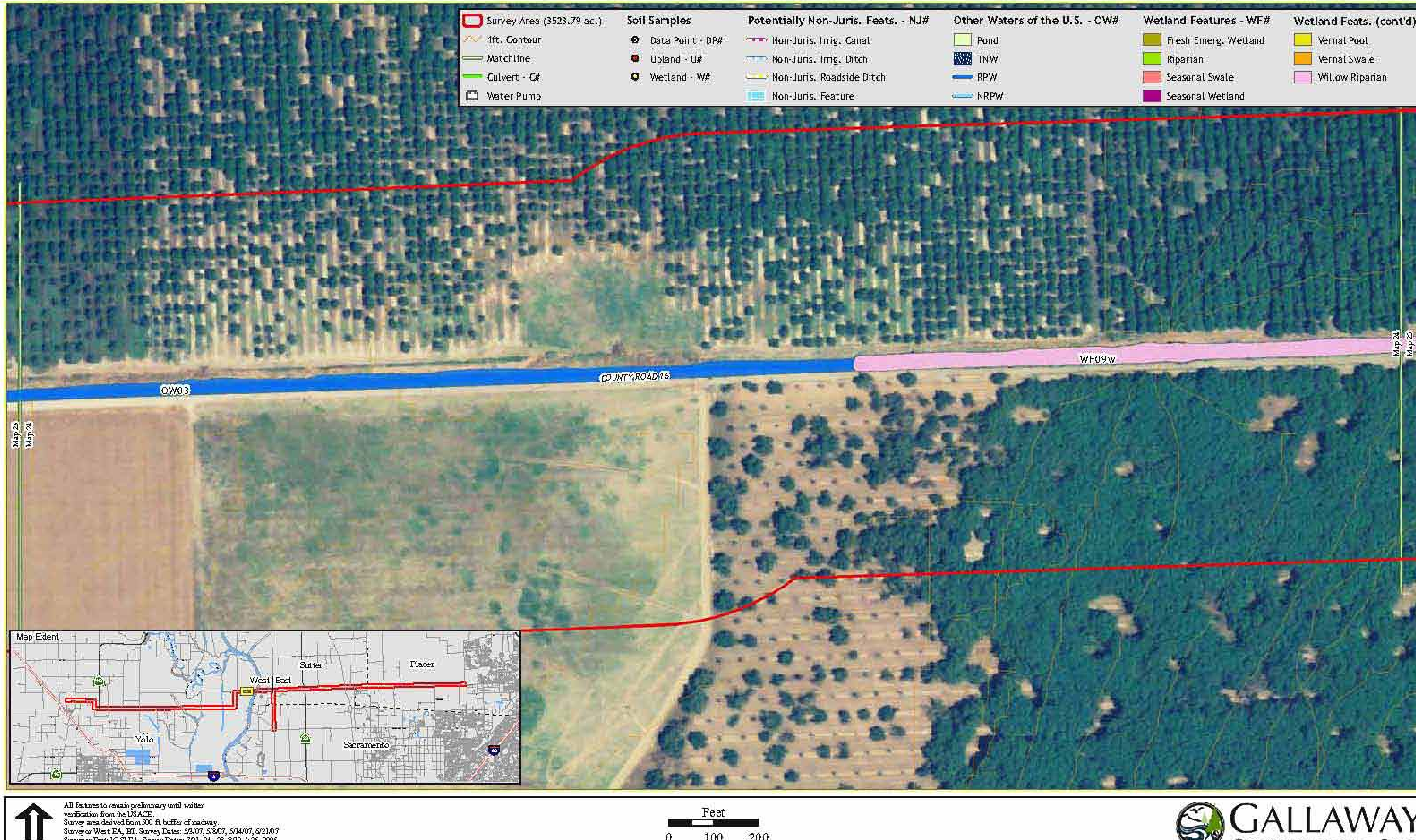

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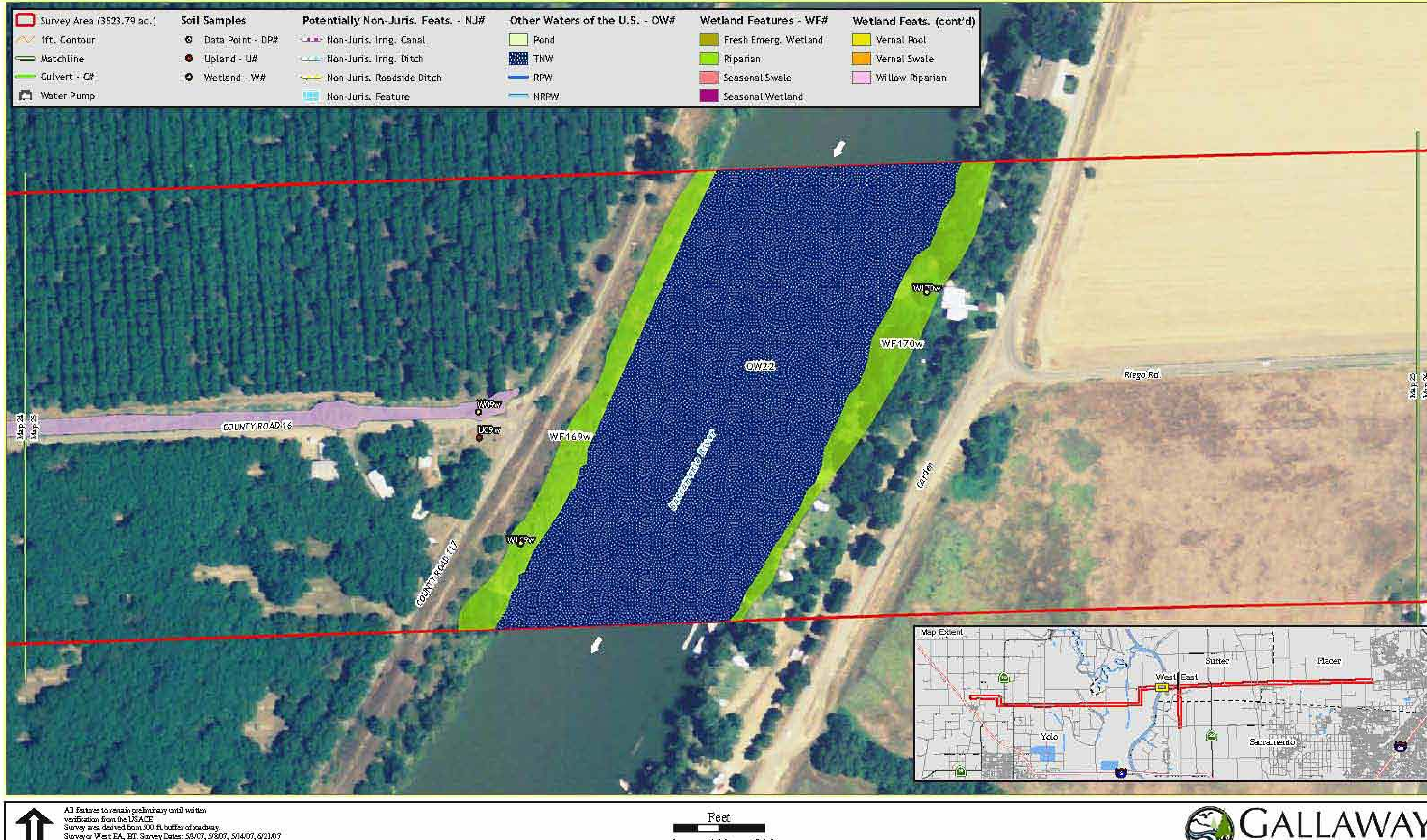

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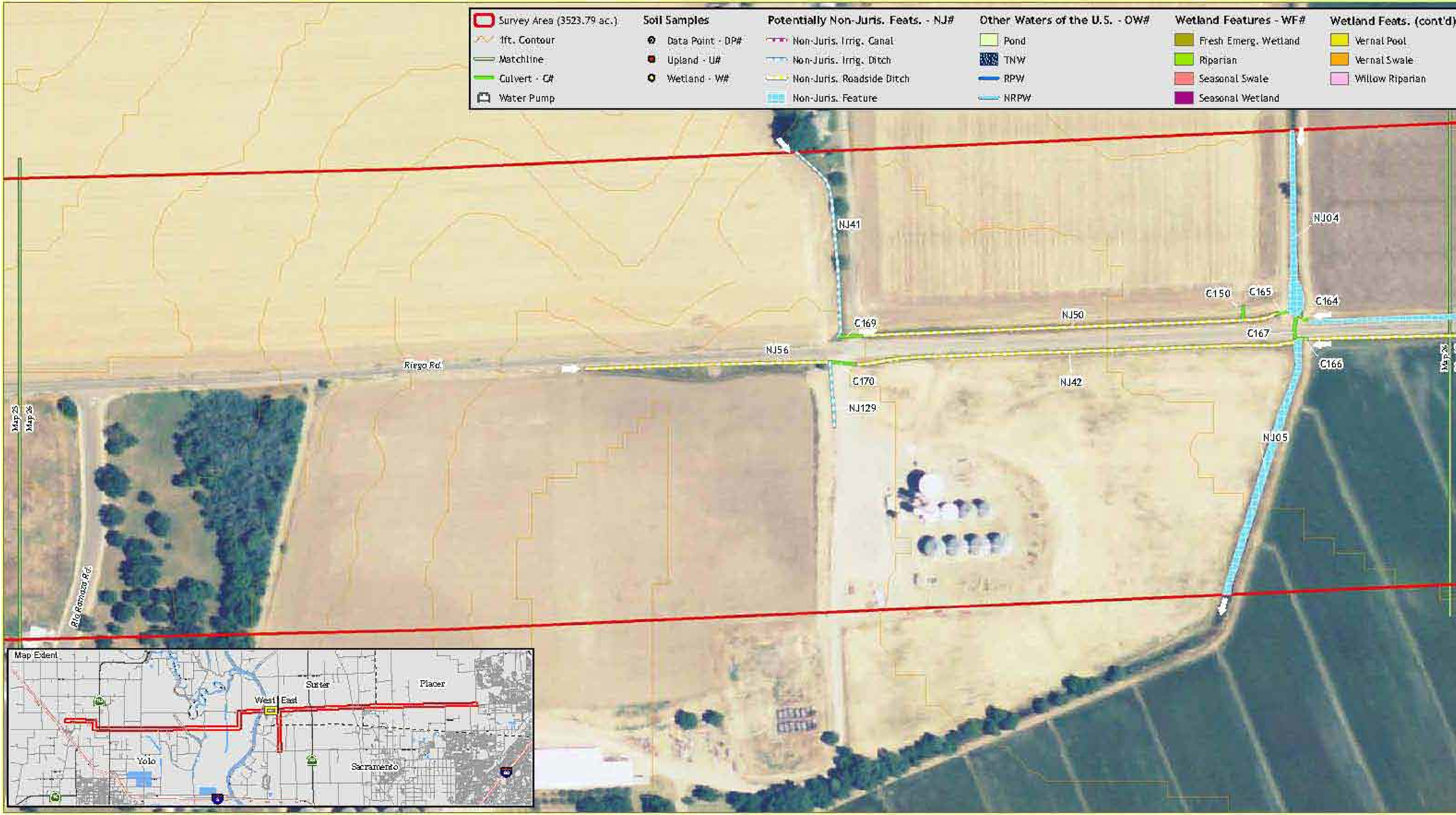

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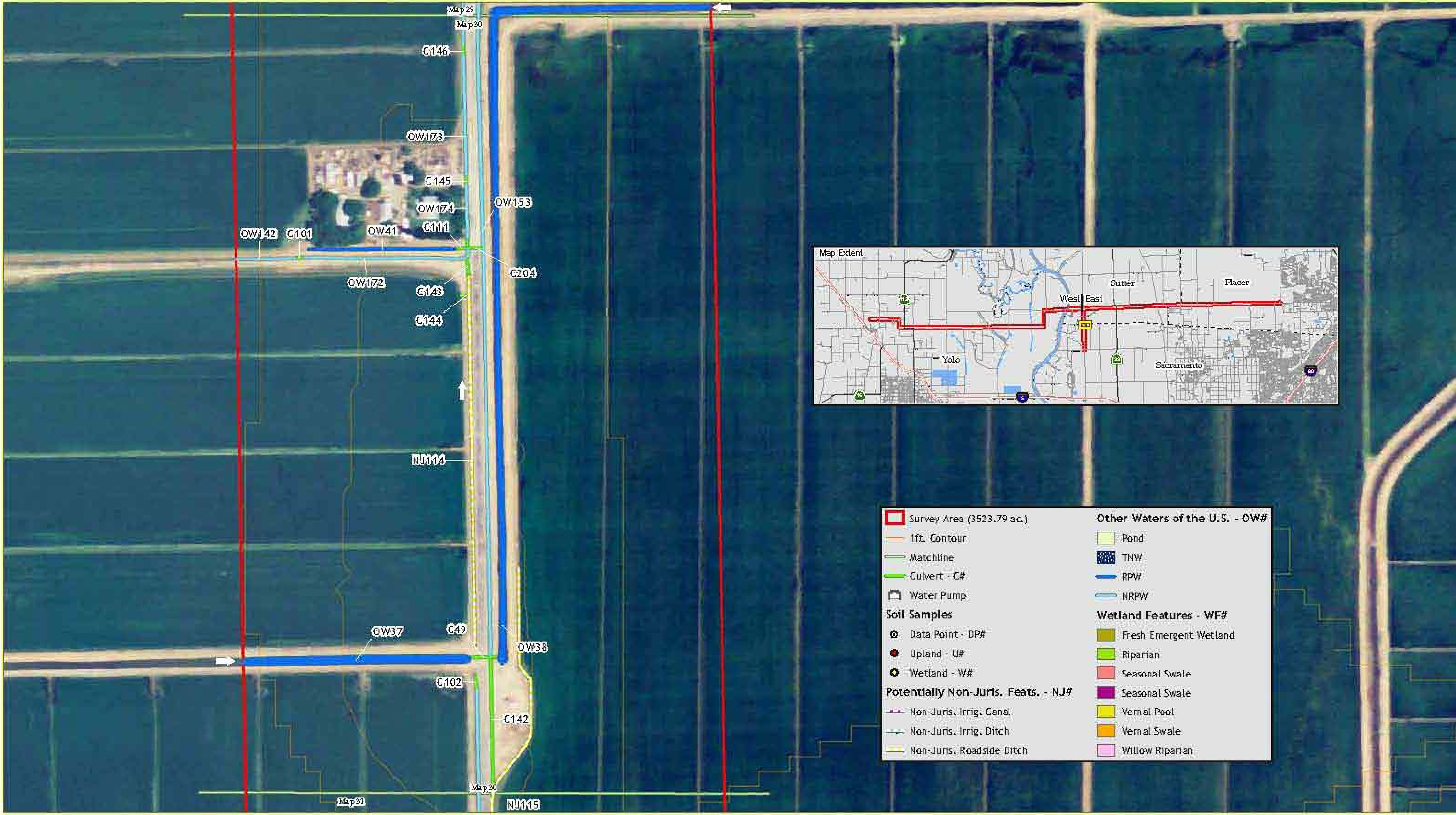

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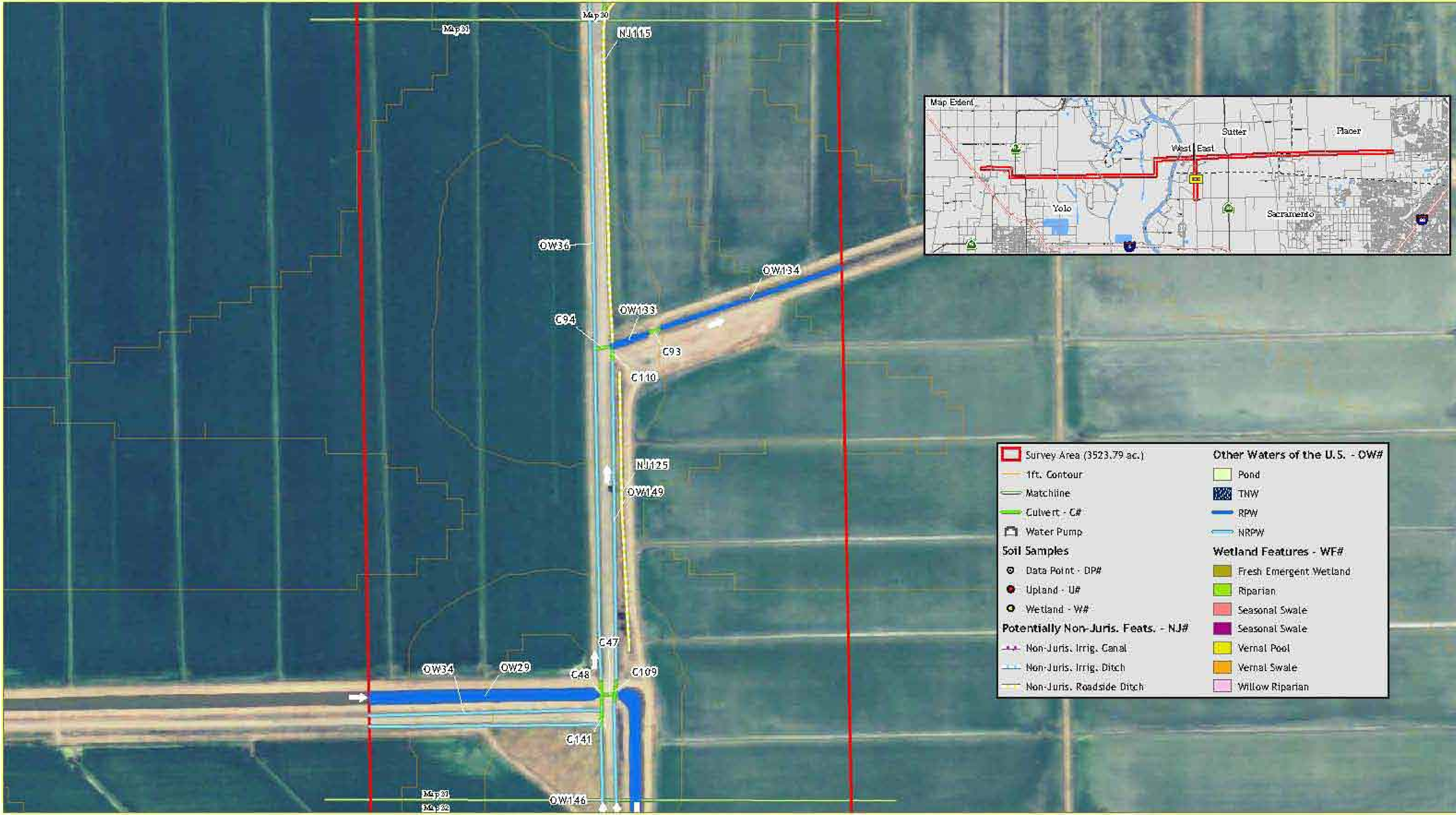

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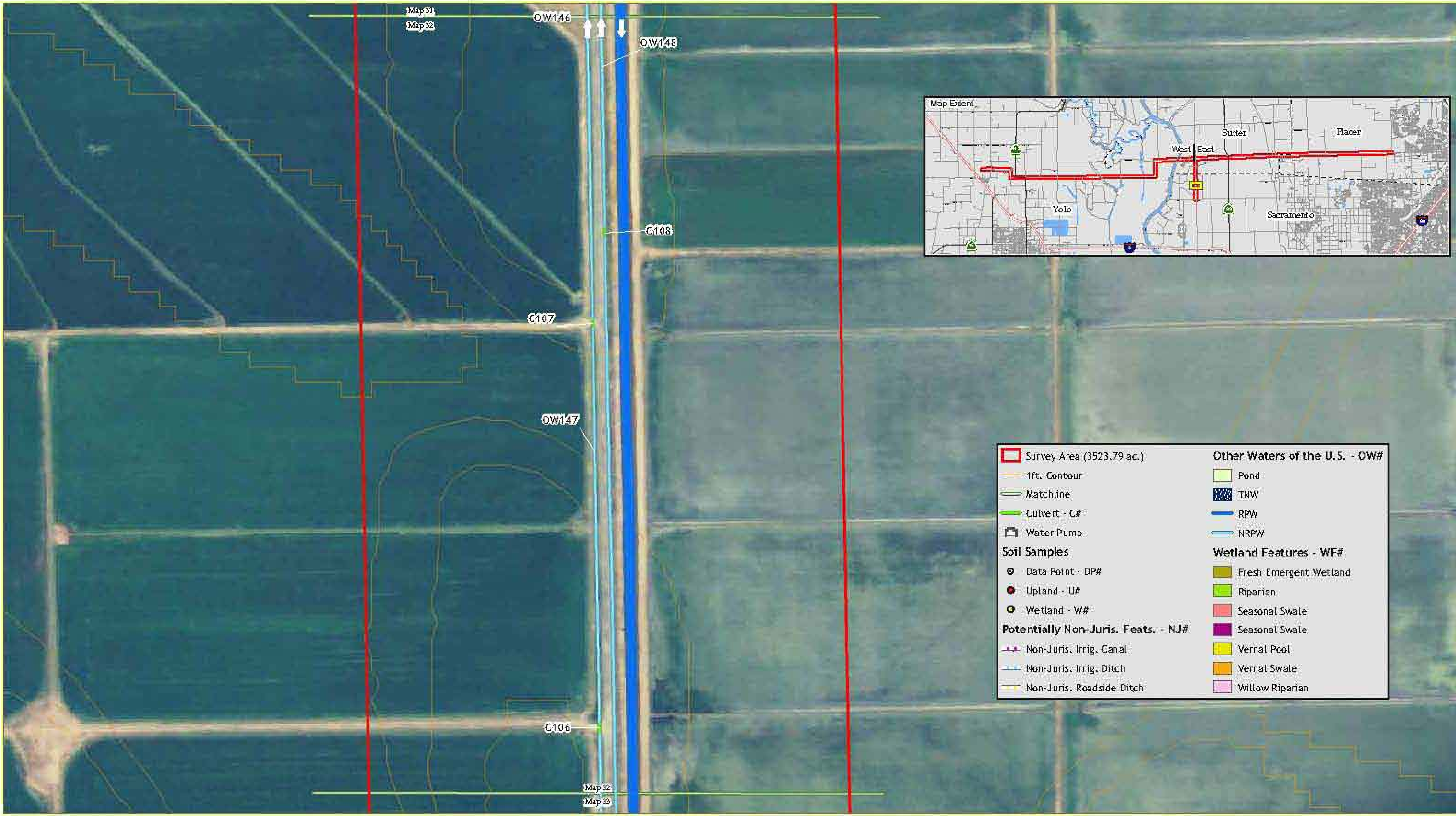

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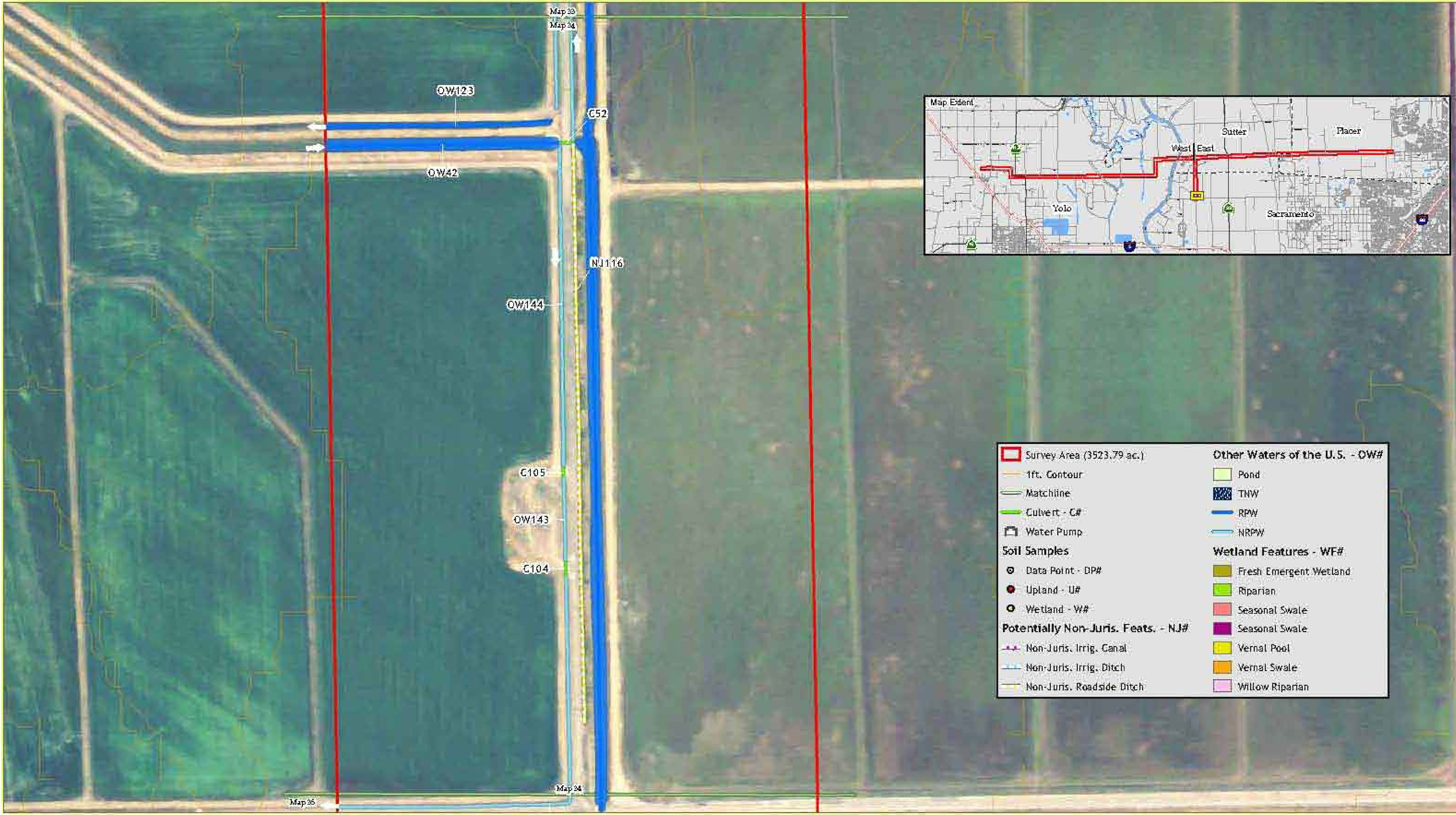

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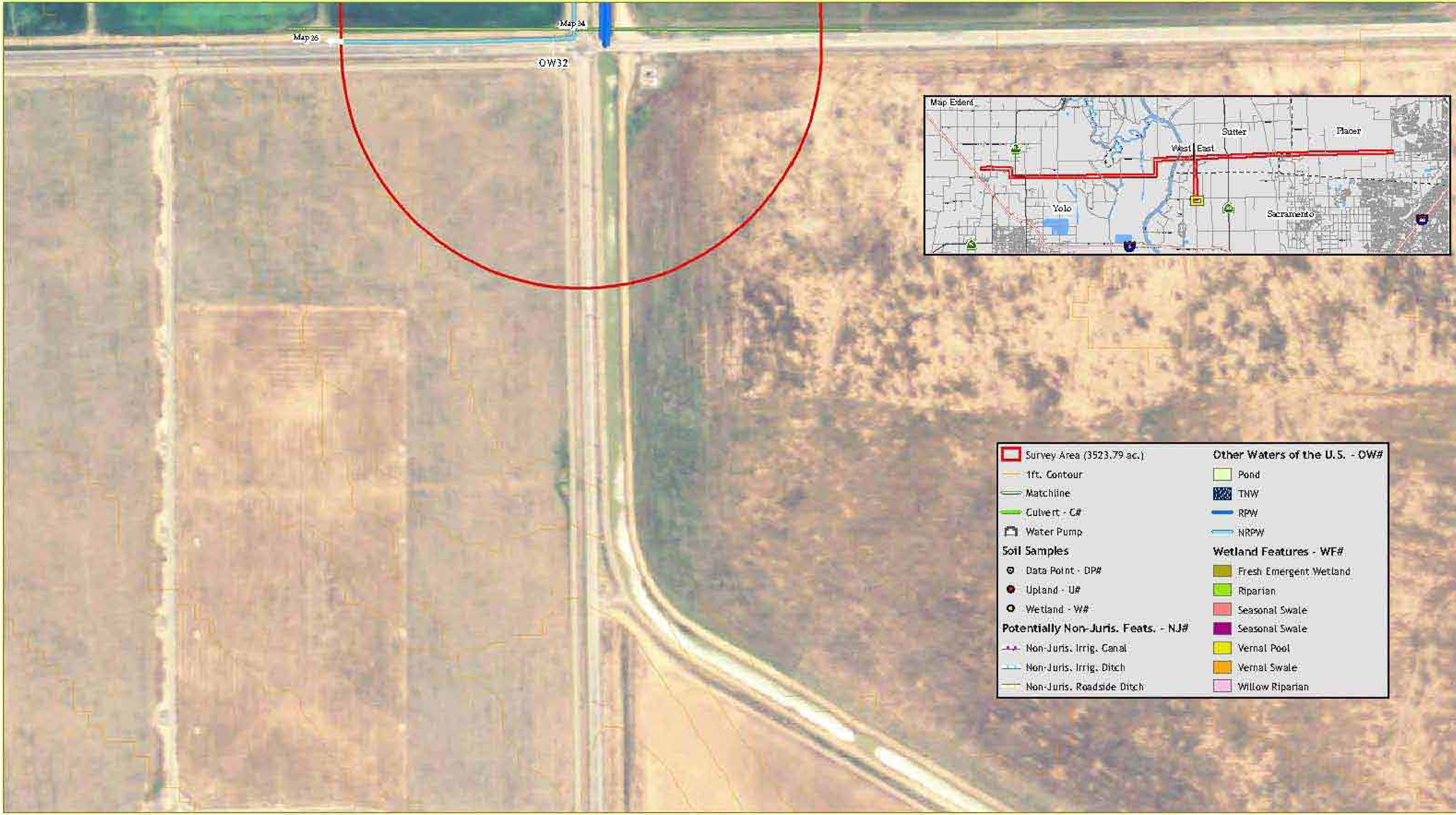

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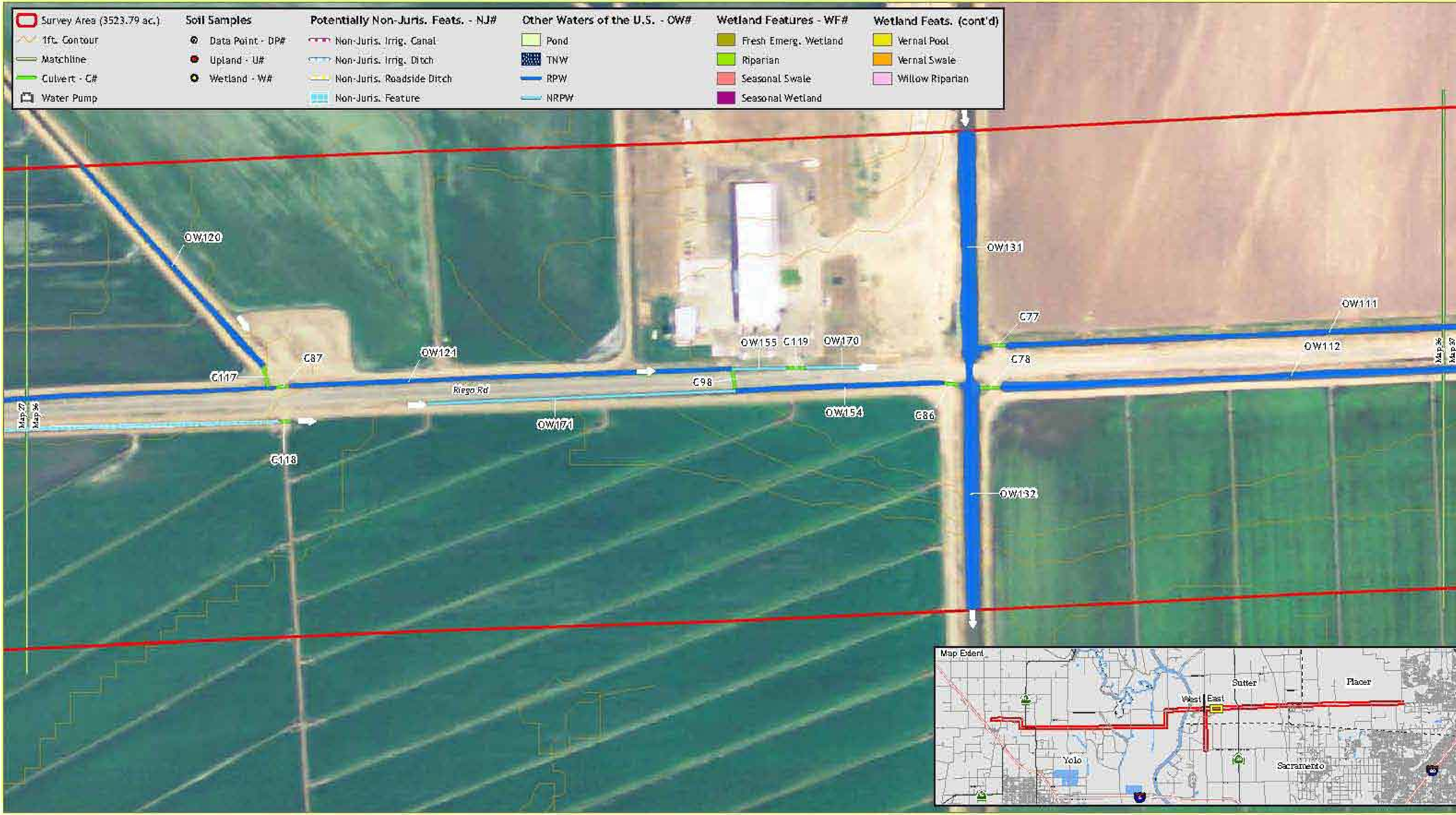

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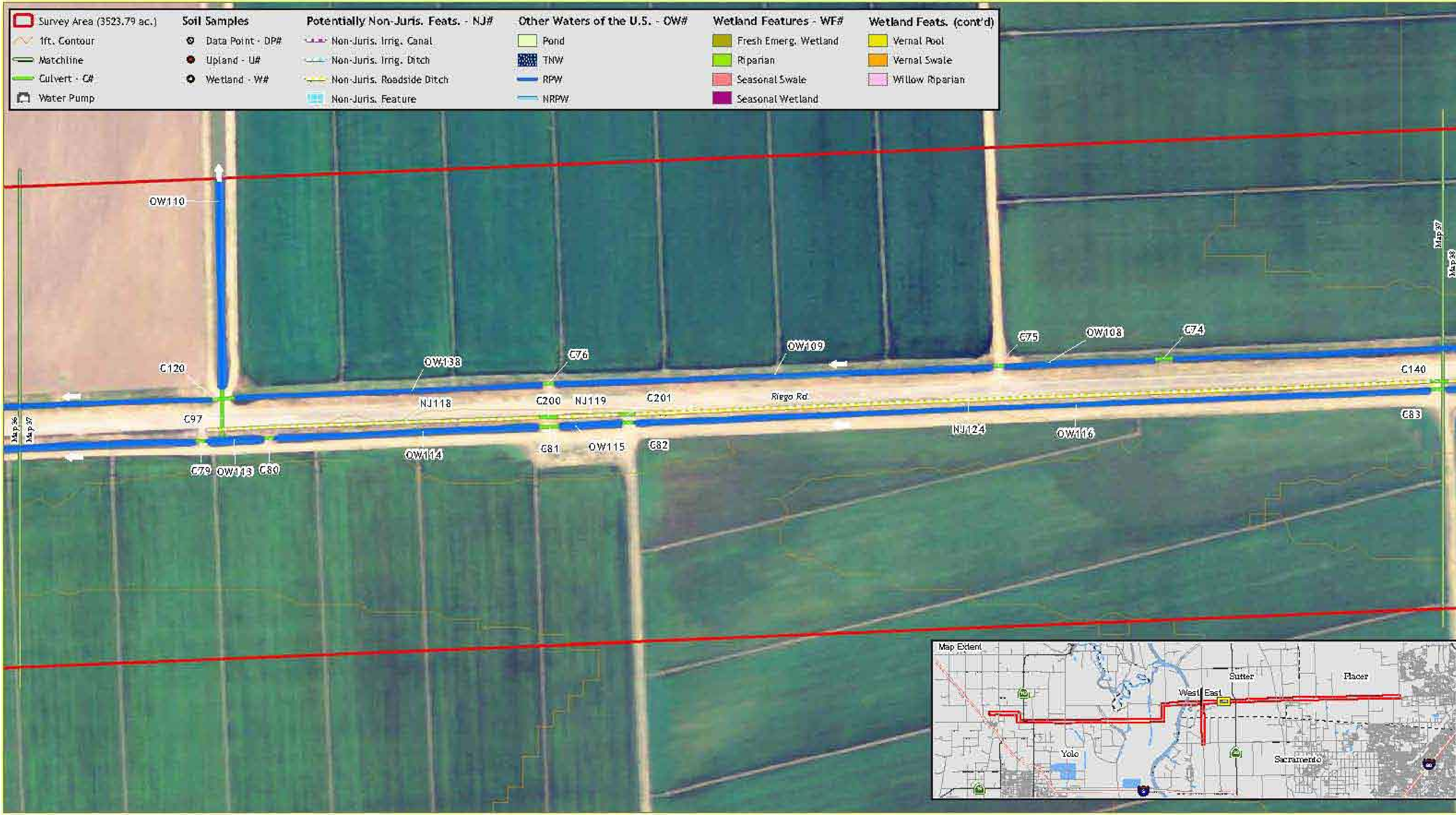

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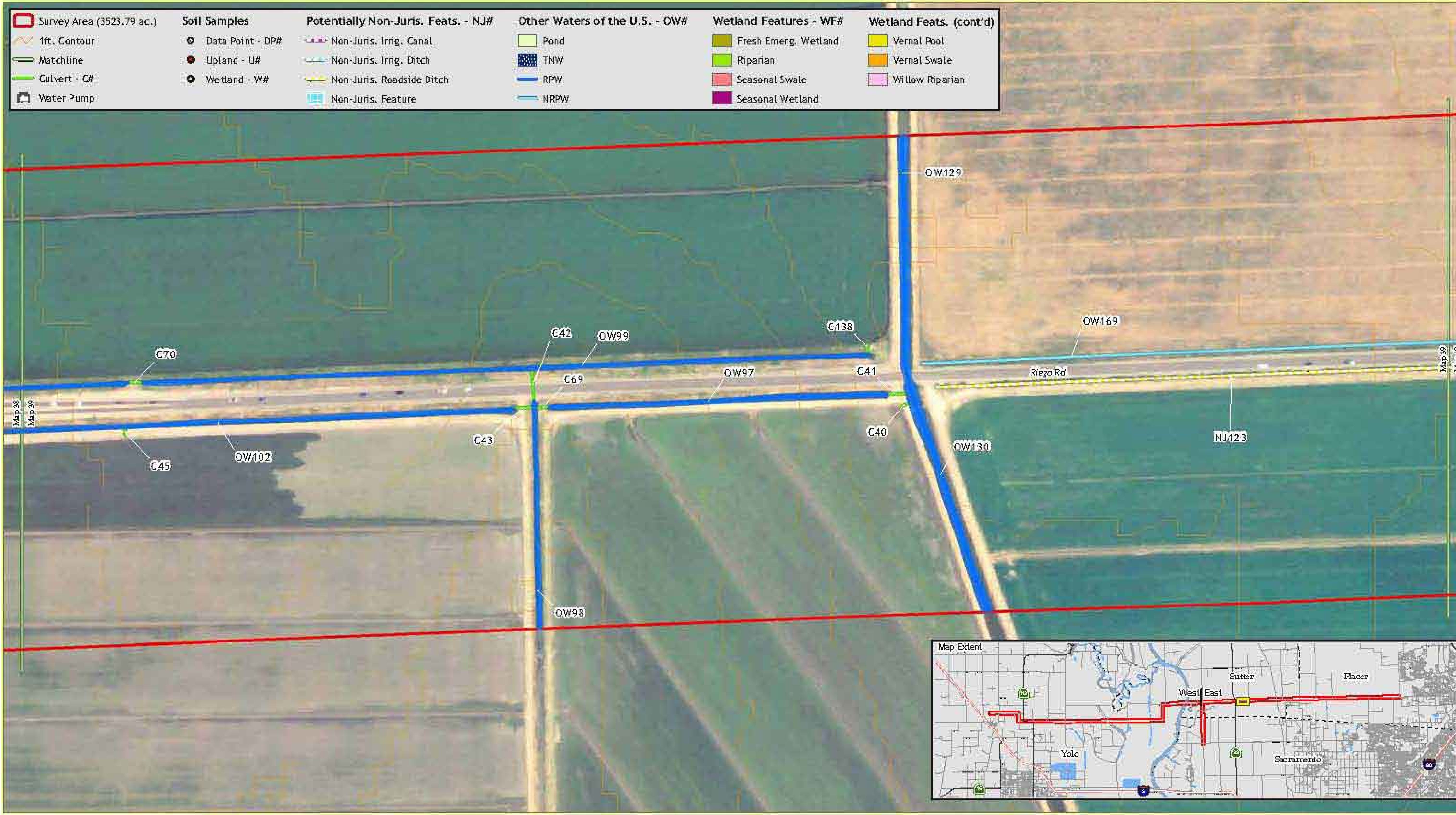

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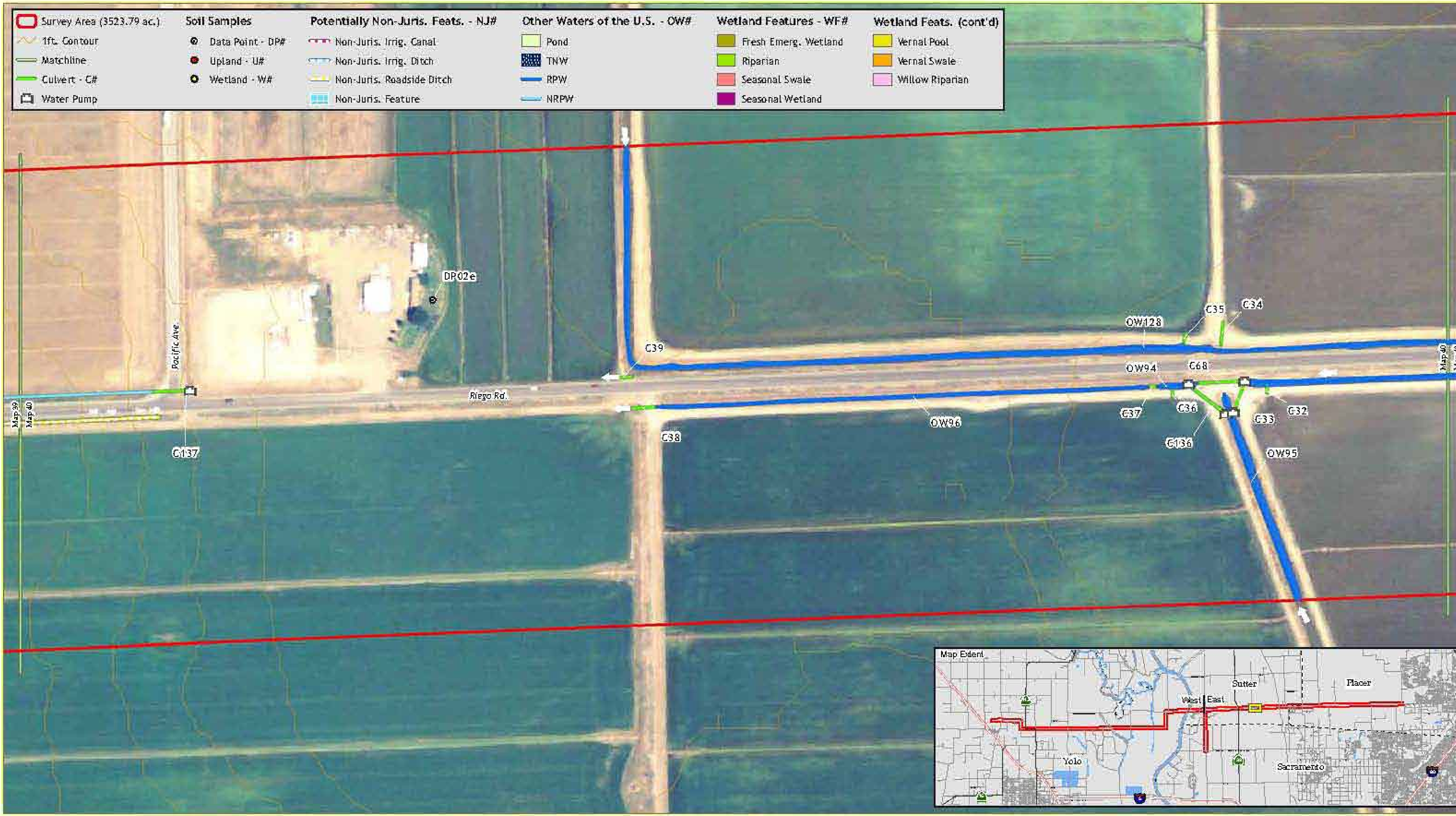

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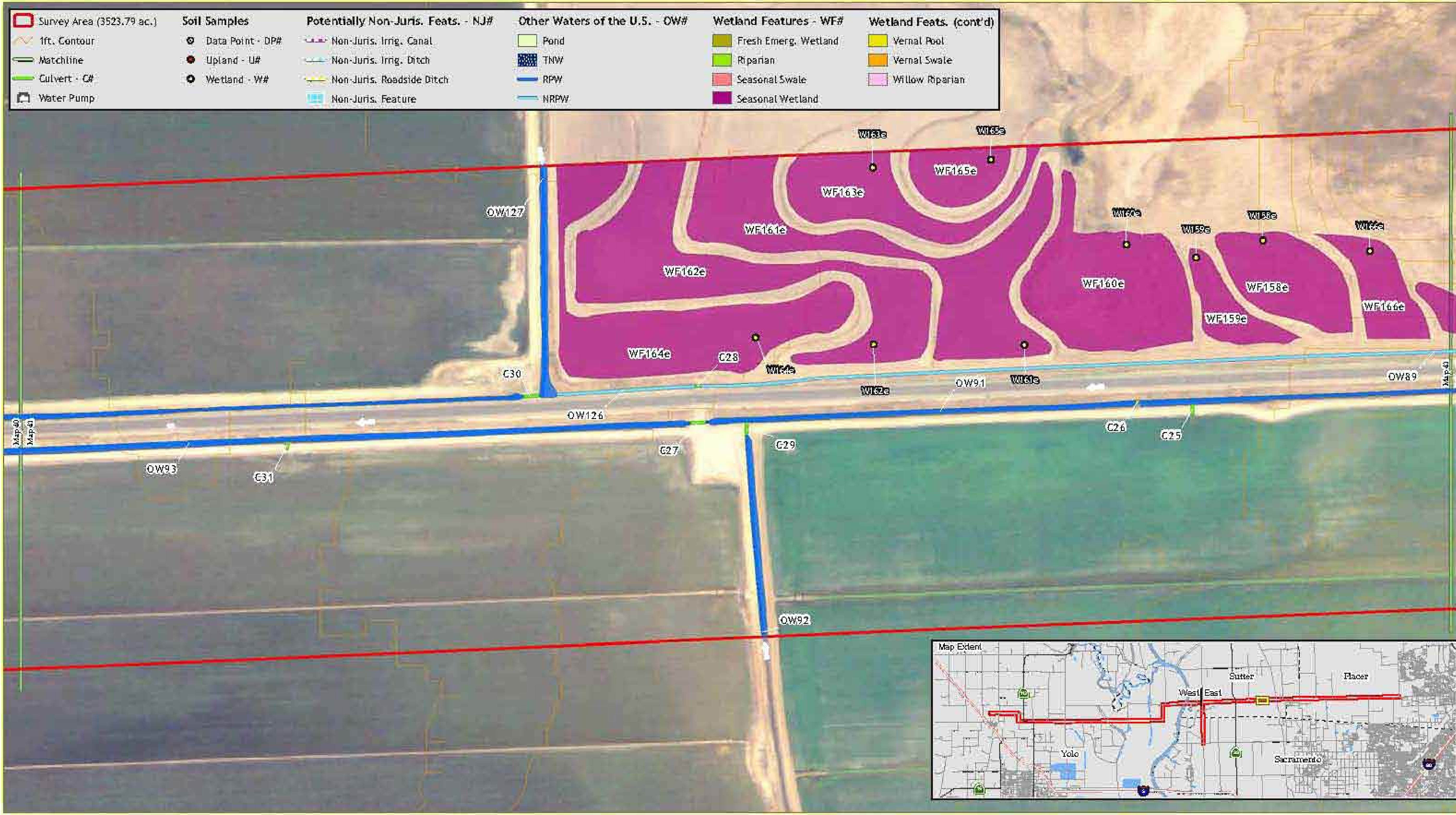

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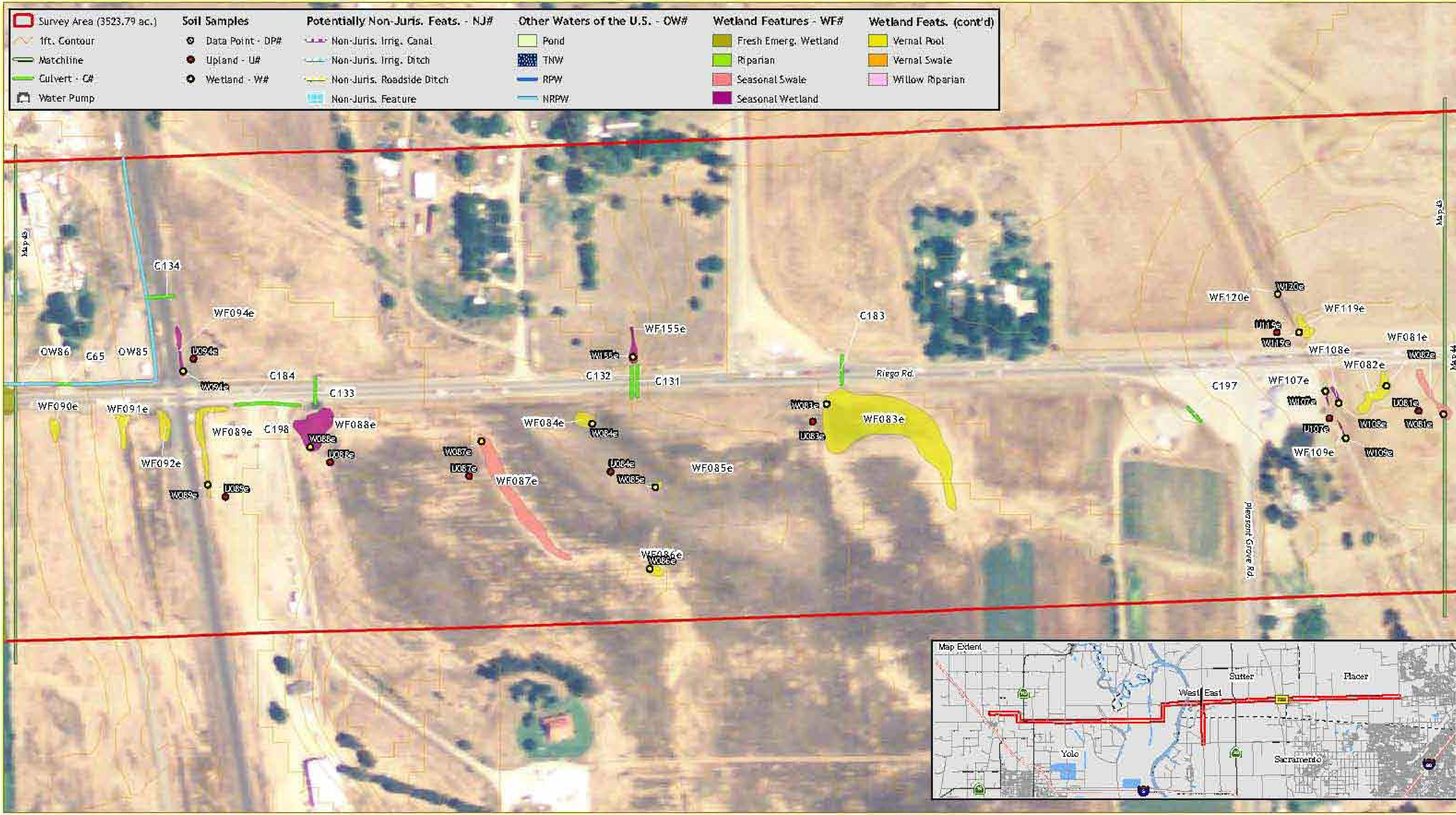

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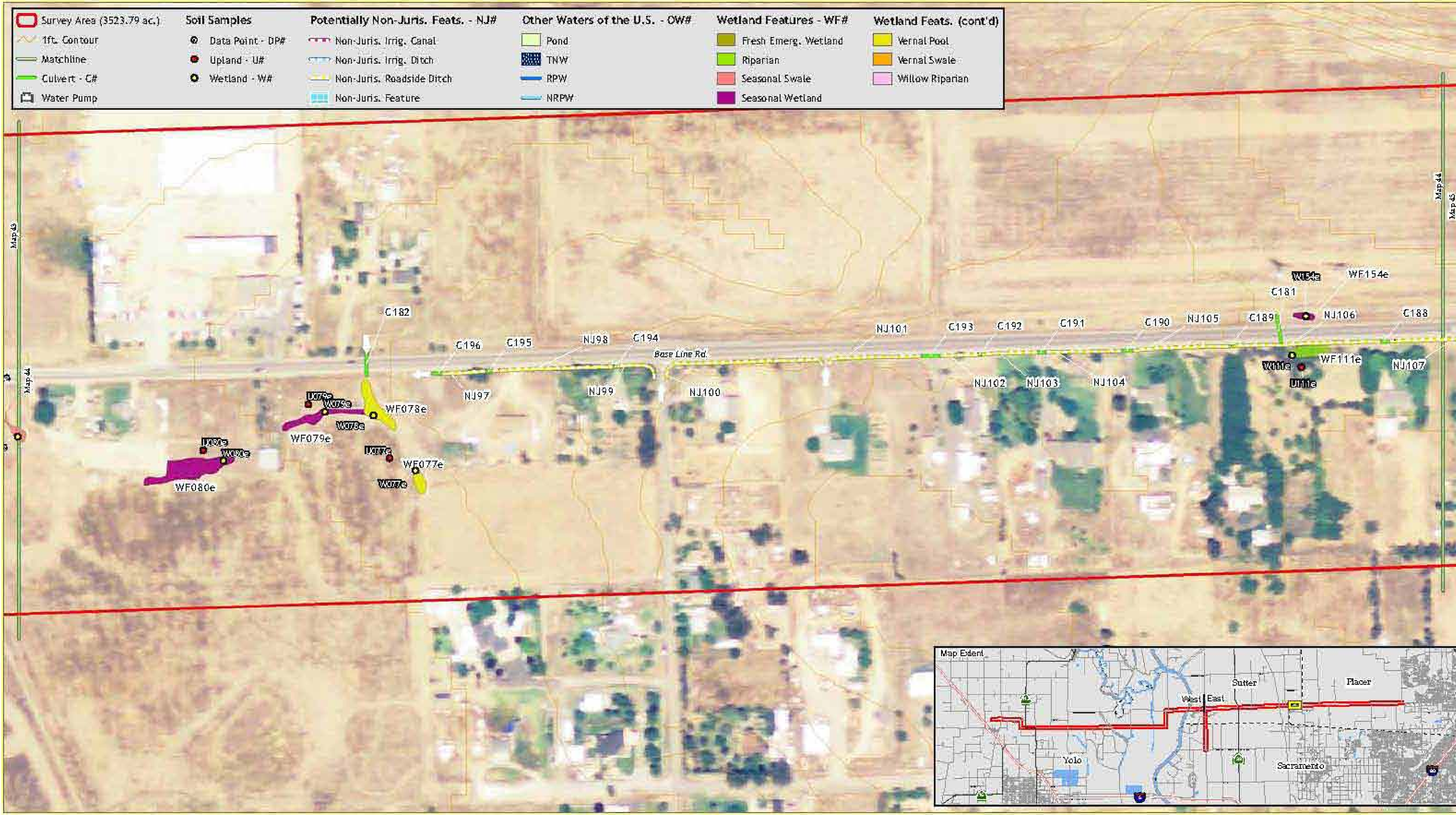

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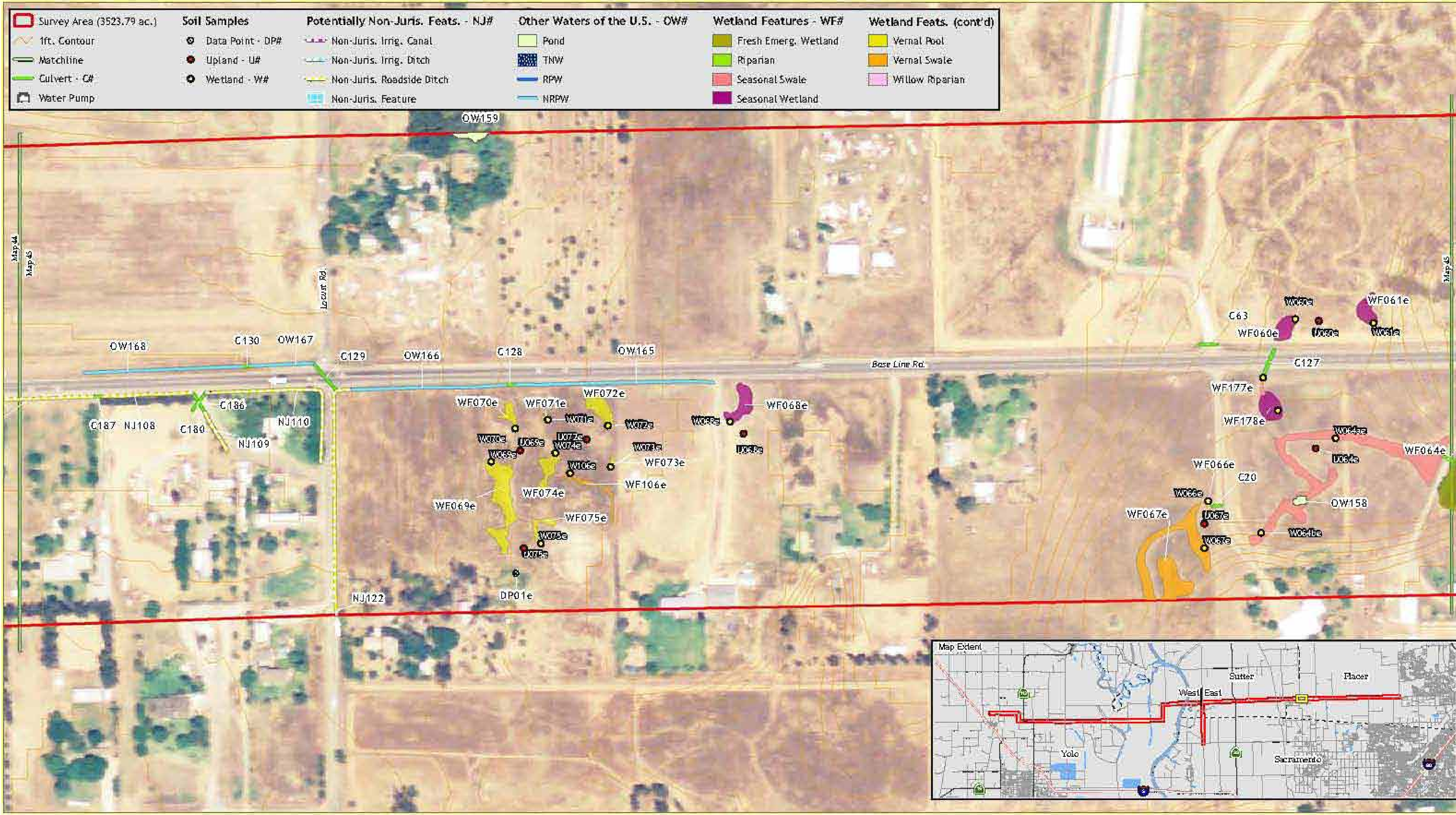

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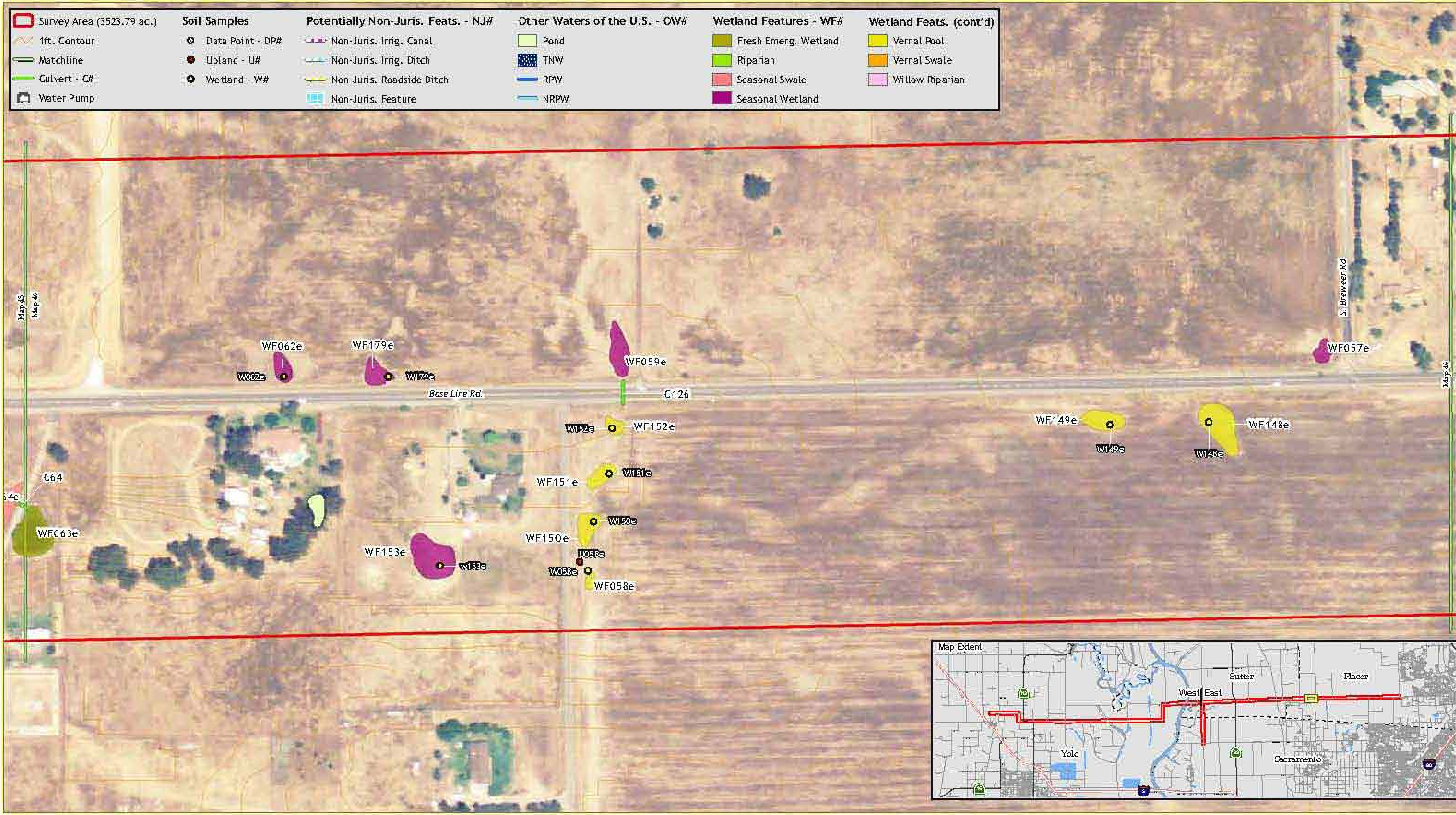

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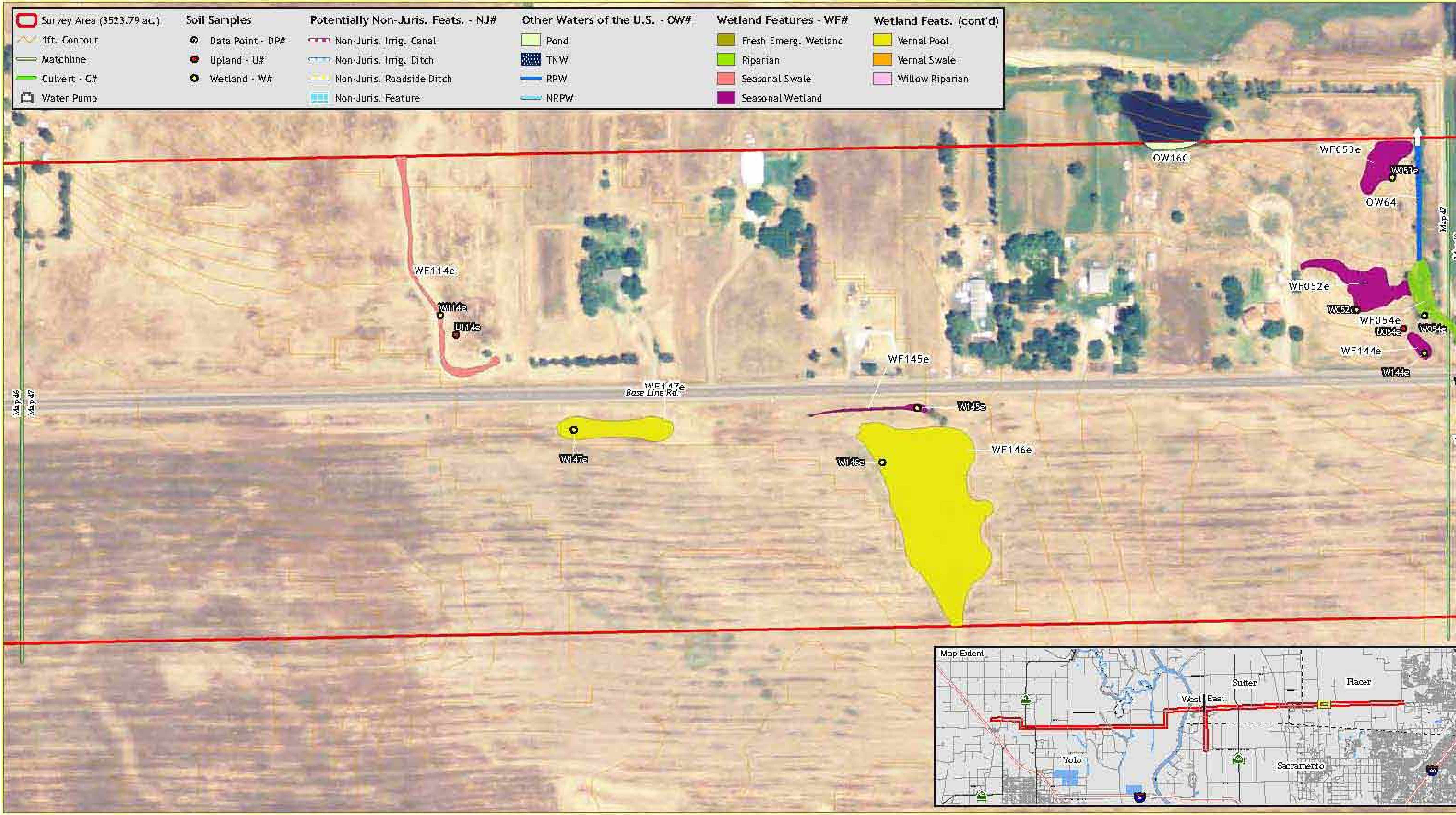

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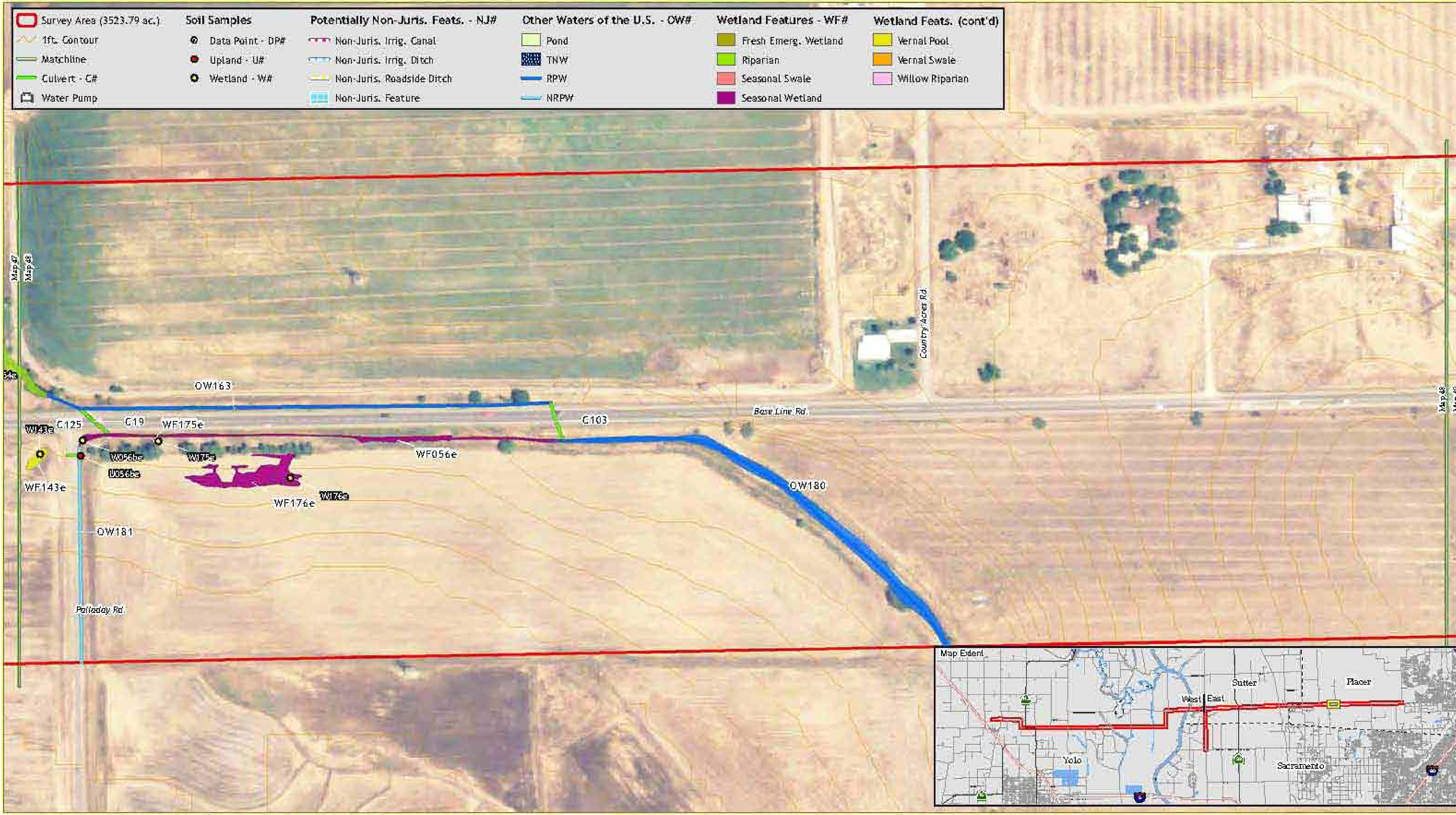

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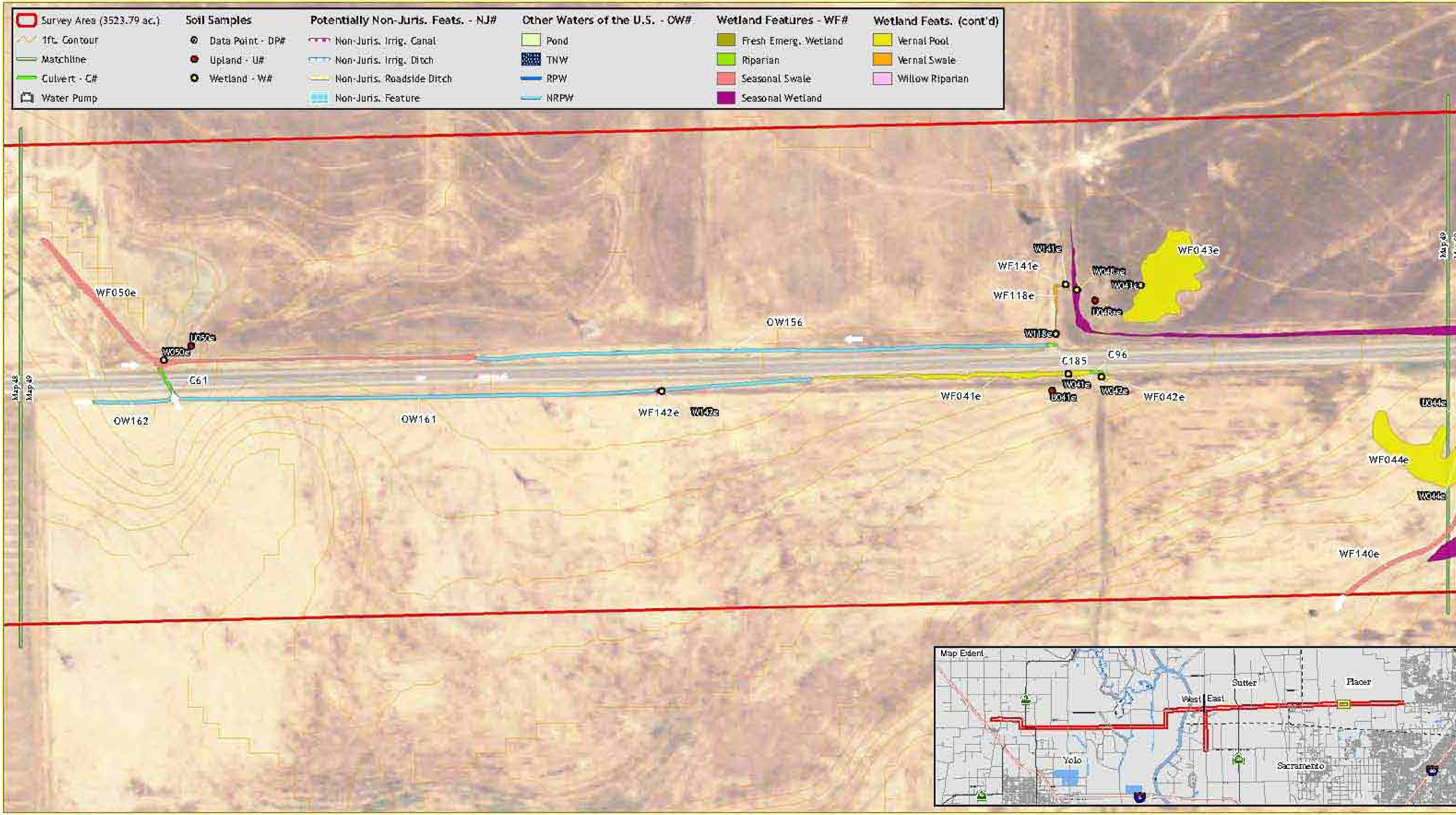

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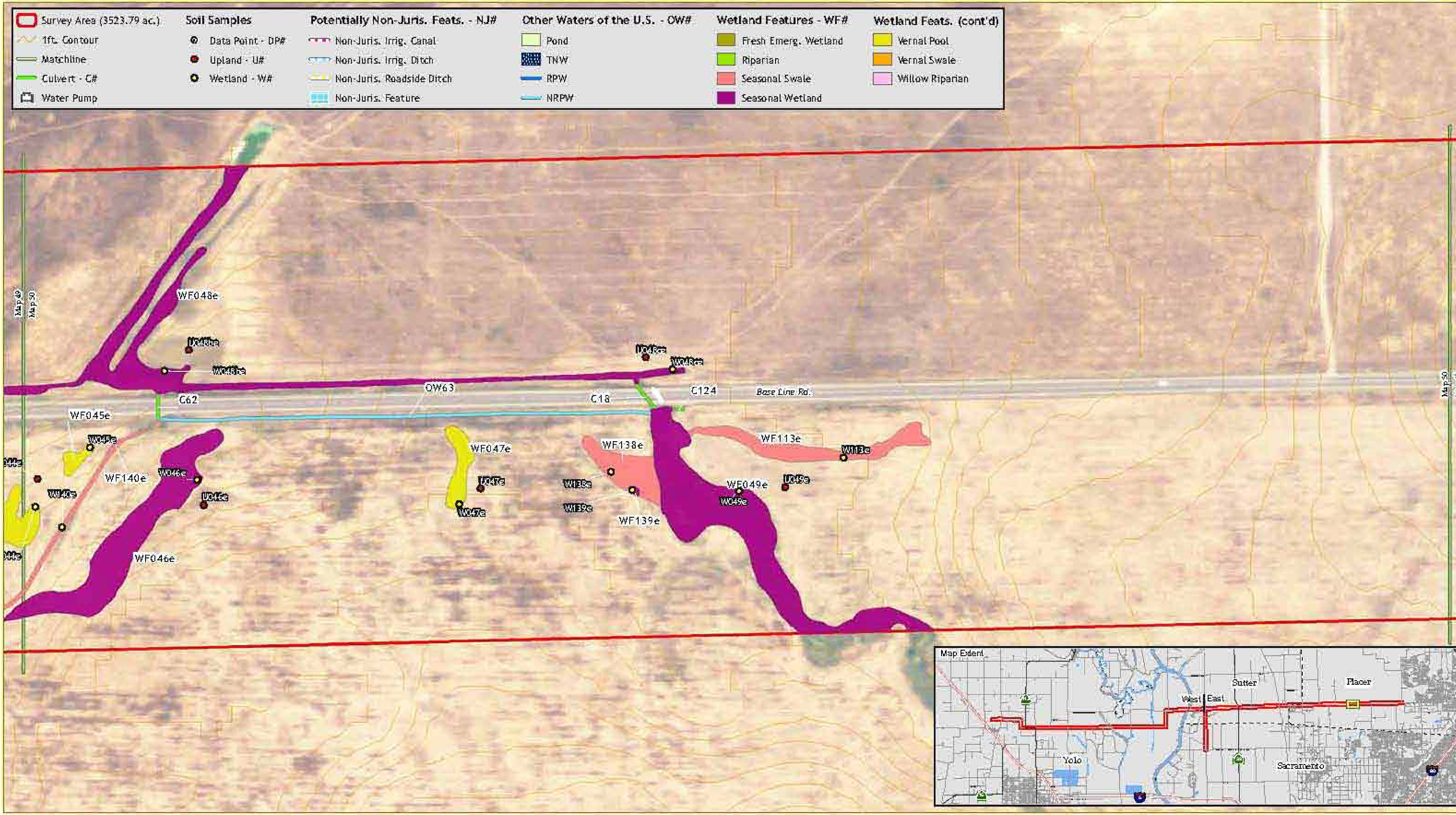
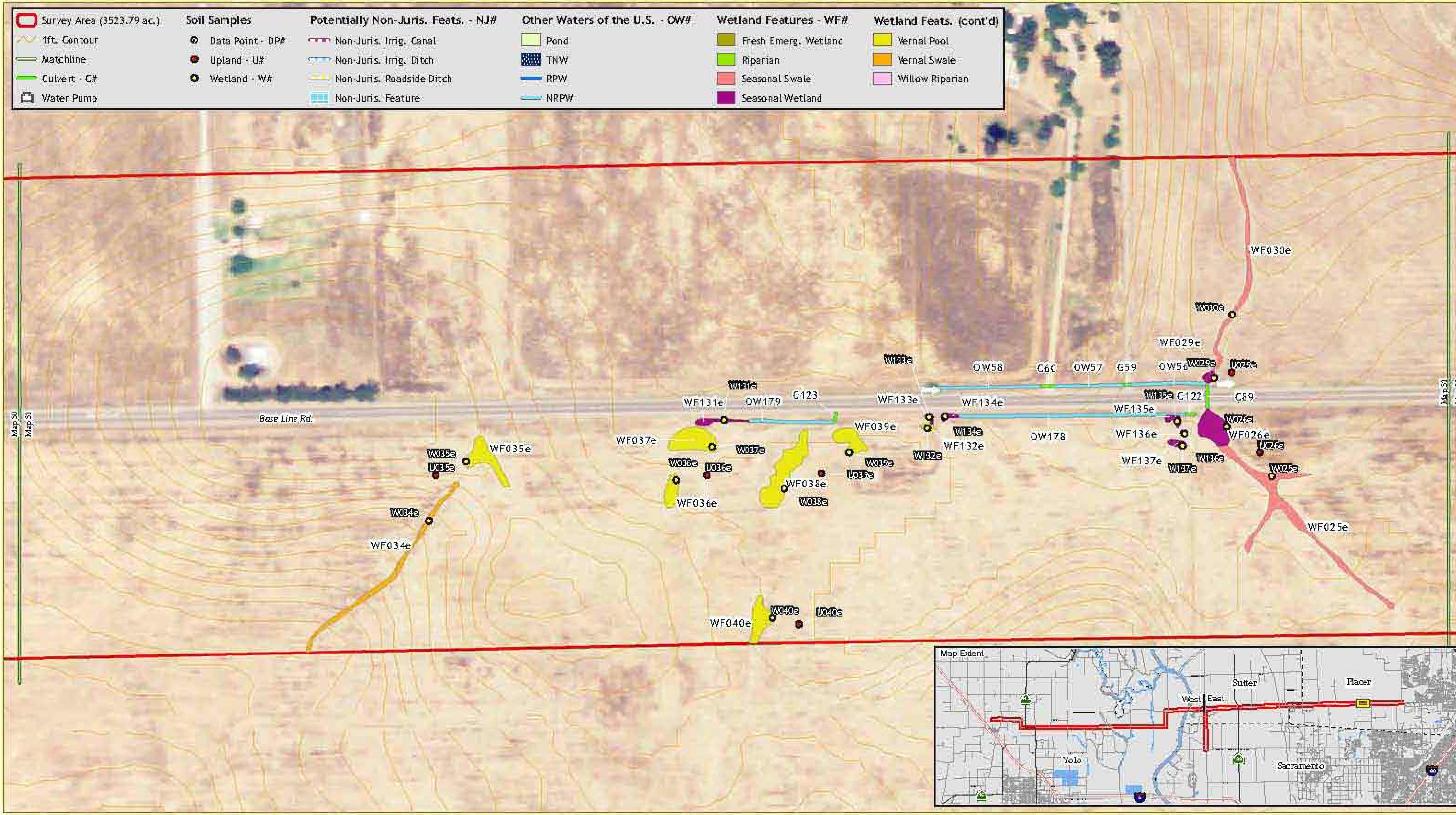


All features to remain preliminary until written verification from the USACE.
Survey area derived from 300 ft. buffer of roadway.
Surveyor West: EA, BT. Survey Dates: 5/3/07, 5/8/07, 5/14/07, 6/21/07
Surveyor East: JG,SL,EA. Survey Dates: 7/21, 24 - 28, 8/10 & 25, 2006
Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007. Revised: August 21, 2007, May 29, 2008.

GALLAWAY CONSULTING, INC.

Attachment A



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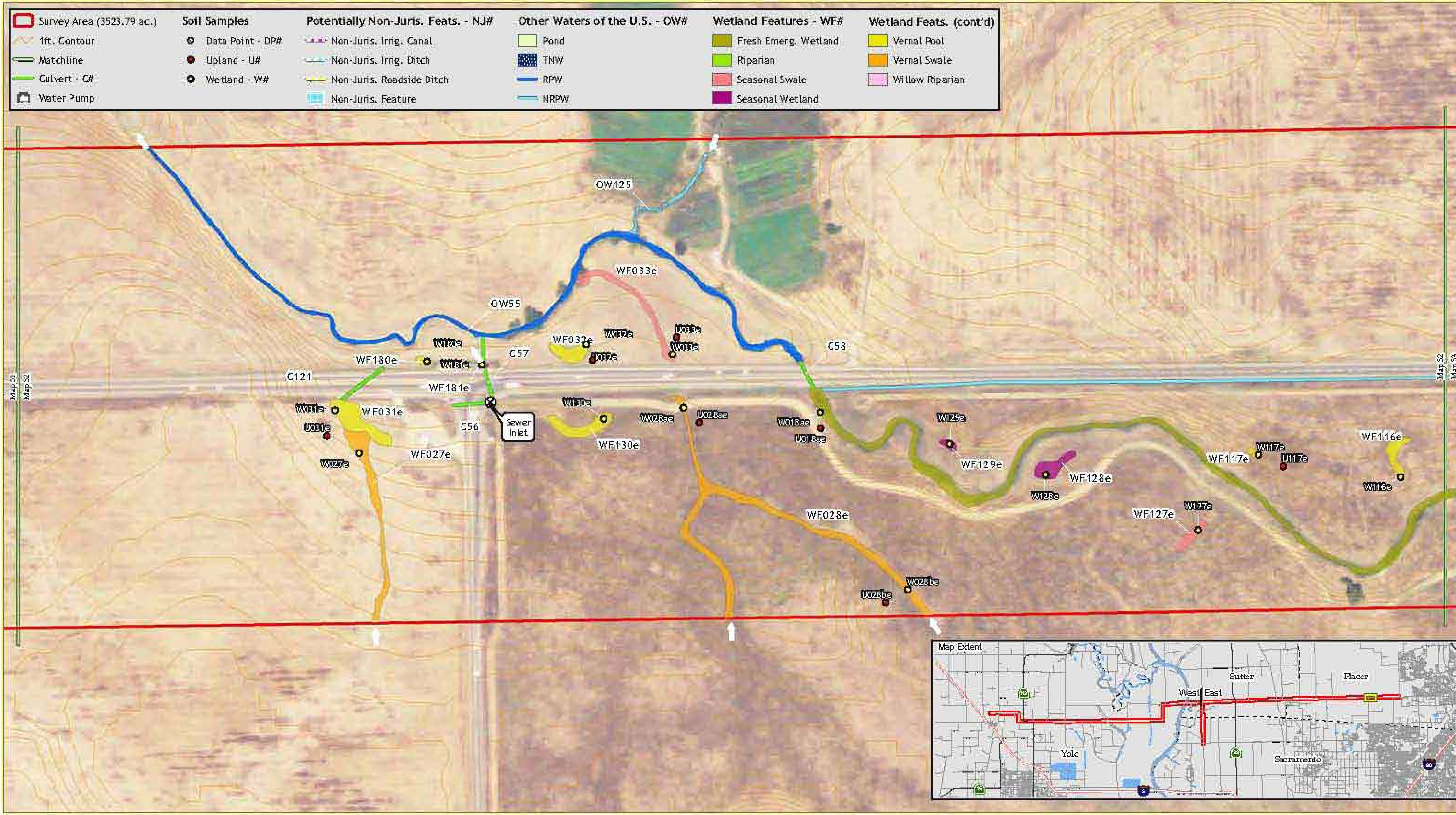
Surveyor East: JG,SI,EA. Survey Dates: 7/21, 24 - 28, 8/10 & 25, 2006
Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007. Revised: August 21, 2007, May 29, 2008.

Feet
0 100 200

GALLAWAY CONSULTING, INC.



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0 100 200

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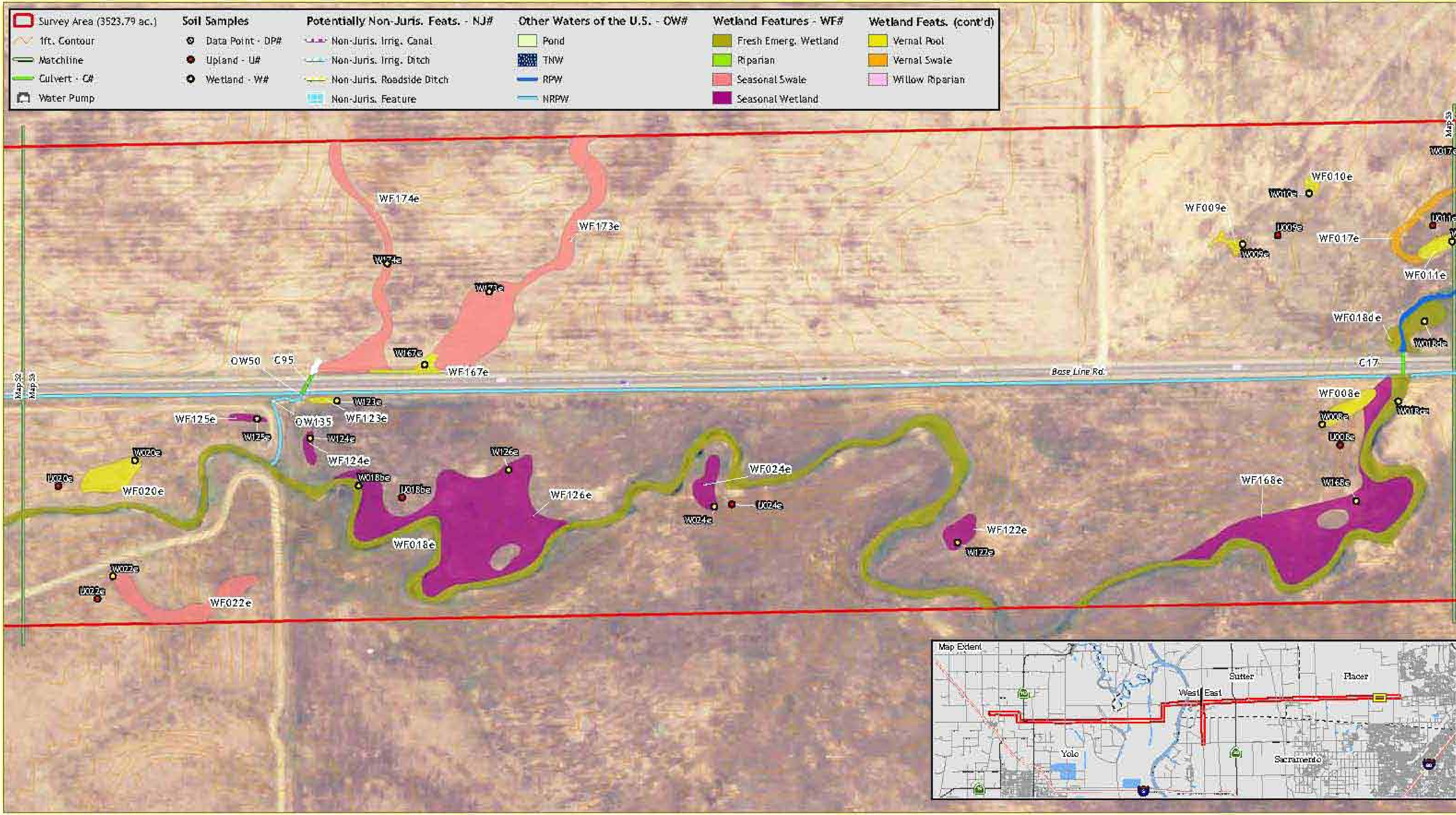

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Surveyor West EA, BT. Survey Dates: 5/3/07, 5/8/07, 5/14/07, 6/21/07
Surveyor East JG,SLEA. Survey Dates: 7/21, 24 28, 8/10 & 25, 2006
Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007. Revised: August 21, 2007, May 29, 2008.

Feet

0 100 200

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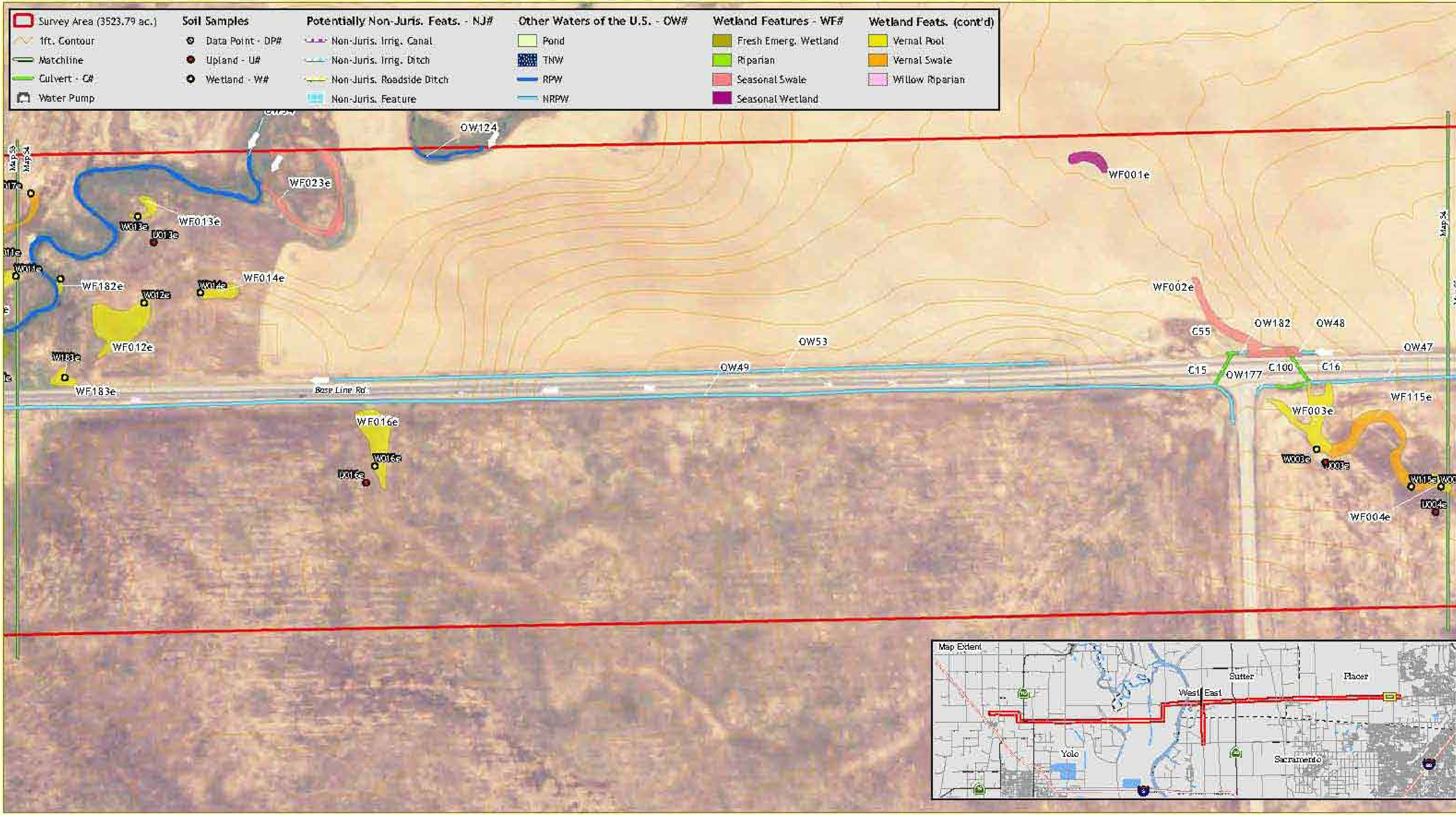
Attachment A



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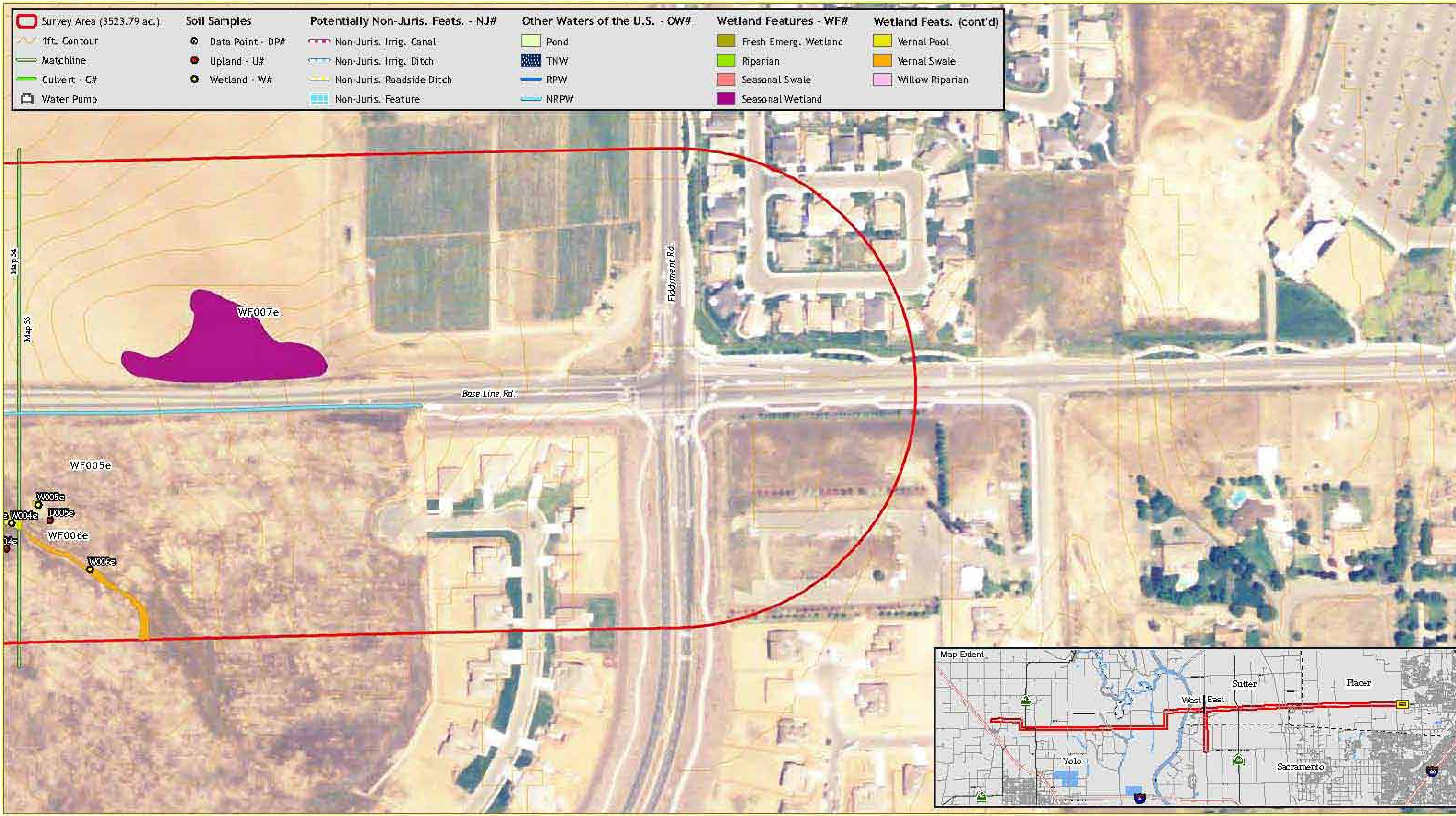

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Survey area derived from 300 ft. buffer of roadway.
Surveyor West: EA, BT. Survey Dates: 5/3/07, 5/8/07, 5/14/07, 6/21/07
Surveyor East: JG,SL,EA. Survey Dates: 7/21, 24 28, 8/10 & 25, 2006
Aerial: Feb. 2005 (NAIP) Map Date: August 6, 2007. Revised: August 21, 2007, May 29, 2008.

Feet
0 100 200

GALLAWAY CONSULTING, INC.

Attachment A

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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? Yes (●) No ( )

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? **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, 15(

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	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)
- ☒ 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 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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? 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**
Wetland Hydrology Present?	Yes (•)	No ( )	**within a Wetland?** 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)
- [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:

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**)
- [ ] 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)
- [x] 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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? **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)
- [x] 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)
- [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: 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**)
- [x] Surface Soil Cracks (B6)
- [x] 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**)
- [x] Sediment Deposits (B2) (**Riverine**)
- [x] 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 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
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? 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)
- [x] 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)
- [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: 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**)
- [x] Surface Soil Cracks (B6)
- [x] 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**)
- [x] Sediment Deposits (B2) (**Riverine**)
- [x] 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 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
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? 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)
- [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: 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**)
- [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)
- [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 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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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)	%	Redox Features Color (moist)	%	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
Wetland Hydrology Present?	Yes (•)	No ( )	within a Wetland? 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:

- [X] 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 (•) 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)
- [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:

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)
- [ ] 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 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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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 Features %	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
Wetland Hydrology Present?	Yes (•)	No ( )	within a Wetland? 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)	%	Redox Features Color (moist)	%	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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? **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 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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? 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 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: 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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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:

- [x] 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 (•) 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)
- [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: 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**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [ ] 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 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 ( )	Is the Sampled Area within a Wetland? Yes (●) No ( )
Hydric Soil Present?	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 Features %	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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? Yes (●) No ( )

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
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)	%	Redox Features Color (moist)	%	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)
- ☒ 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: 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**)
- ☒ 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 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
Wetland Hydrology Present?	Yes (●)	No ( )	**within a Wetland?** 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 %	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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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:

- [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 (•) 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)
- [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:

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**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [x] 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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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)
- [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**)
- [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 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
Wetland Hydrology Present?	Yes ◉	No ○	within a Wetland? 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)
- ☒ 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**)
- ☒ 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 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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? 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)
- [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:
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**)
- [ ] 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)
- [x] 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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? 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)
- [x] 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)
- [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: 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**)
- [x] Surface Soil Cracks (B6)
- [x] 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**)
- [x] Sediment Deposits (B2) (**Riverine**)
- [x] 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: 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 ( )	Is the Sampled Area within a Wetland? Yes (●) No ( )
Hydric Soil Present?	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 %	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
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? 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 Features %	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)
- [x] 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**)
- [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)
- [x] 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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? **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 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)
- [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: 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**)
- [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)
- [ ] 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 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
Wetland Hydrology Present?	Yes (•)	No ( )	within a Wetland? 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 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)
- [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: 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**)
- [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)
- [ ] 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 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 ○
Wetland Hydrology Present?	Yes ●	No ○

Is the Sampled Area within a Wetland? **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)
- [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**)
- [ ] 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 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 ( )
Wetland Hydrology Present?	Yes (•)	No ( )

Is the Sampled Area within a Wetland? **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)
- ☒ 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 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**
Wetland Hydrology Present?	Yes (●)	No ( )	**within a Wetland?** 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 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)
- [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:

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**)
- [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)
- [x] 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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? 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)
- [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:

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)
- [ ] 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 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
Wetland Hydrology Present?	Yes (●)	No ( )	within a Wetland? 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)
- [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: 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**)
- [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)
- [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 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**
Wetland Hydrology Present?	Yes (●)	No ( )	**within a Wetland?** **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 ( )
Wetland Hydrology Present?	Yes (●)	No ( )

Is the Sampled Area within a Wetland? **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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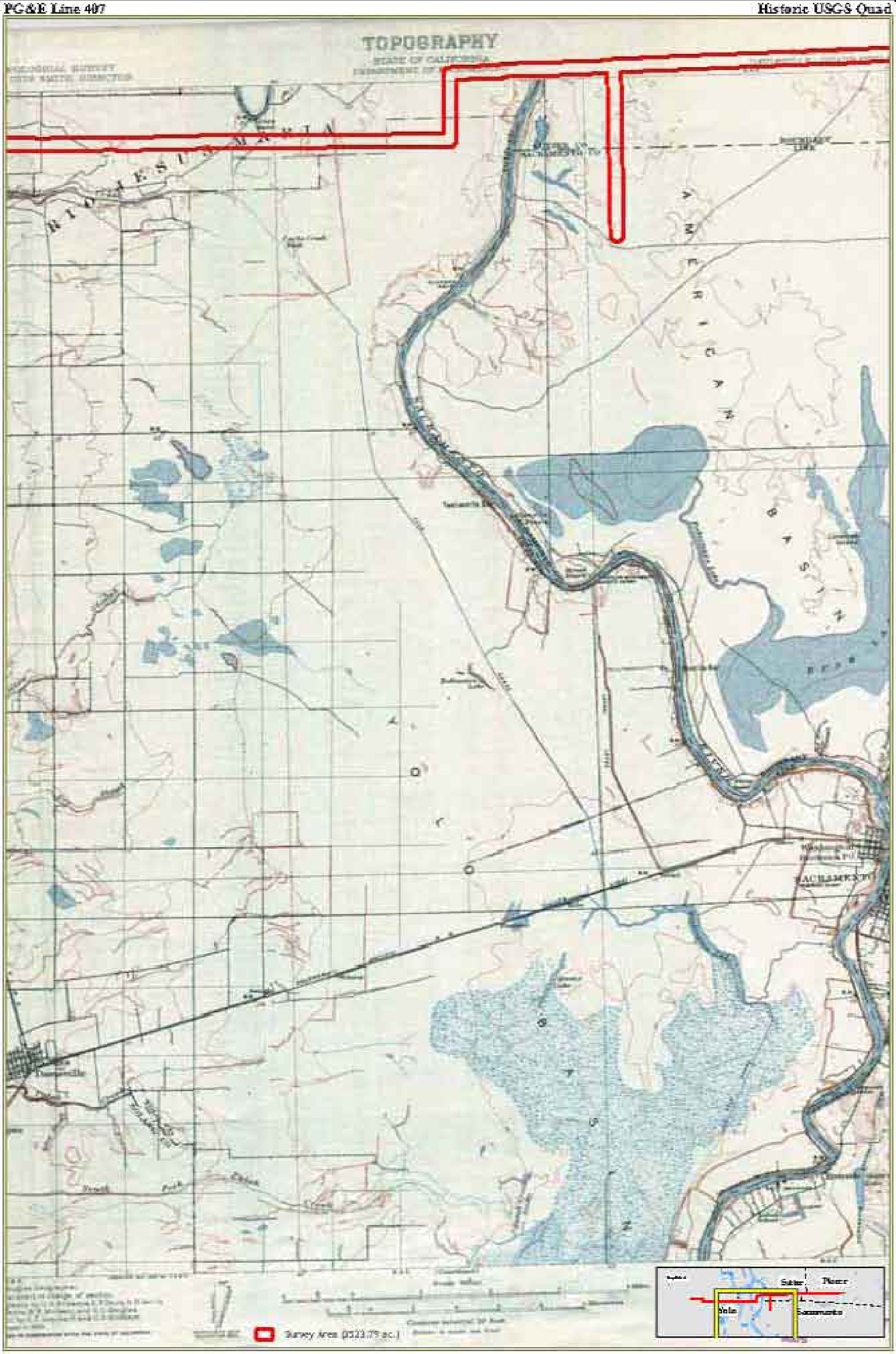

Survey area defined from 500ft. buffer of roadway
Map shows 1905 1:62500 Davisville USGS Quad
Historic Quad obtained from CSU Chico
Meriam Library Special Collections
Map Date: June 25, 2008.

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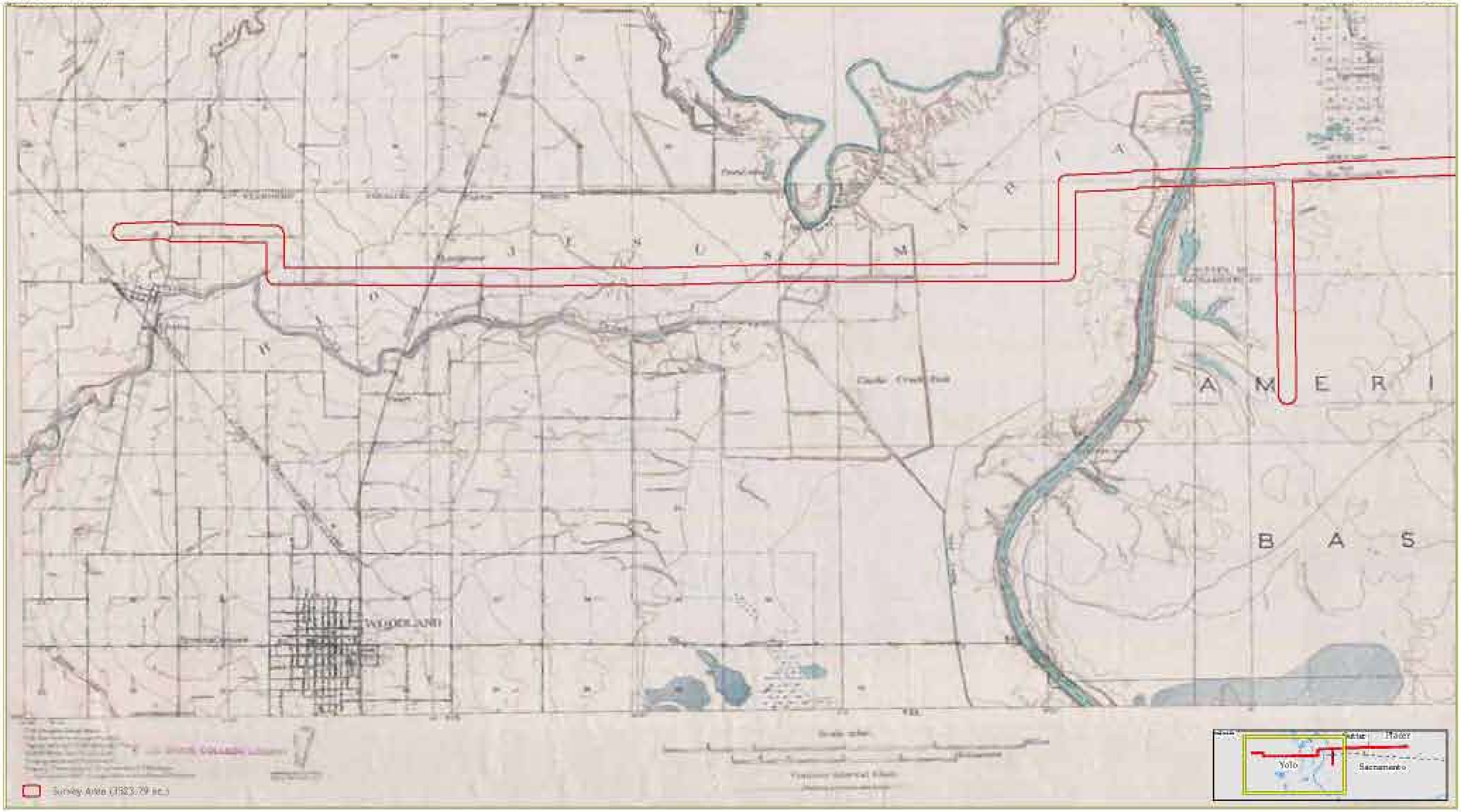
Exhibit 1

PG&E Line 407

Historic USGS Quad



Survey area derived from 300 ft. buffer of roadway.
Map shows 1905 1:31,680 Sacramento Valley USGS Quad.
Historic Quad obtained from CSU, Chico
Meriam Library Special Collections
Map Date: June 17, 2008

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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

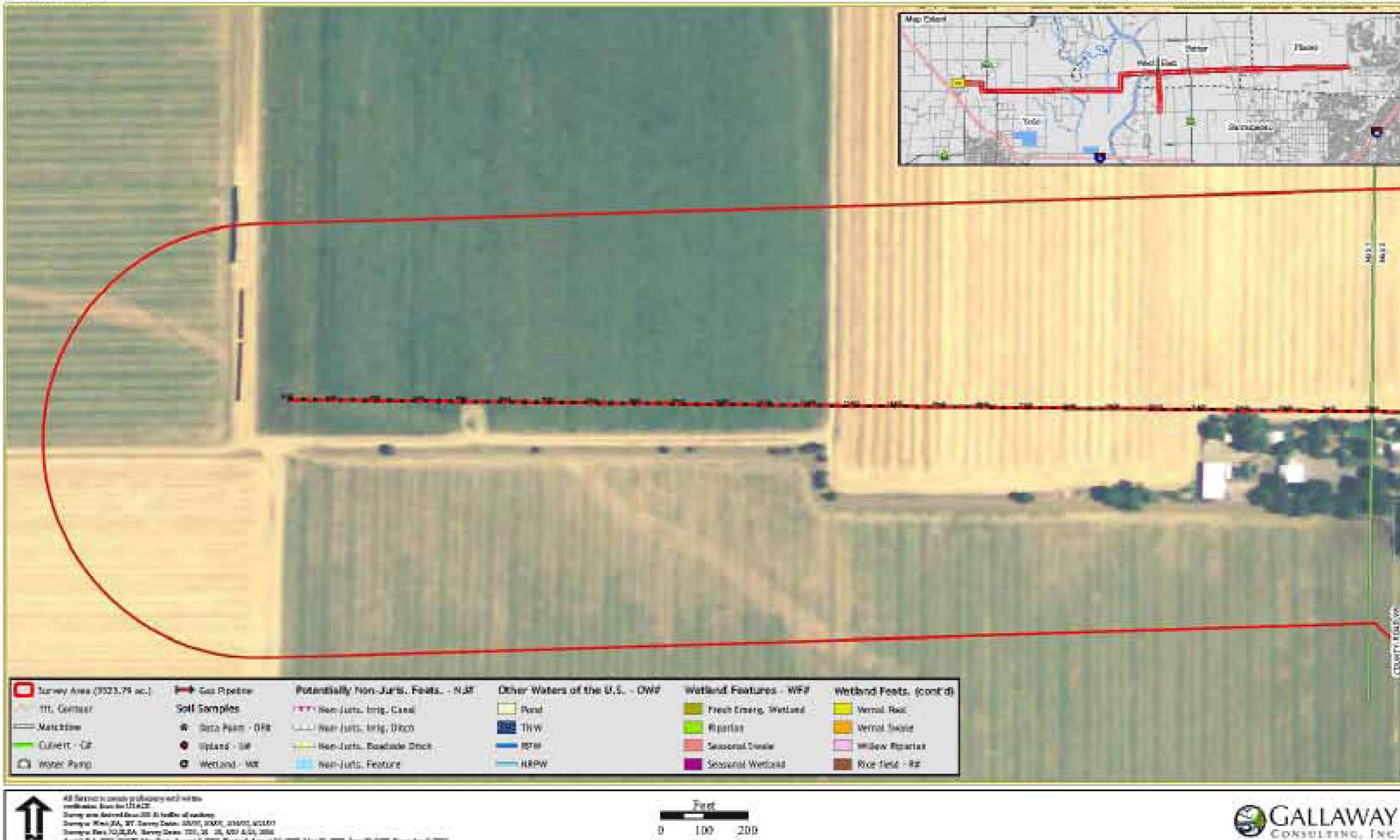
PG&E Line 406 and Line 407 Pipeline Project
Jurisdictional Waters Impacts

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



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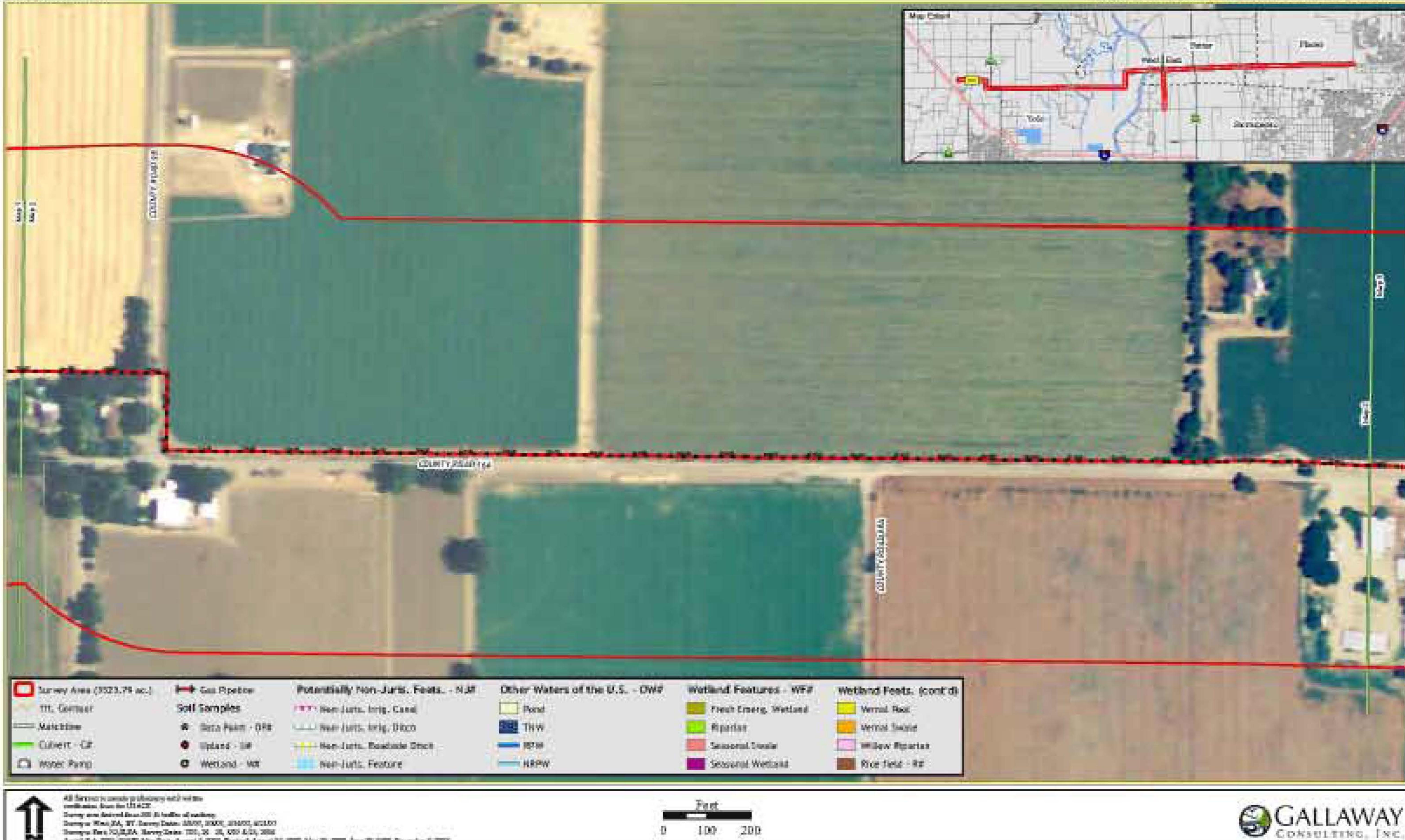

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Feet

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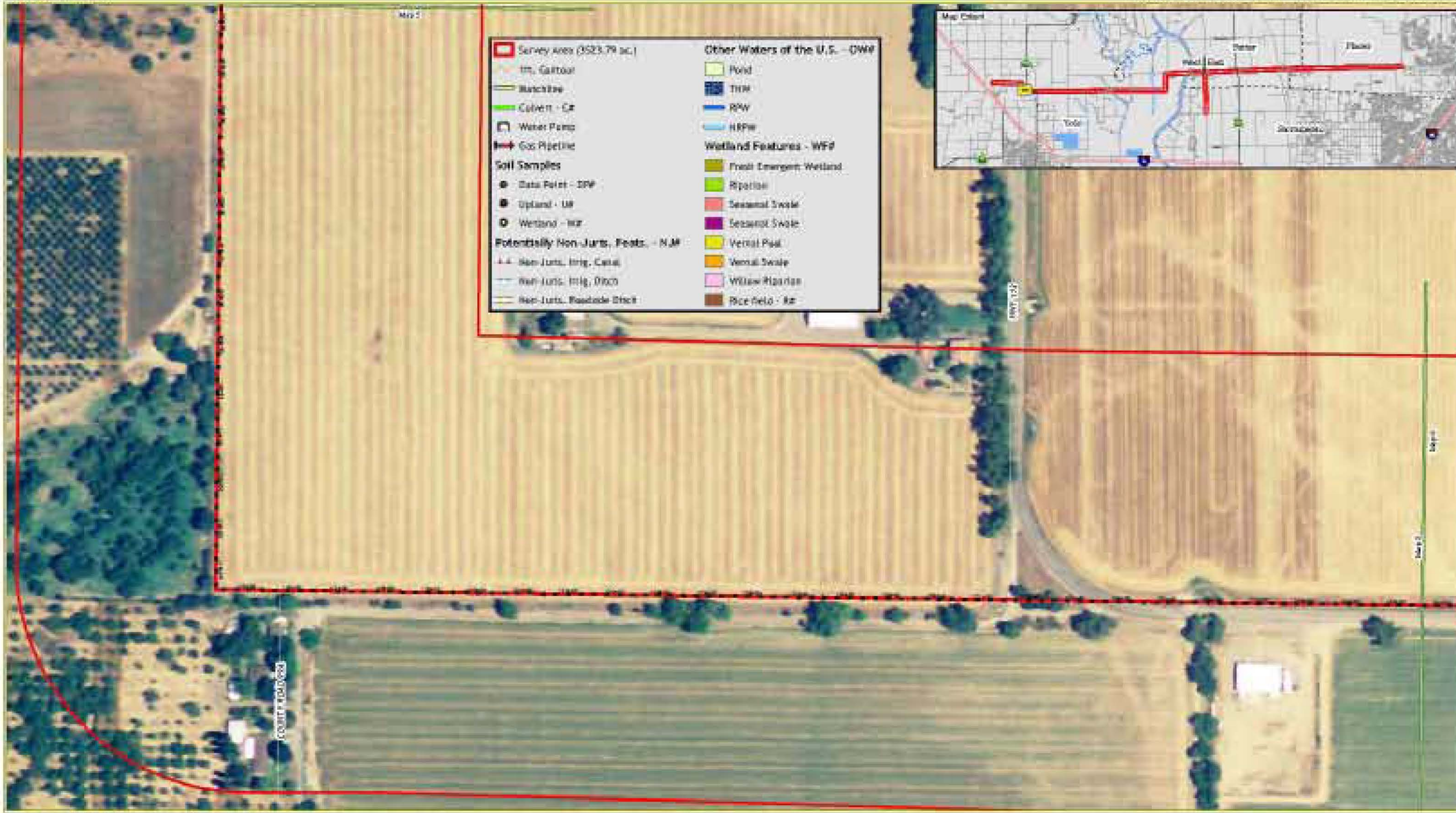

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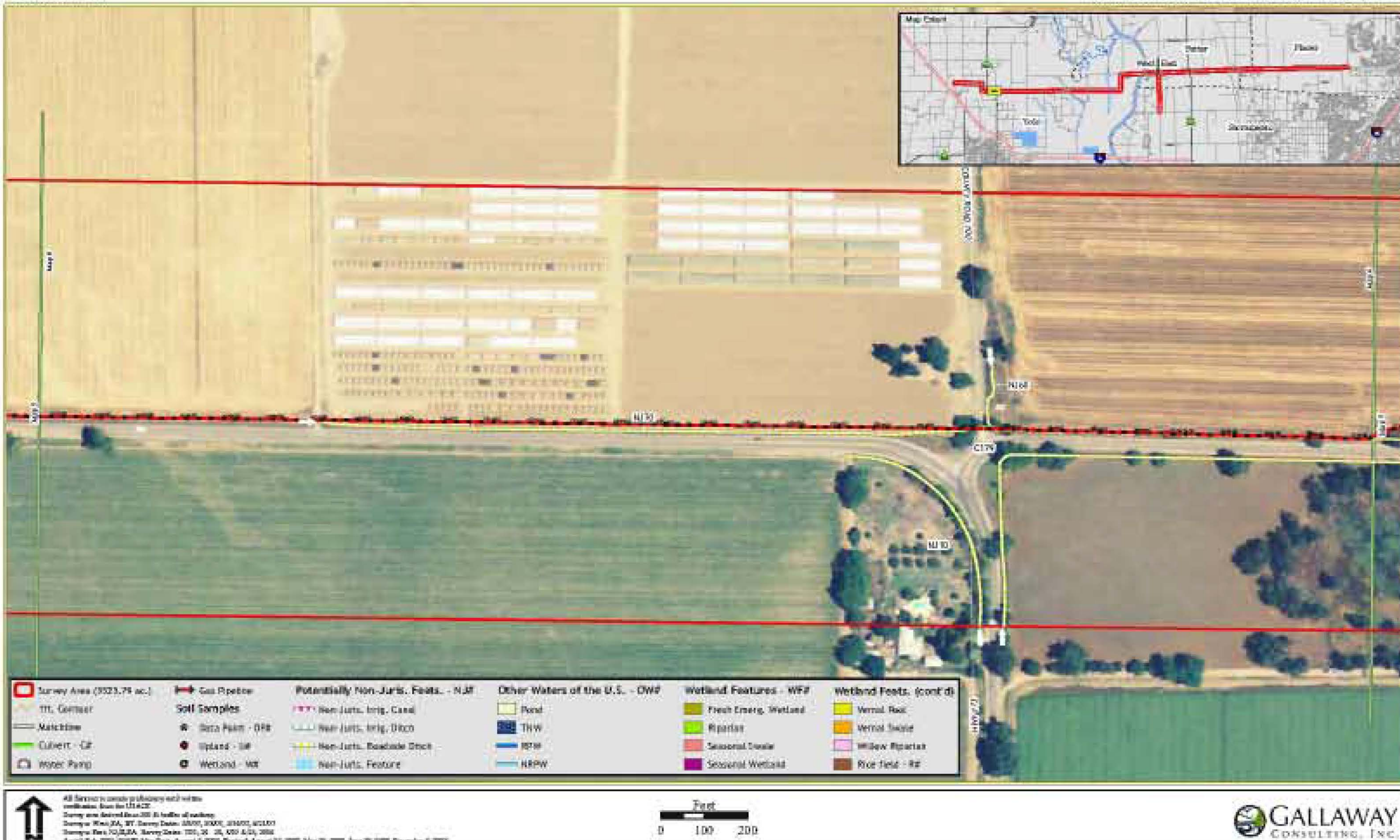
Map Extent
Yolo
Sacramento
Placer
Sutter
NJ32
NJ68
NJ10
C179
Survey Area (3523.79 ac.)
1 ft. Contour
Matchline
Culvert - C#
Water Pump
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - U#
Wetland - W#
Potentially Non-Juris. Feats. - NJ#
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OW#
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 - R#
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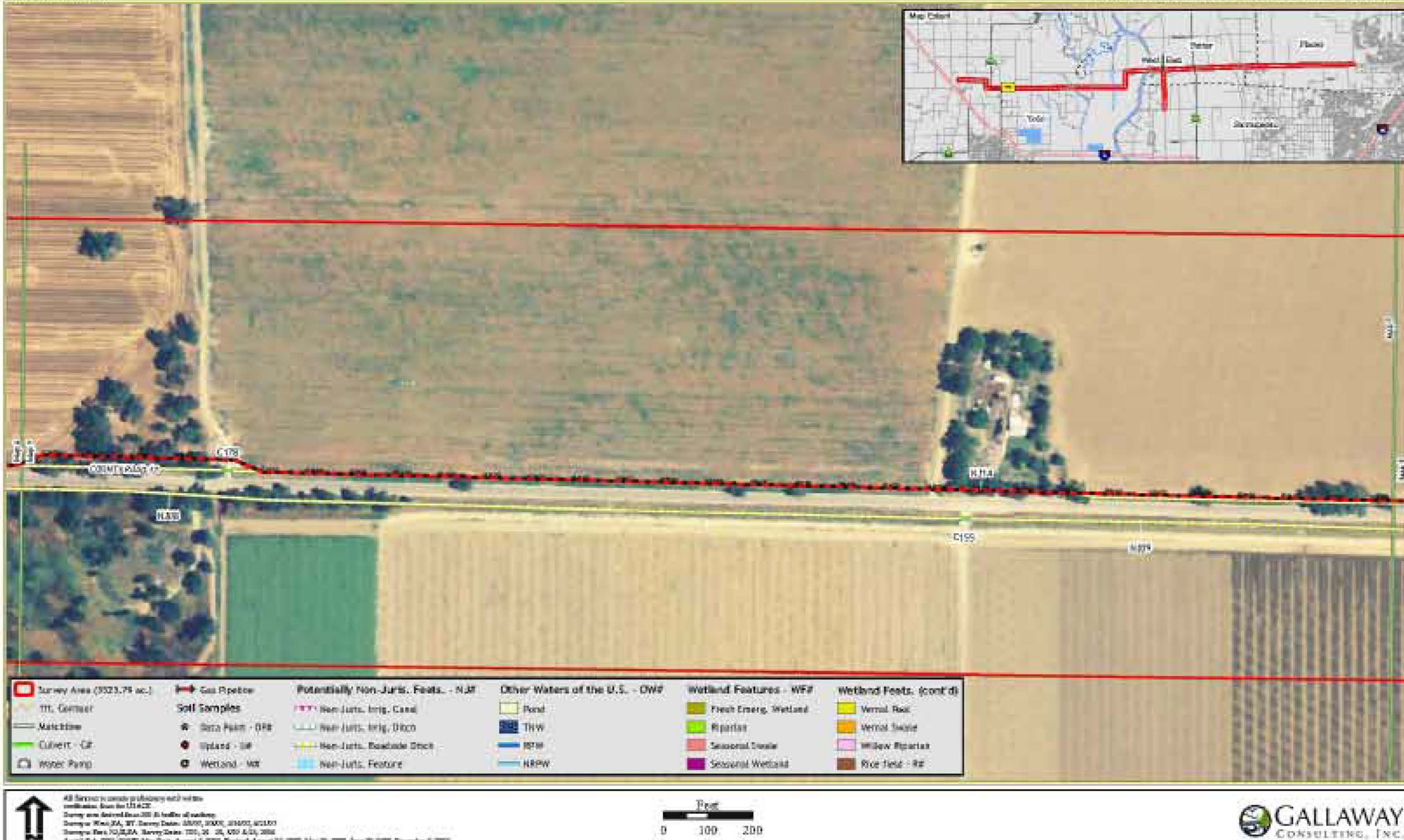

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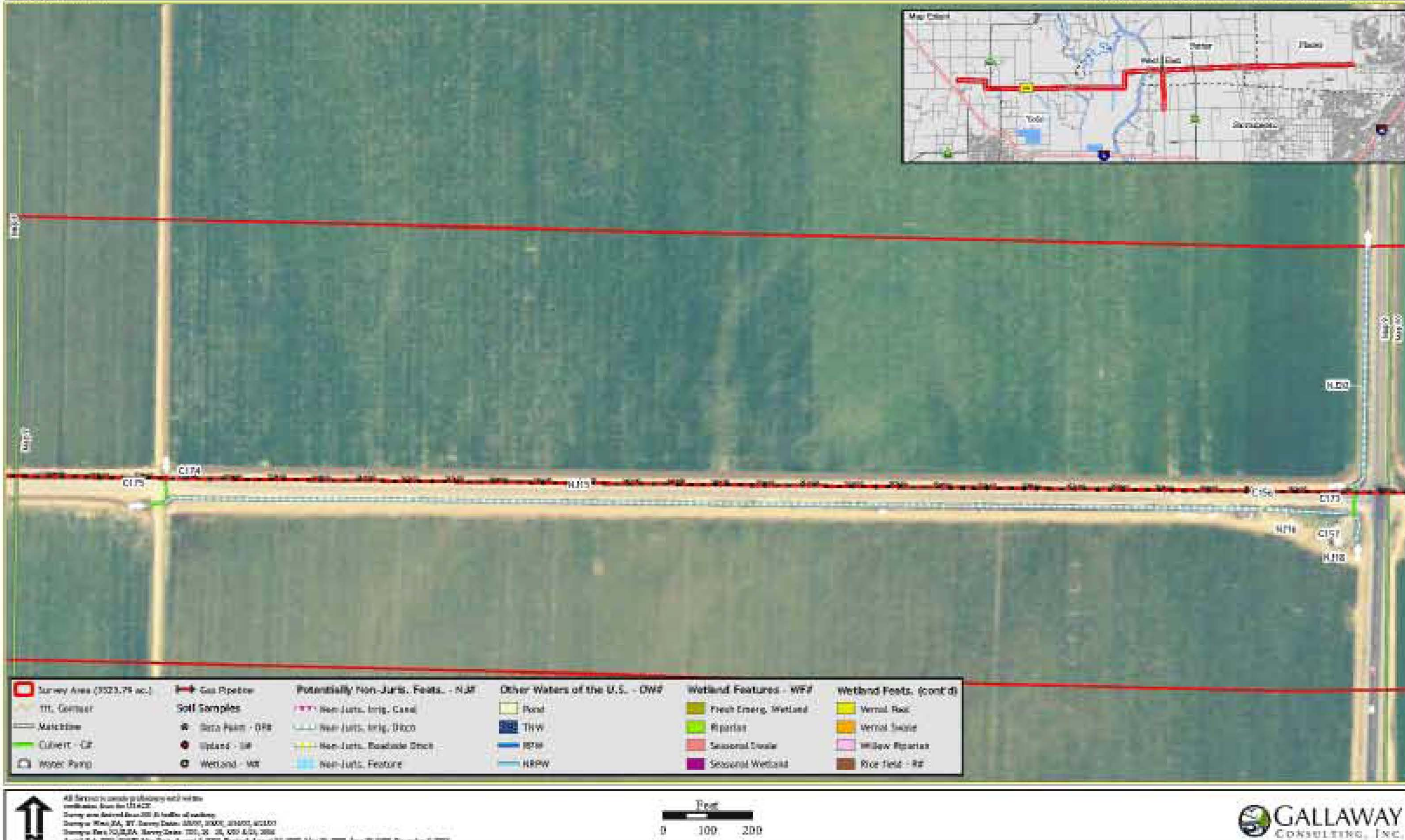

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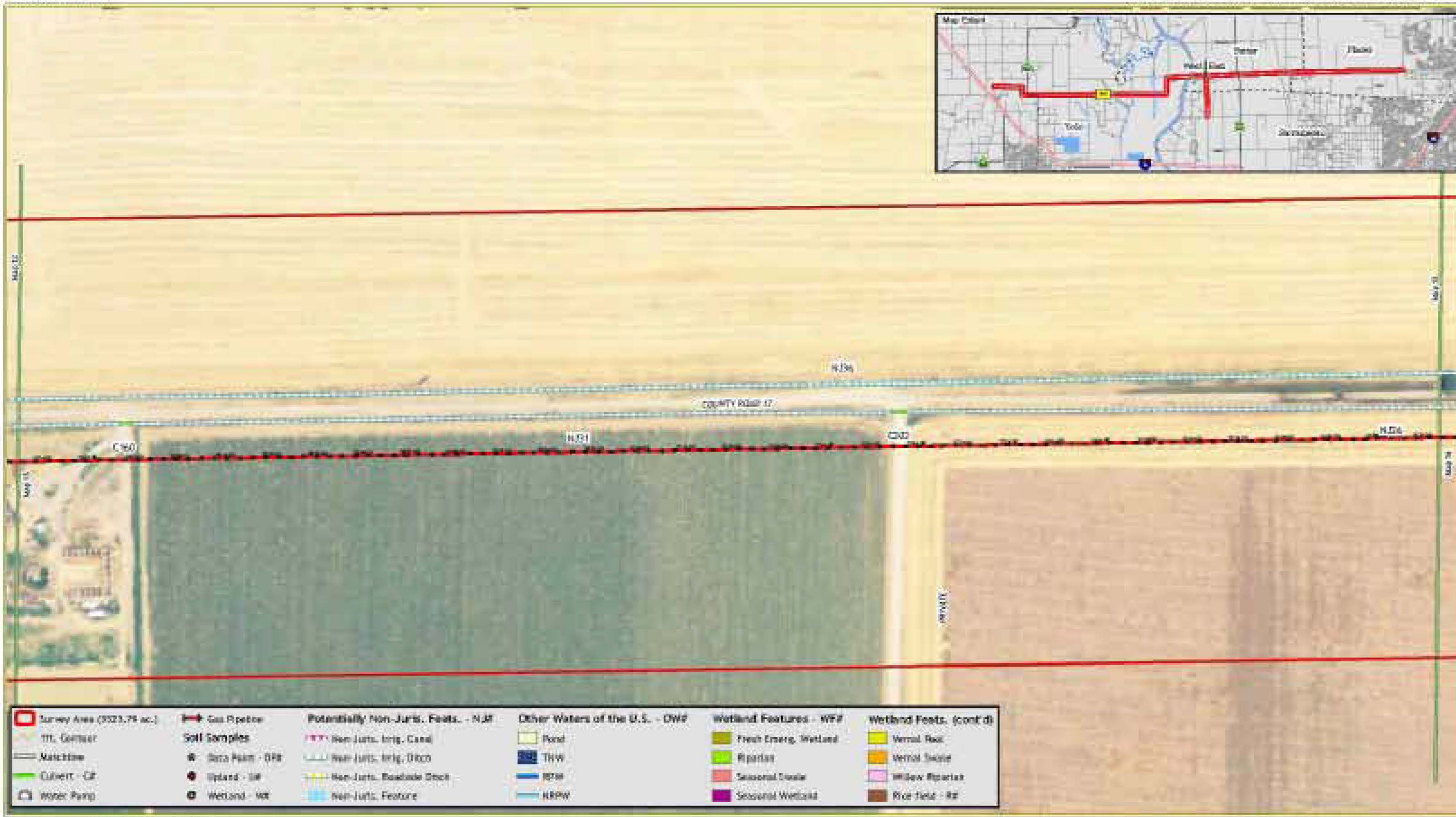

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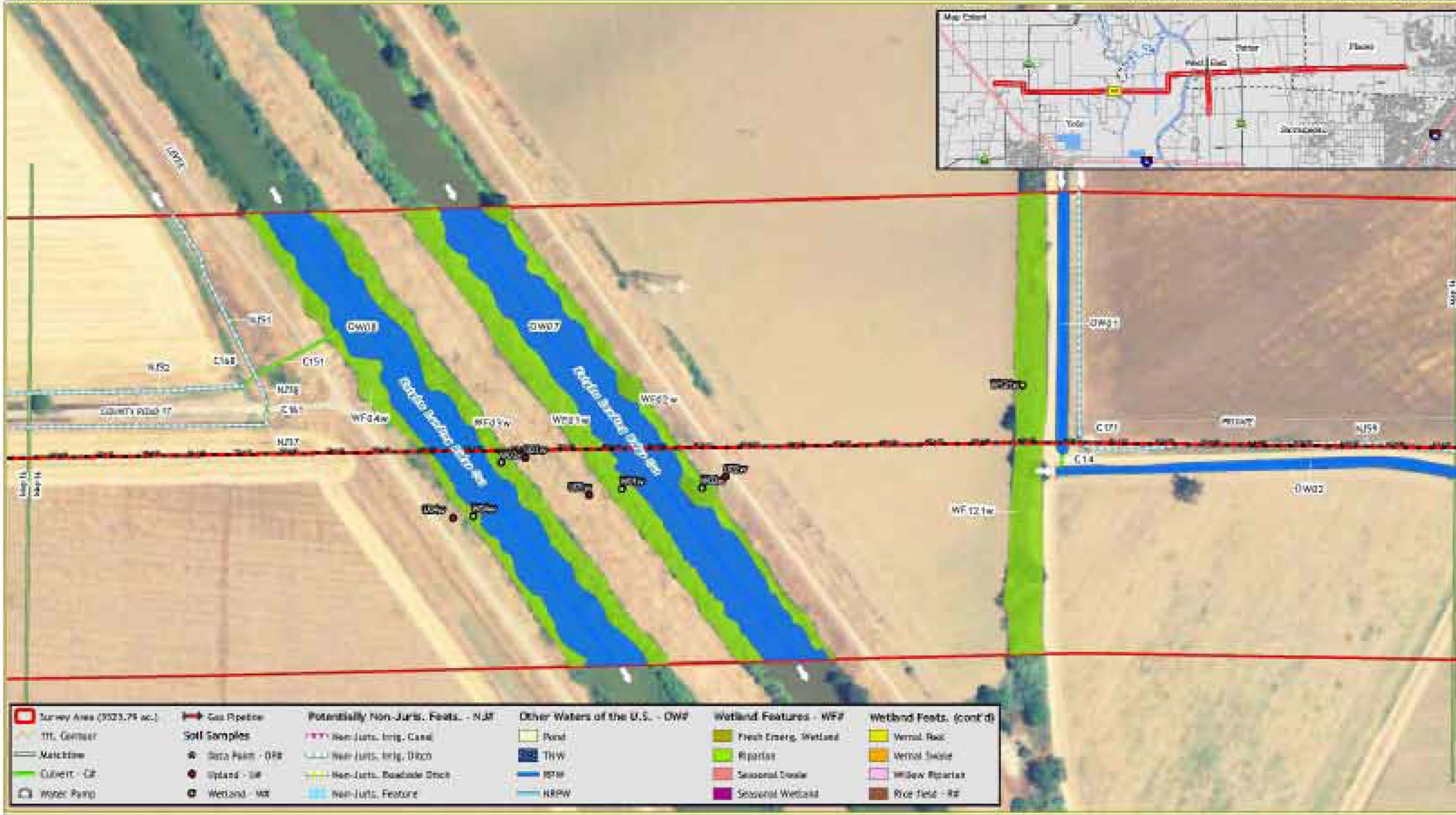

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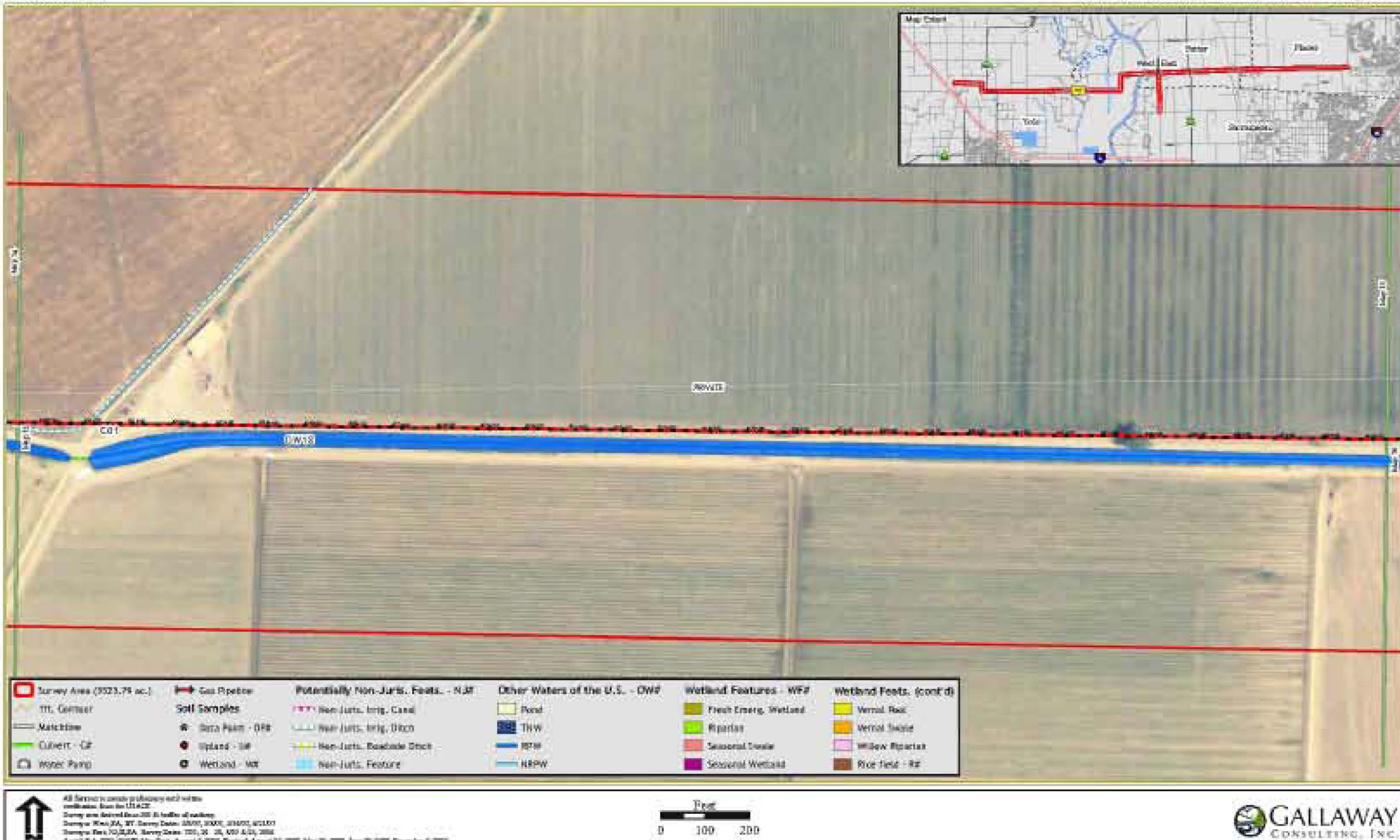
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Sacramento
Placer
Sutter
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OW18
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Gas Pipeline
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Other Waters of the U.S. - OW#
Wetland Features - WF#
Wetland Feats. (cont'd)
1ft. Contour
Soil Samples
Non-Juris. Irrig. Canal
Pond
Fresh Emerg. Wetland
Vernal Pool
Matchline
Data Point - DP#
Non-Juris. Irrig. Ditch
TNW
Riparian
Vernal Swale
Culvert - C#
Upland - U#
Non-Juris. Roadside Ditch
RPW
Seasonal Swale
Willow Riparian
Water Pump
Wetland - W#
Non-Juris. Feature
NRPW
Seasonal Wetland
Rice Field - R#
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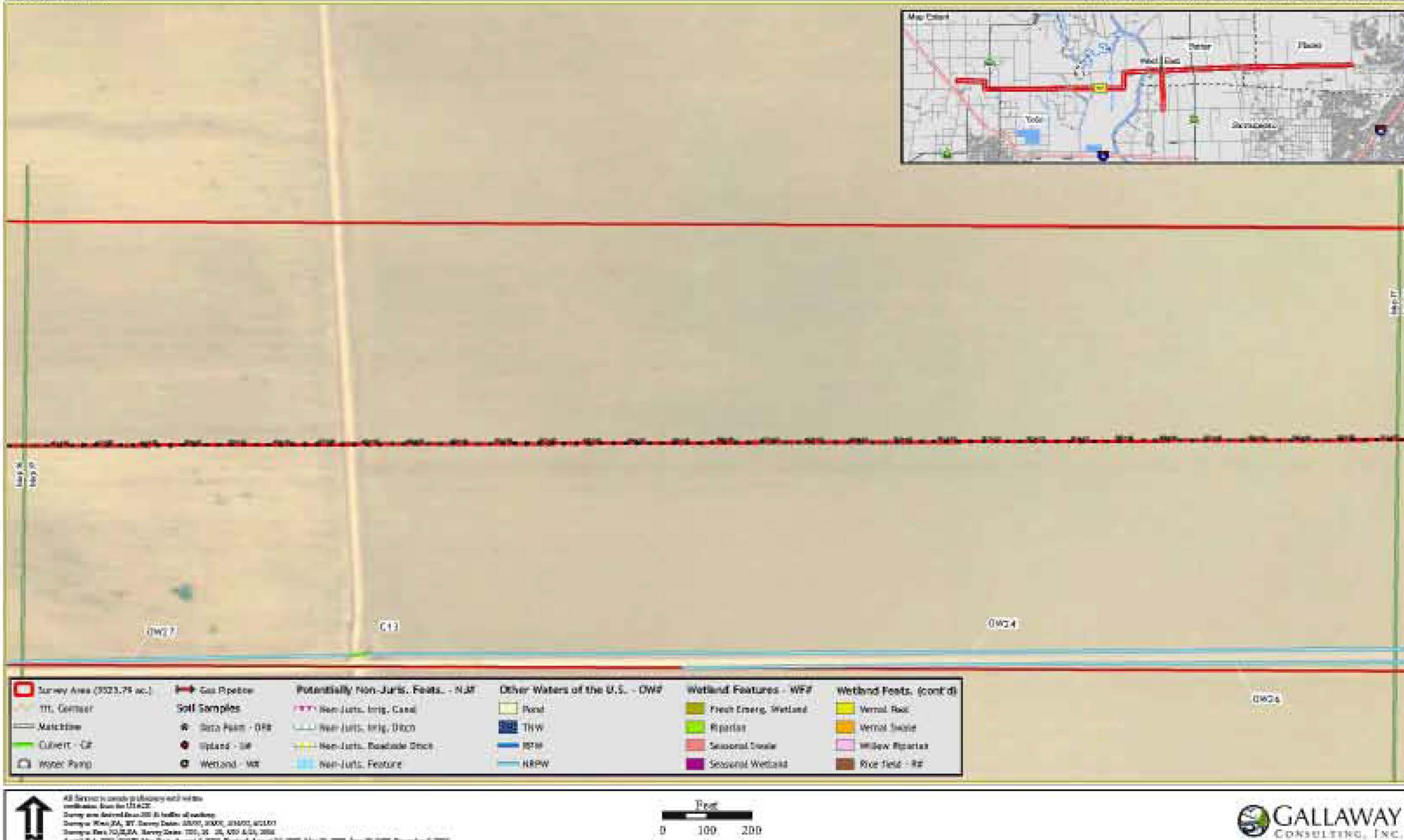
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Soil Samples
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Data Point - DP#
Upland - U#
Wetland - W#
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Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
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Pond
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NRPW
Wetland Features - WF#
Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
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Willow Riparian
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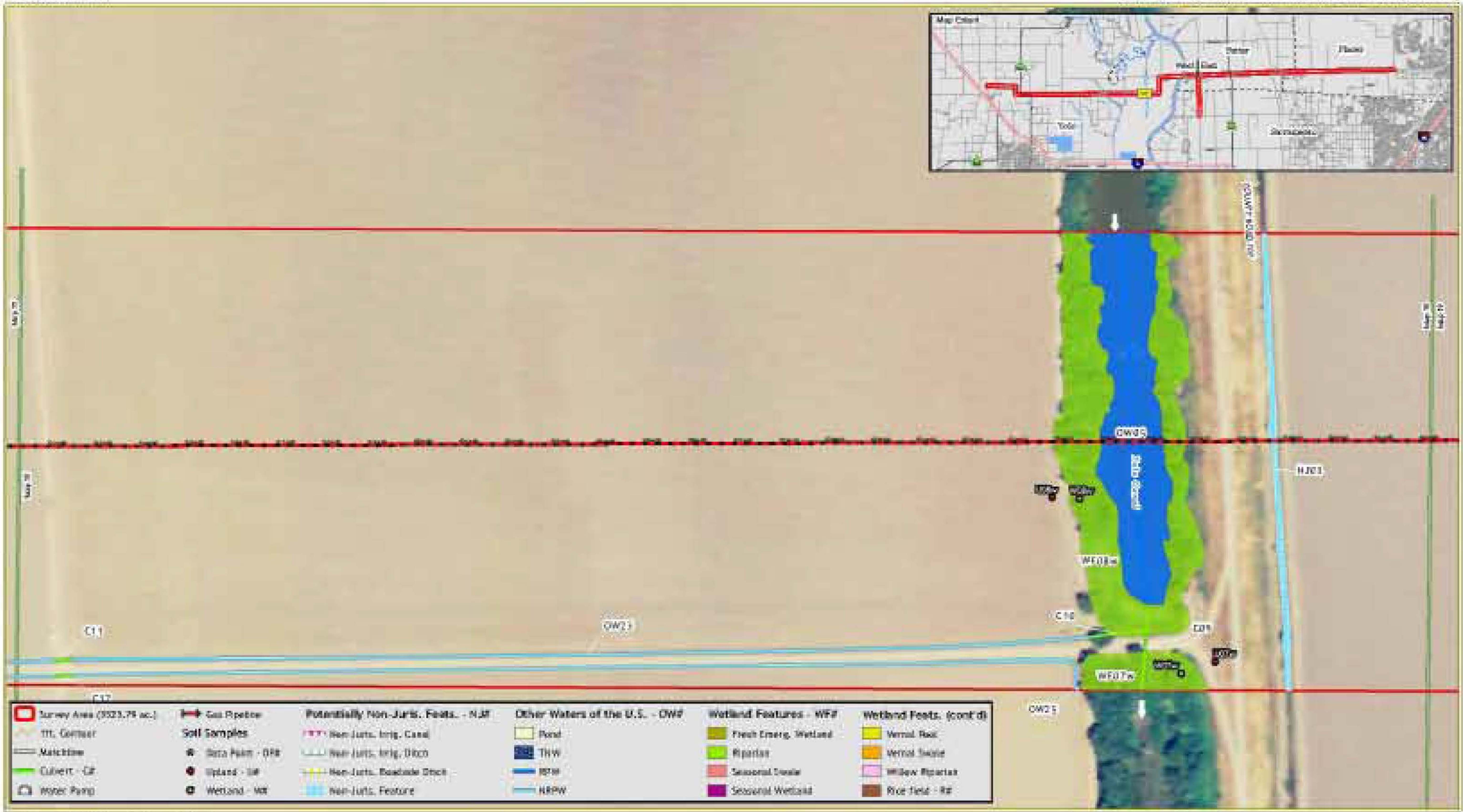

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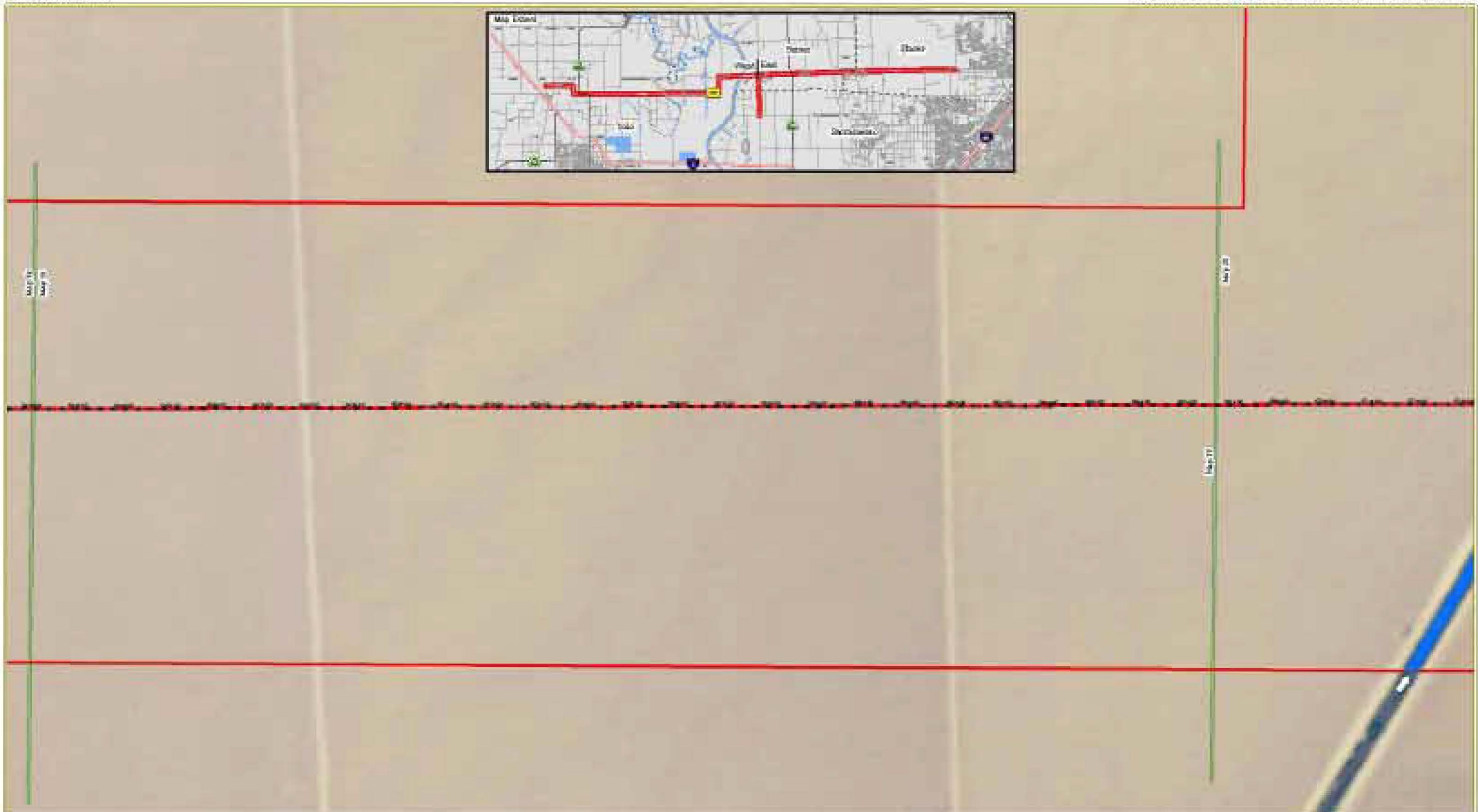

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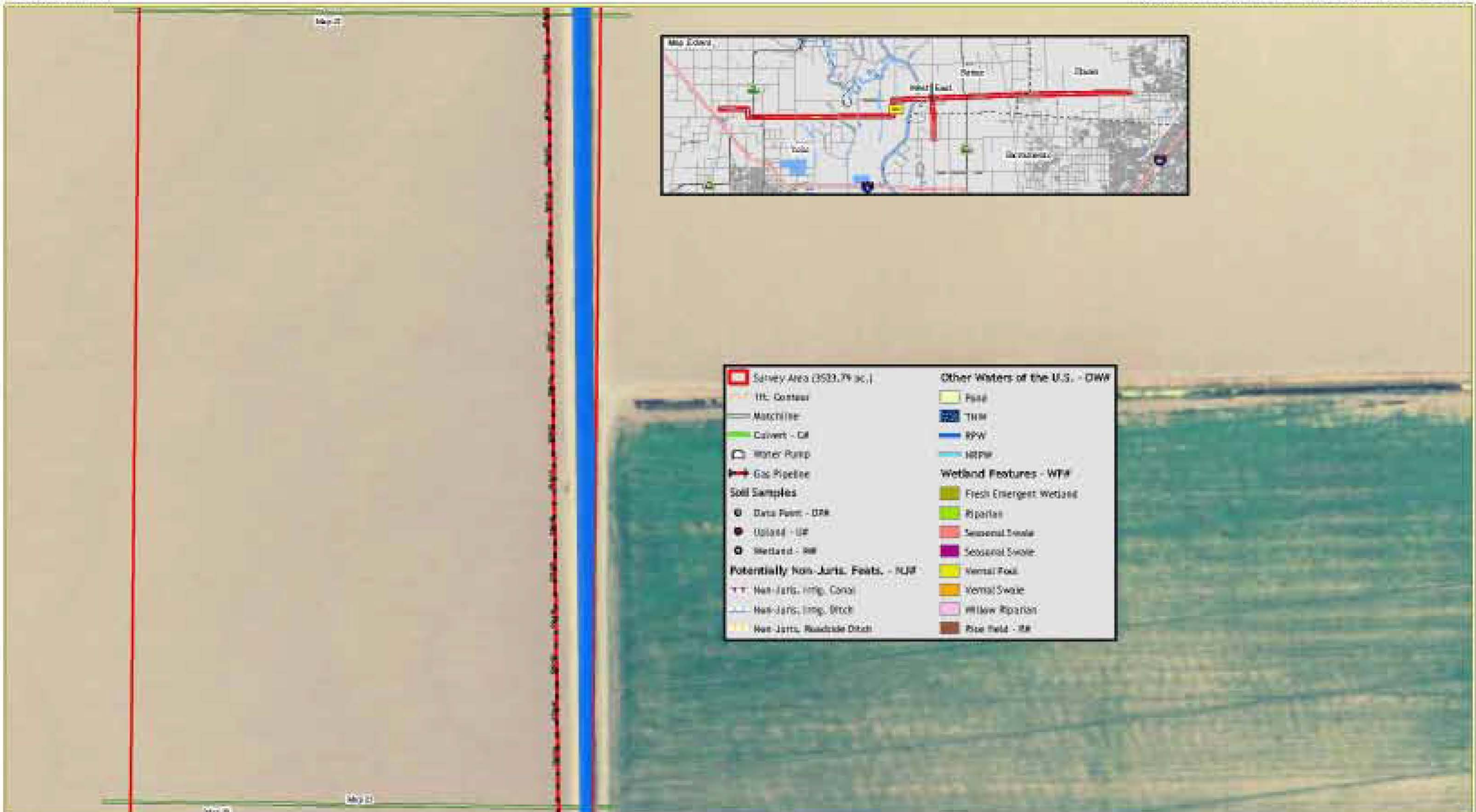

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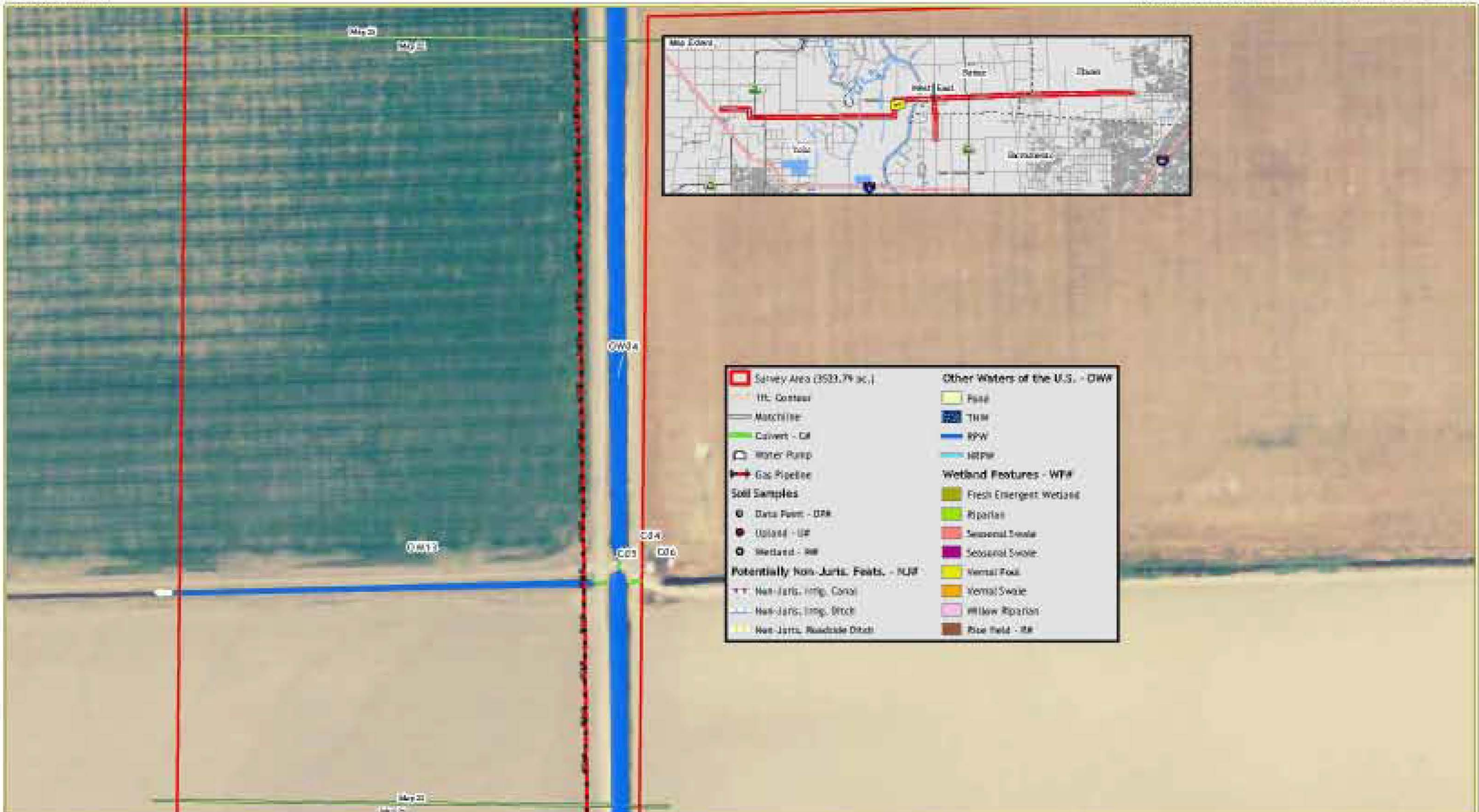

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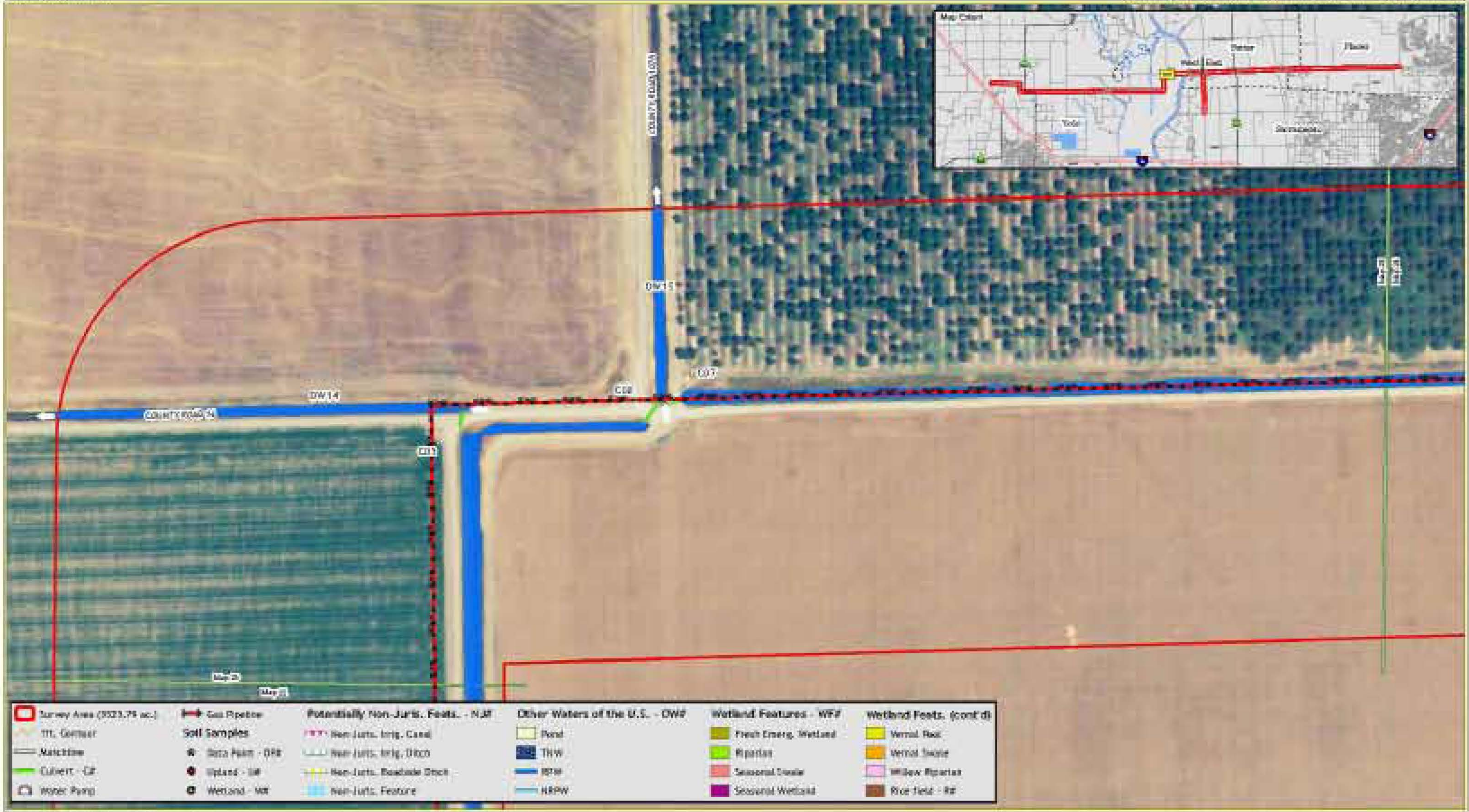

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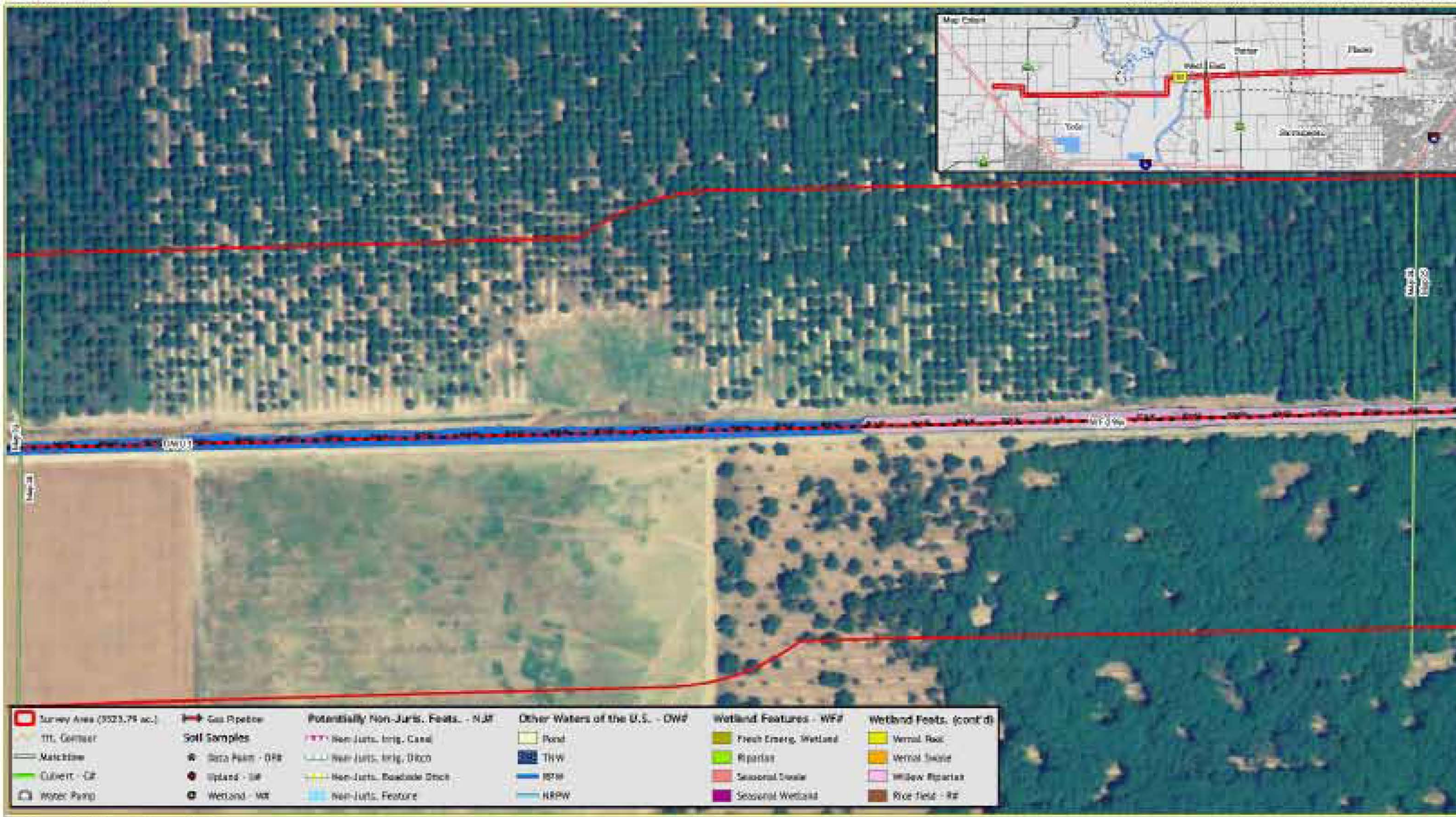

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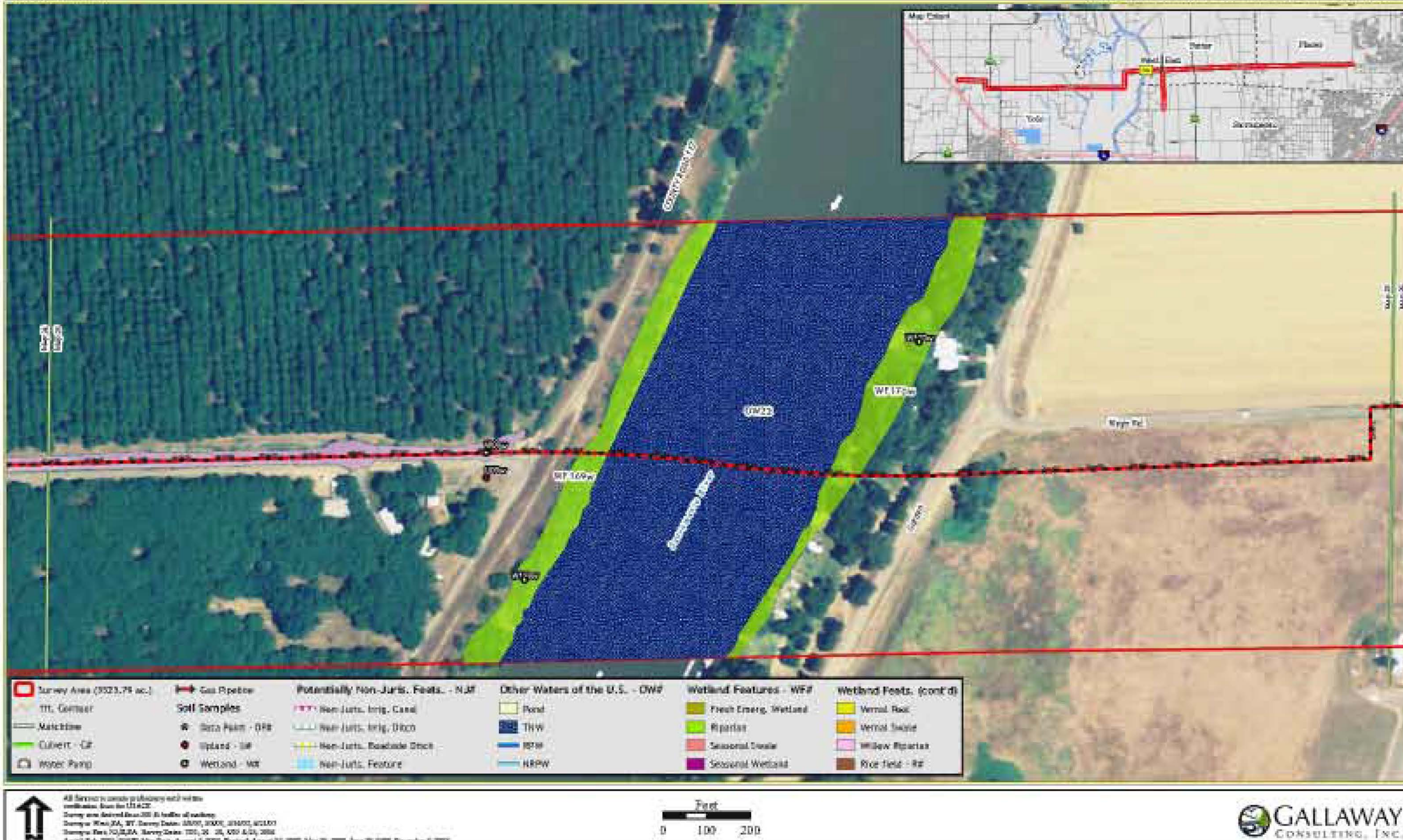

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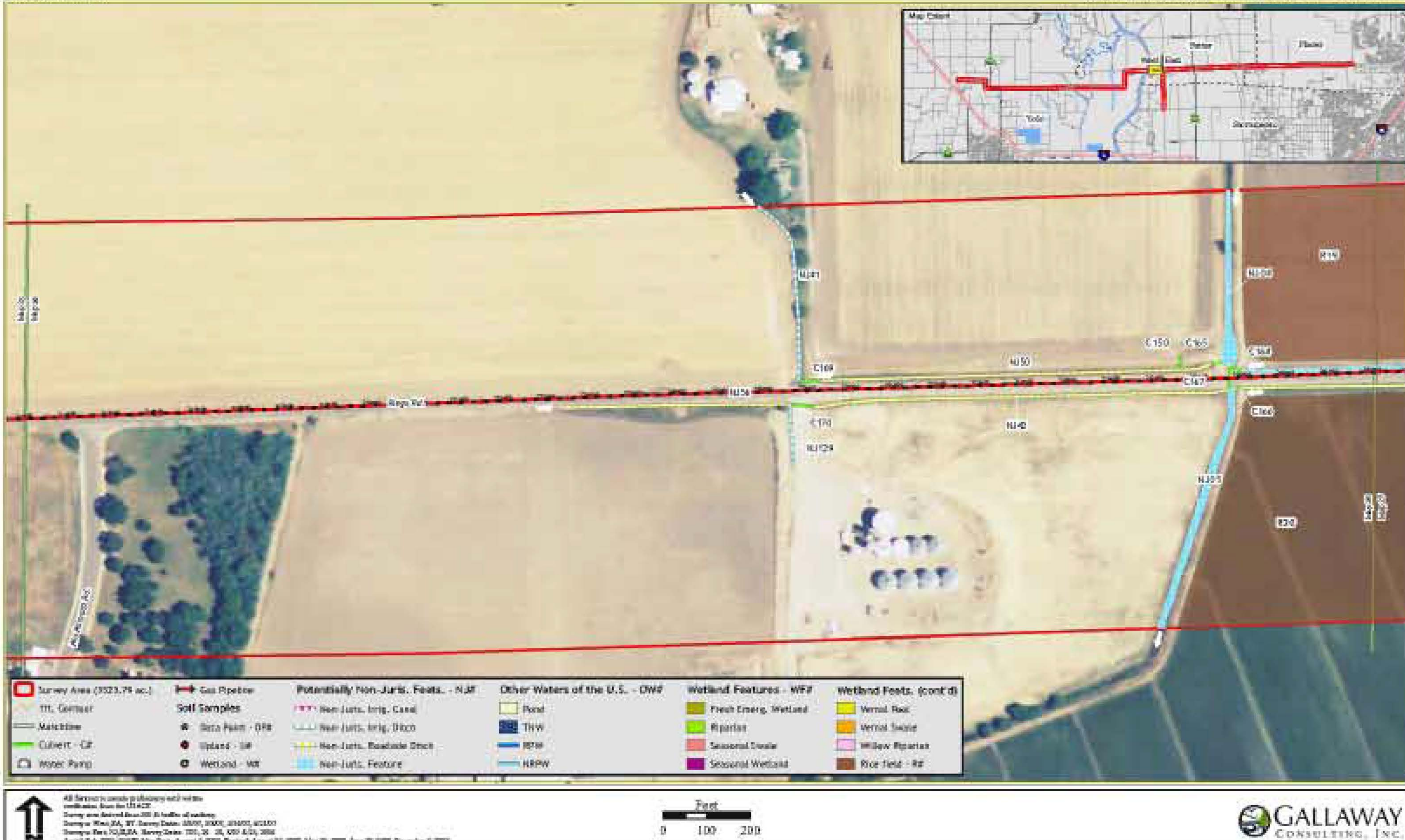

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Pump pushes water both directions
R18
R19
R21
R20
R23
R52
Map Extent
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Sacramento
Feet
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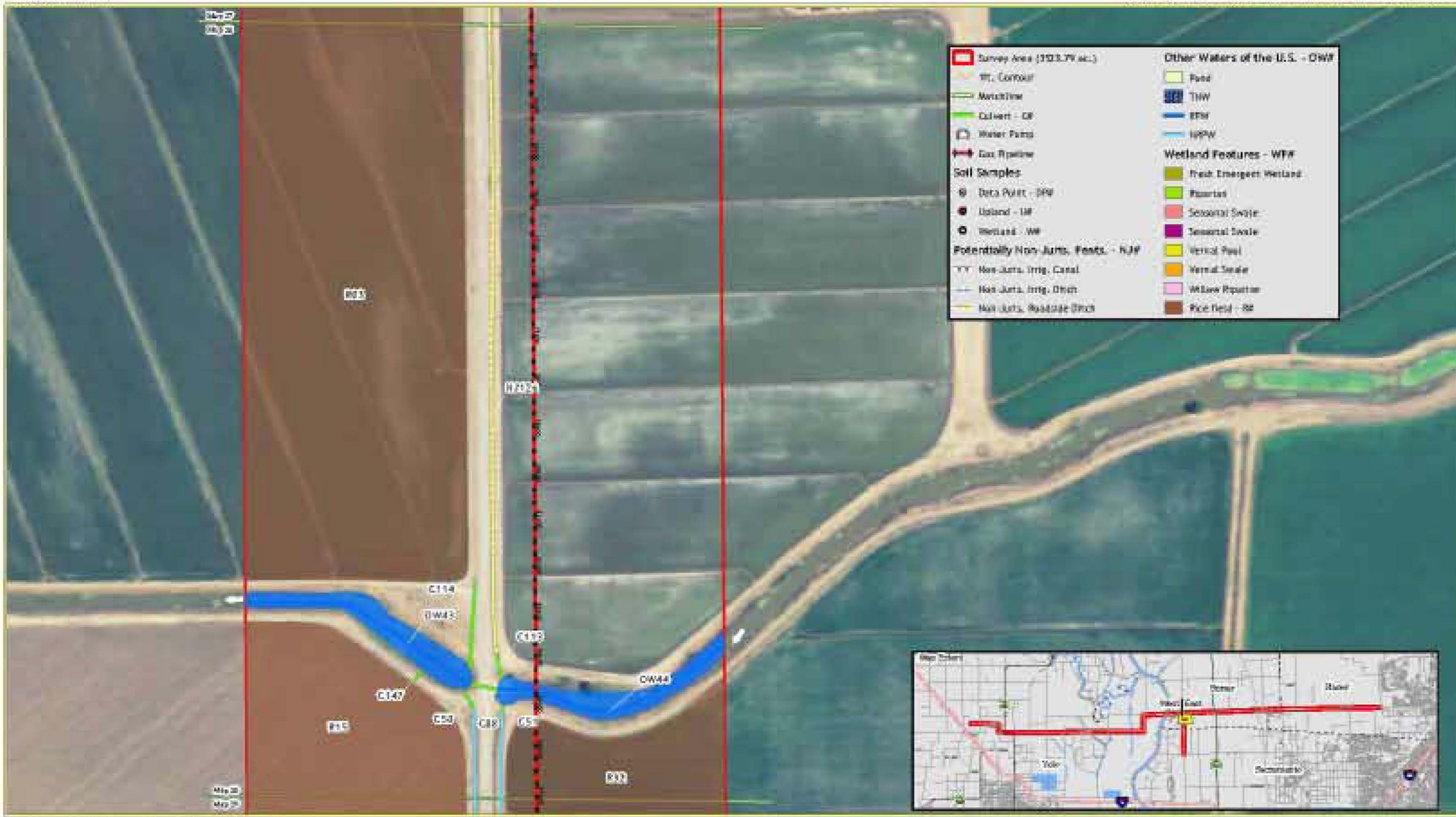

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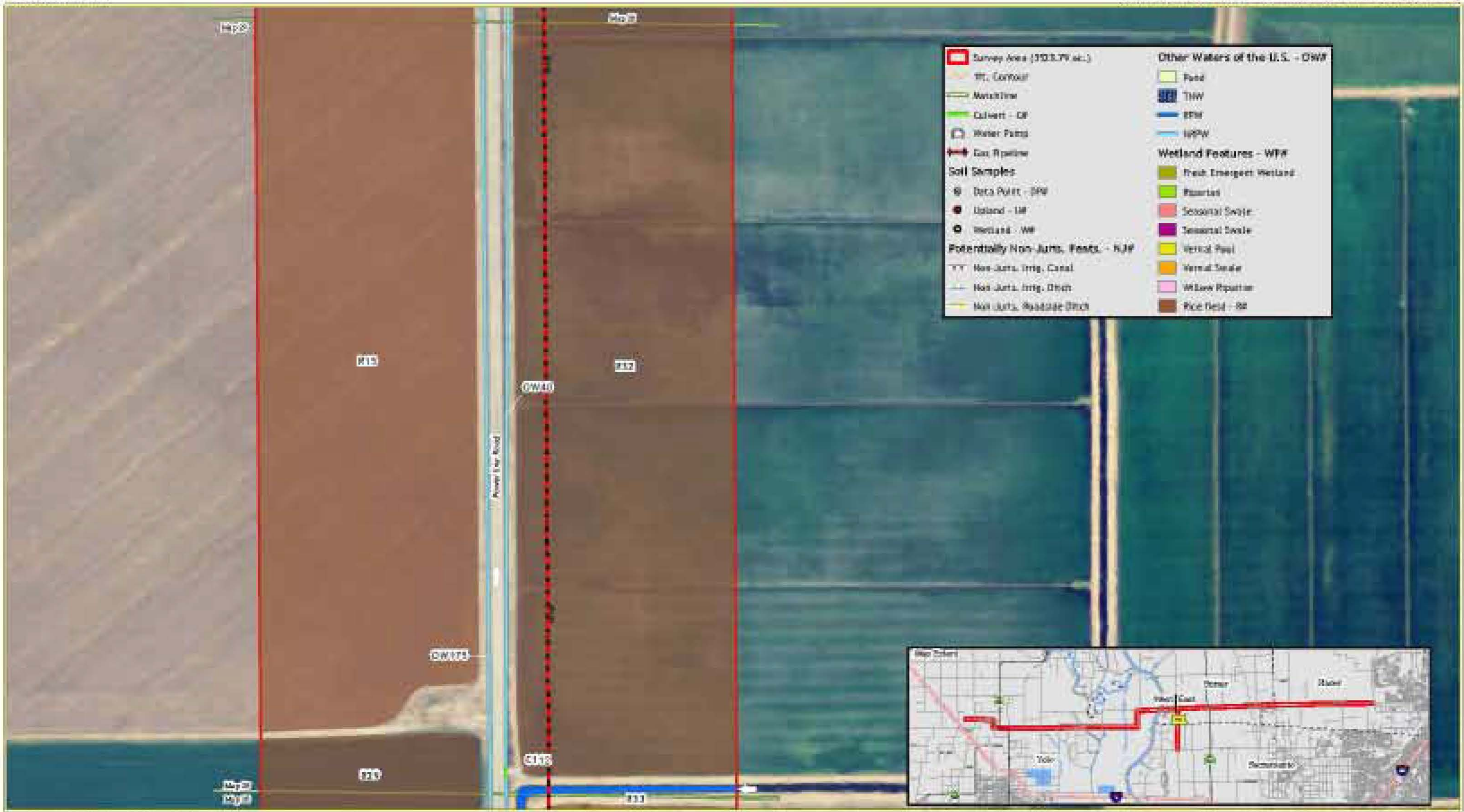

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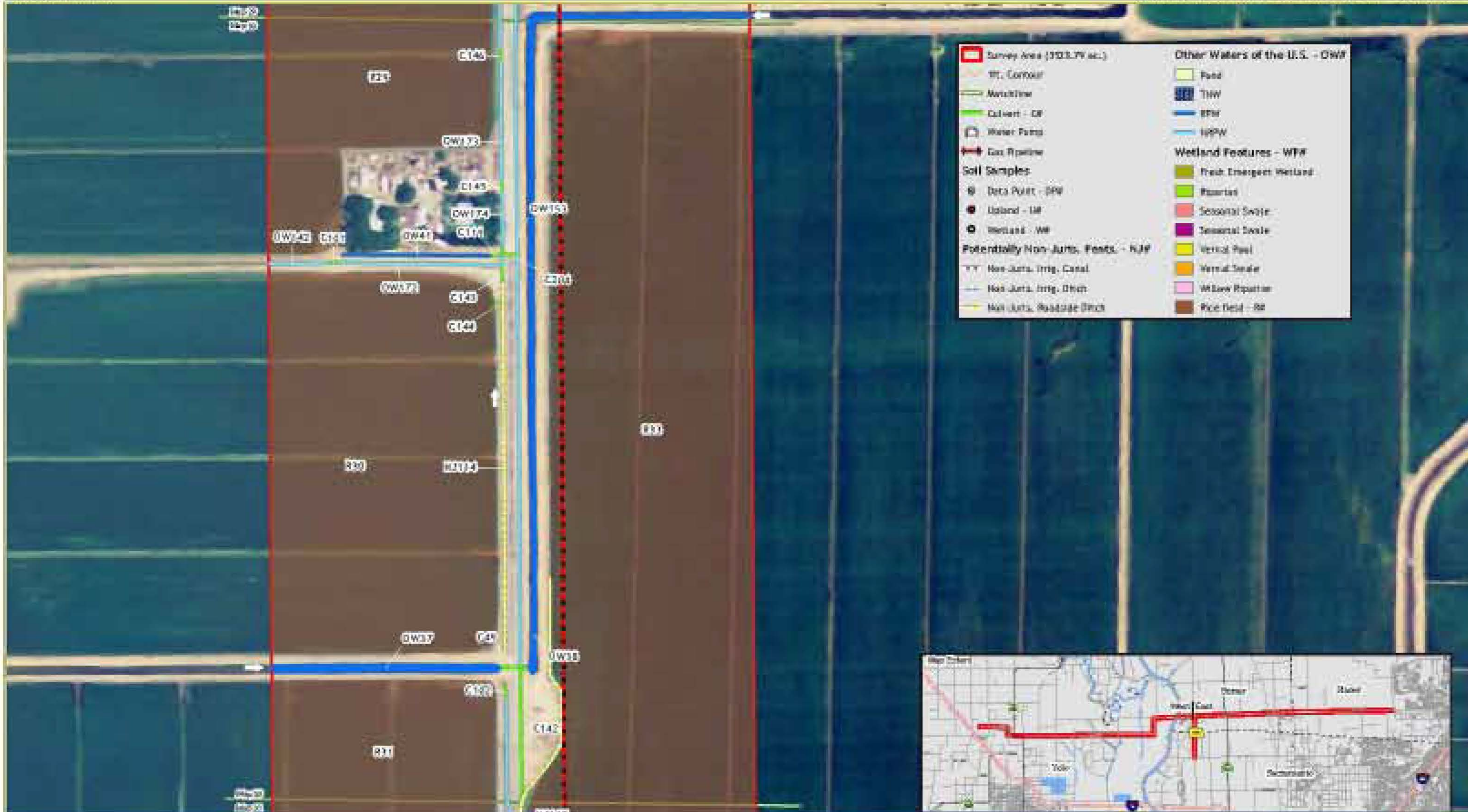

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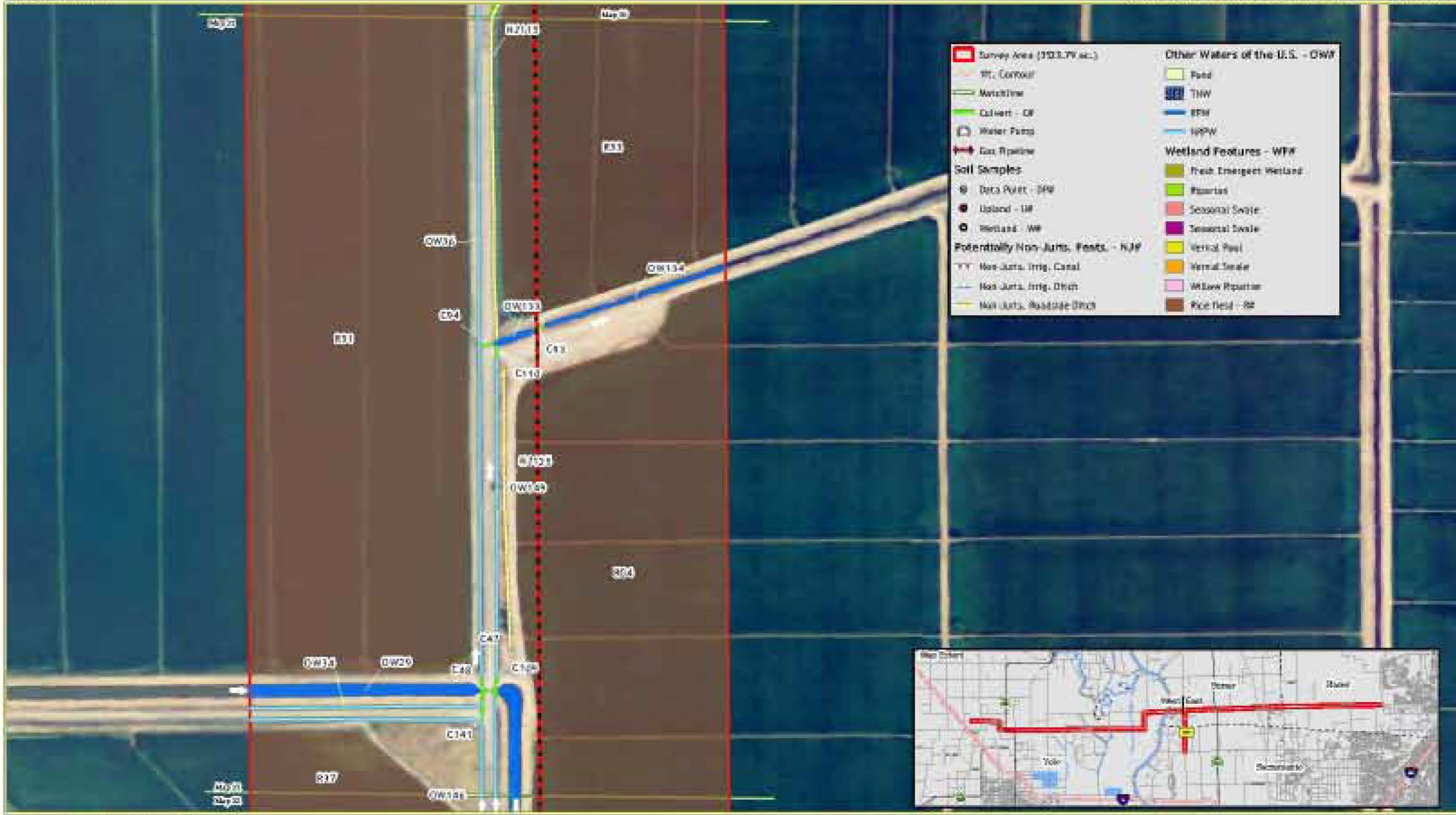

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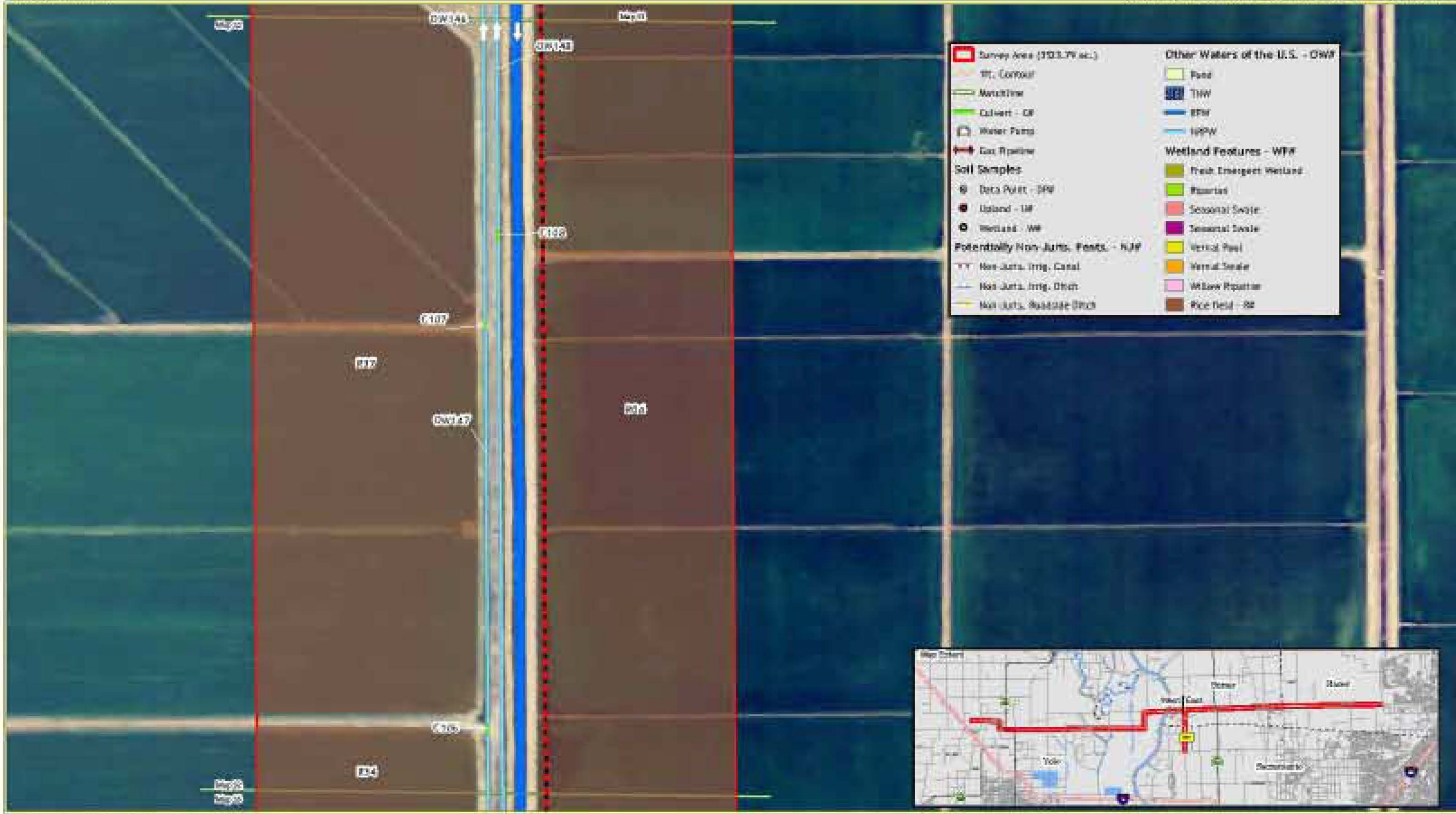

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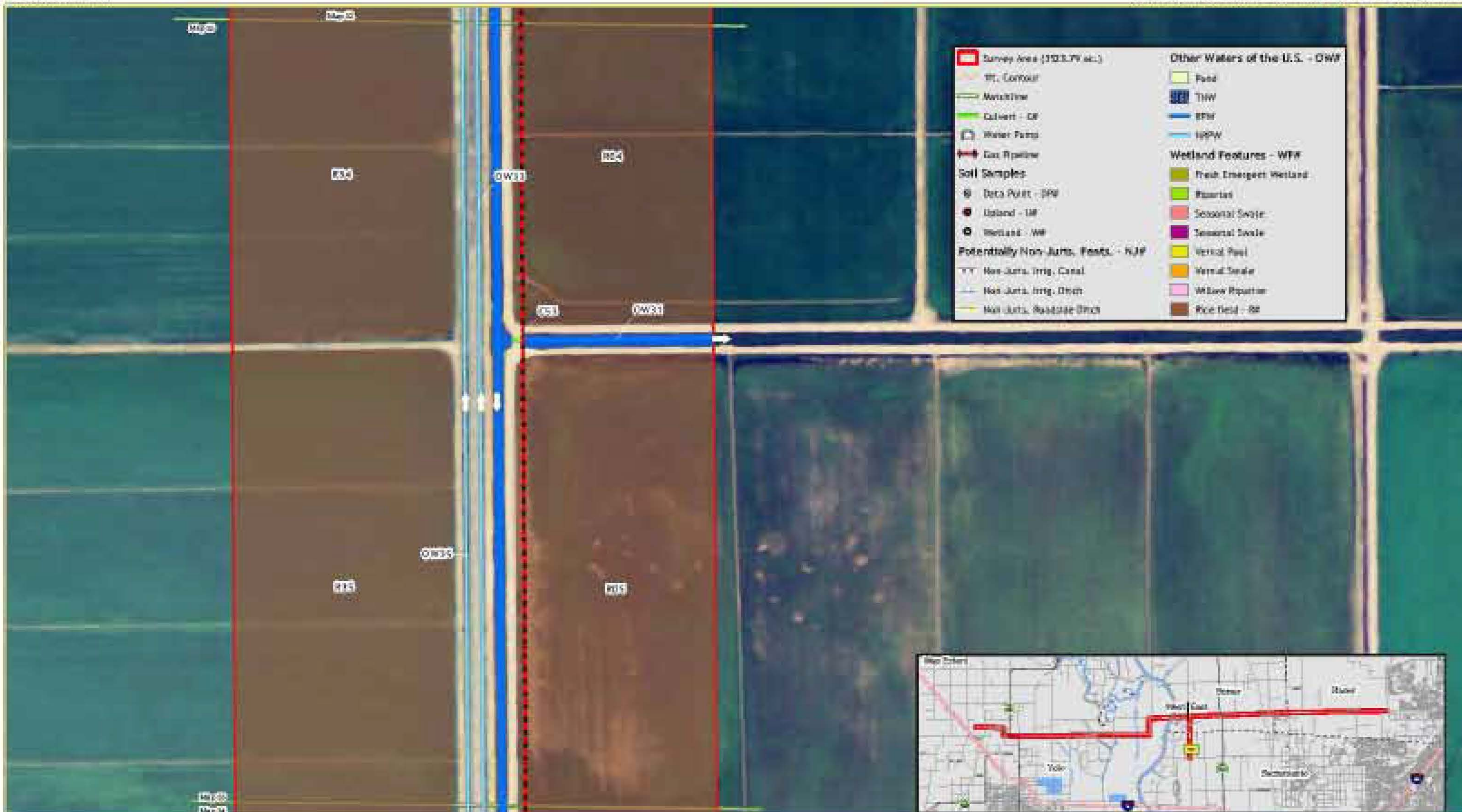

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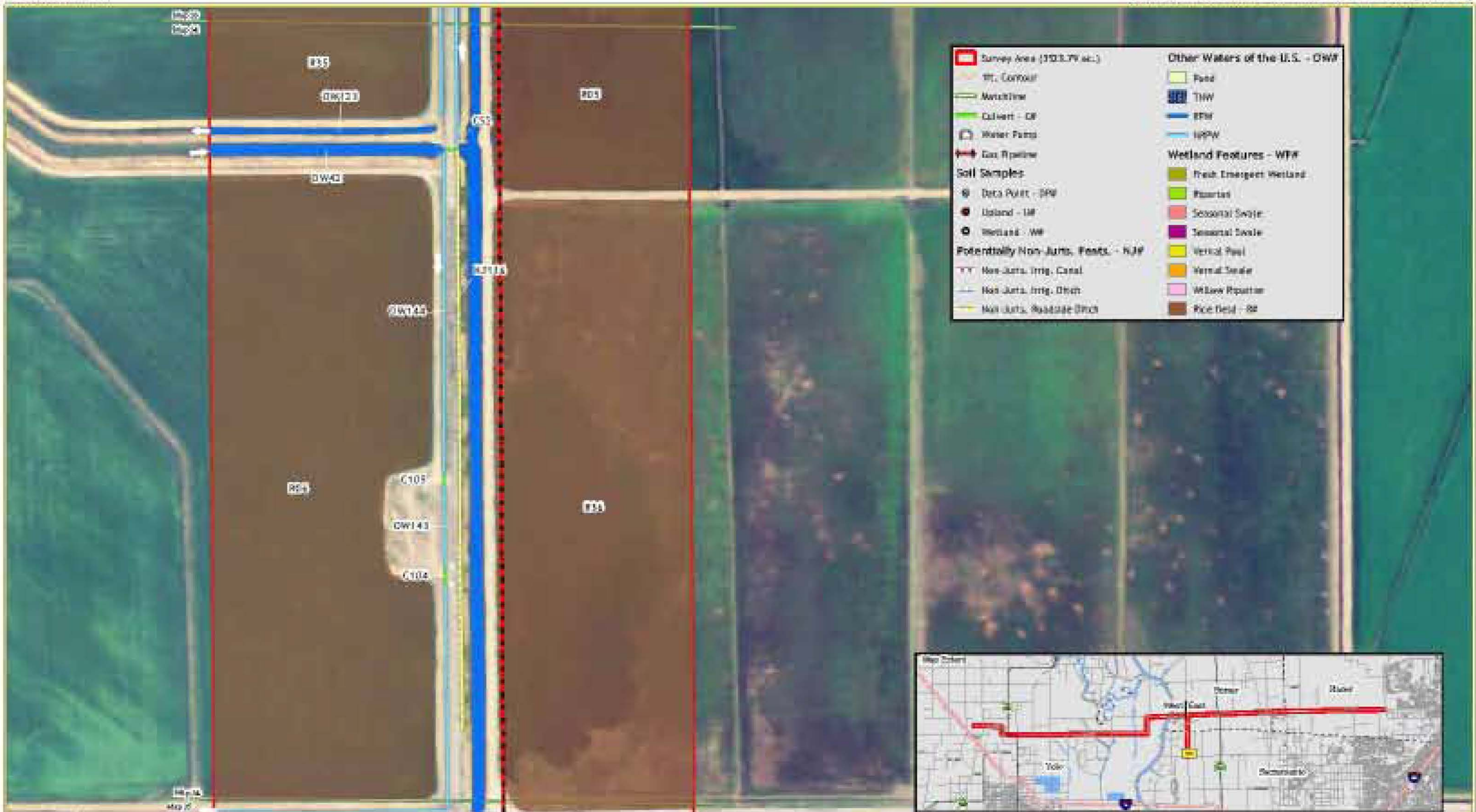
CONSULTING, INC.



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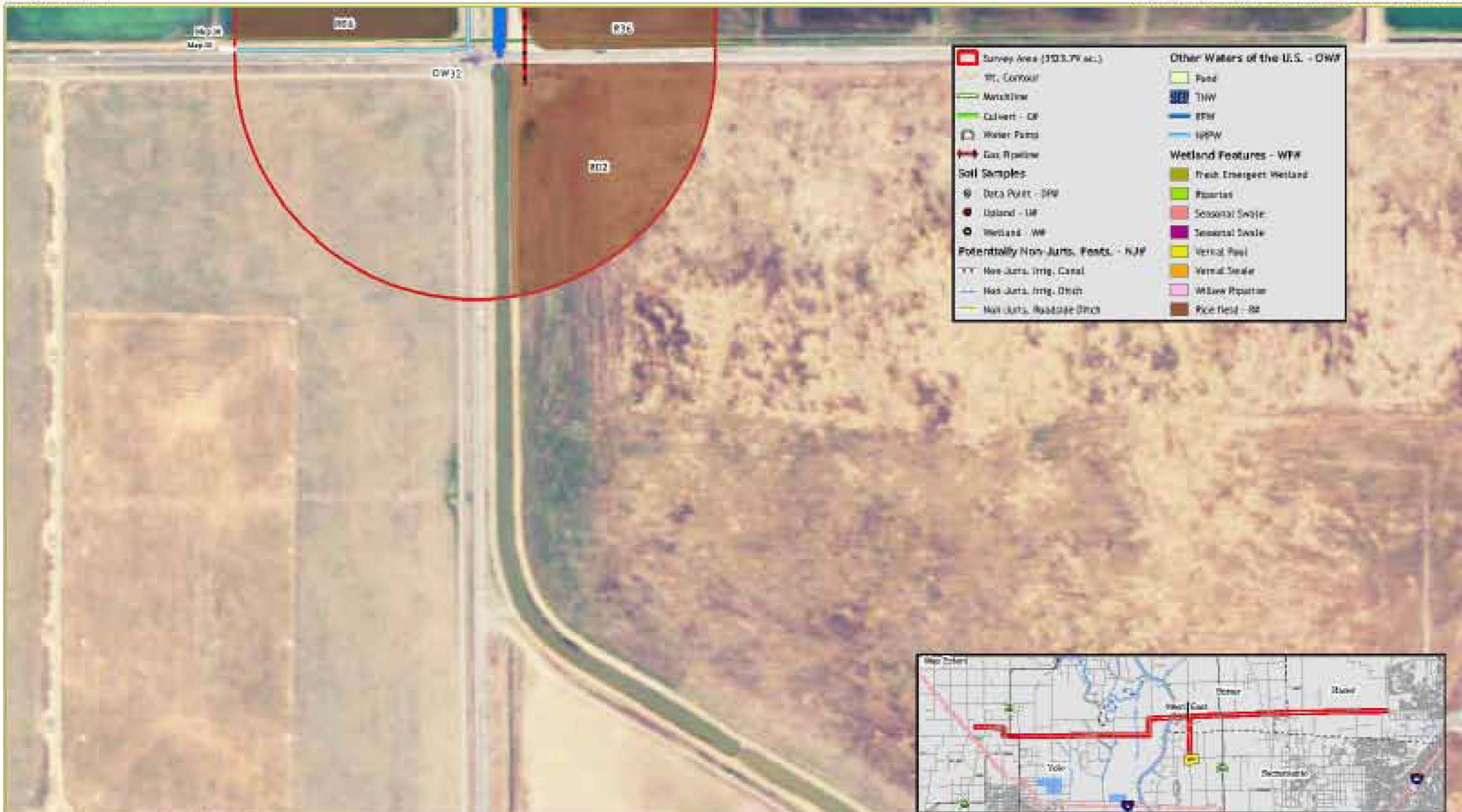
GALLAWAY
CONSULTING, INC.



All Features are considered preliminary until written
verification from the USACE.
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Feet
0 100 200

GALLAWAY
CONSULTING, INC.

Feet

0 100 200

GALLAWAY CONSULTING, INC.

Feet
0 100 200

GALLAWAY CONSULTING, INC.

Feet

0 100 200

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Feet

0 100 200

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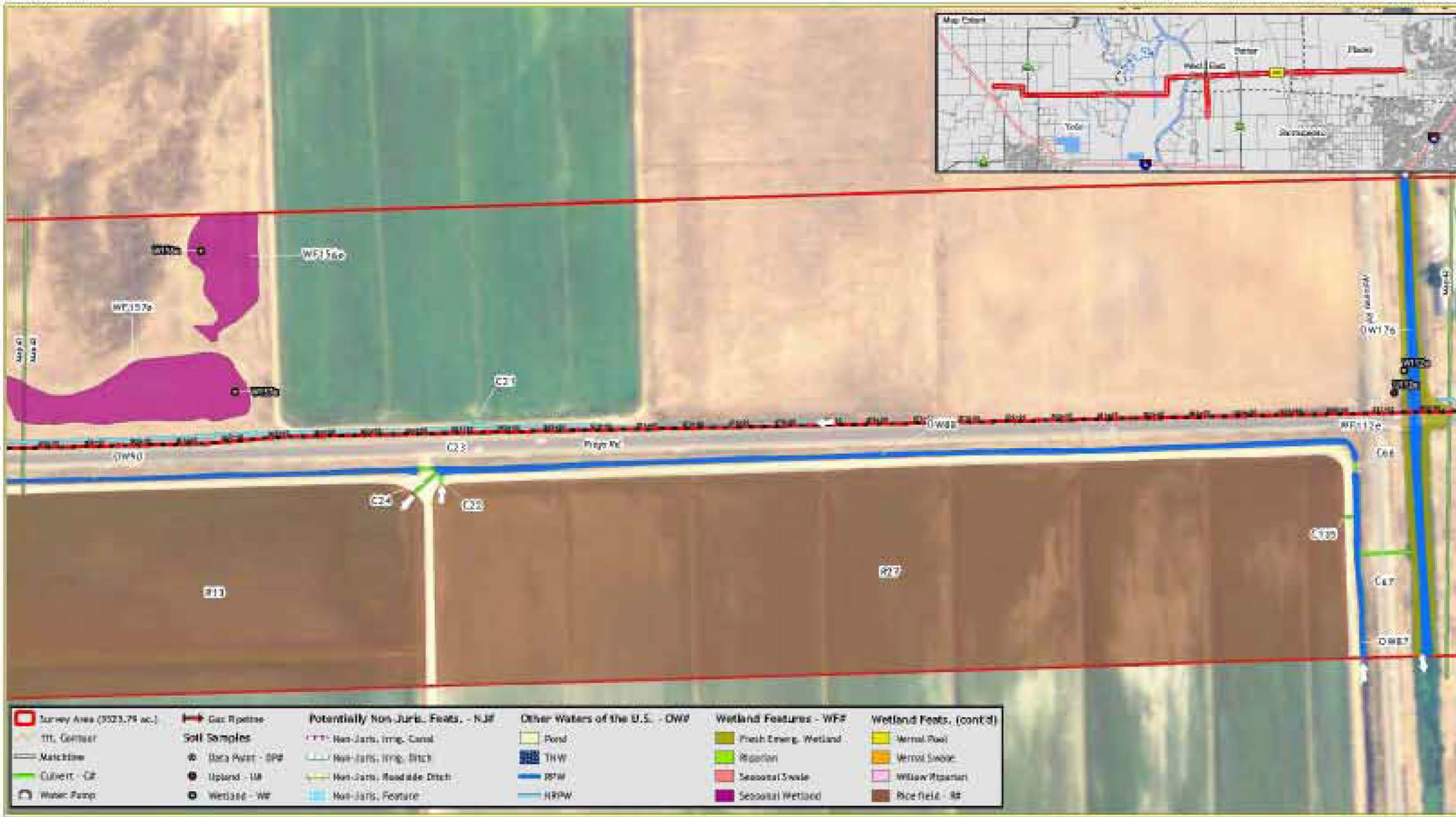
Map Extent
Yolo
Sacramento
R19
R20
R17
R24
R23
R21
DP02a
C31
C34
C35
C40
C36
C37
C33
C32
C38
C137
OW94
OW95
OW96
Survey Area (3523.79 ac.)
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - U#
Wetland - W#
Matchline
Culvert - C#
Water Pump
Potentially Non-Juris. Feats. - NJ#
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
Non-Juris. Feature
Other Waters of the U.S. - OW#
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 - R#
Feet
0
100
200
GALLAWAY
CONSULTING, INC.

Feet

0 100 200

GALLAWAY
CONSULTING, INC.



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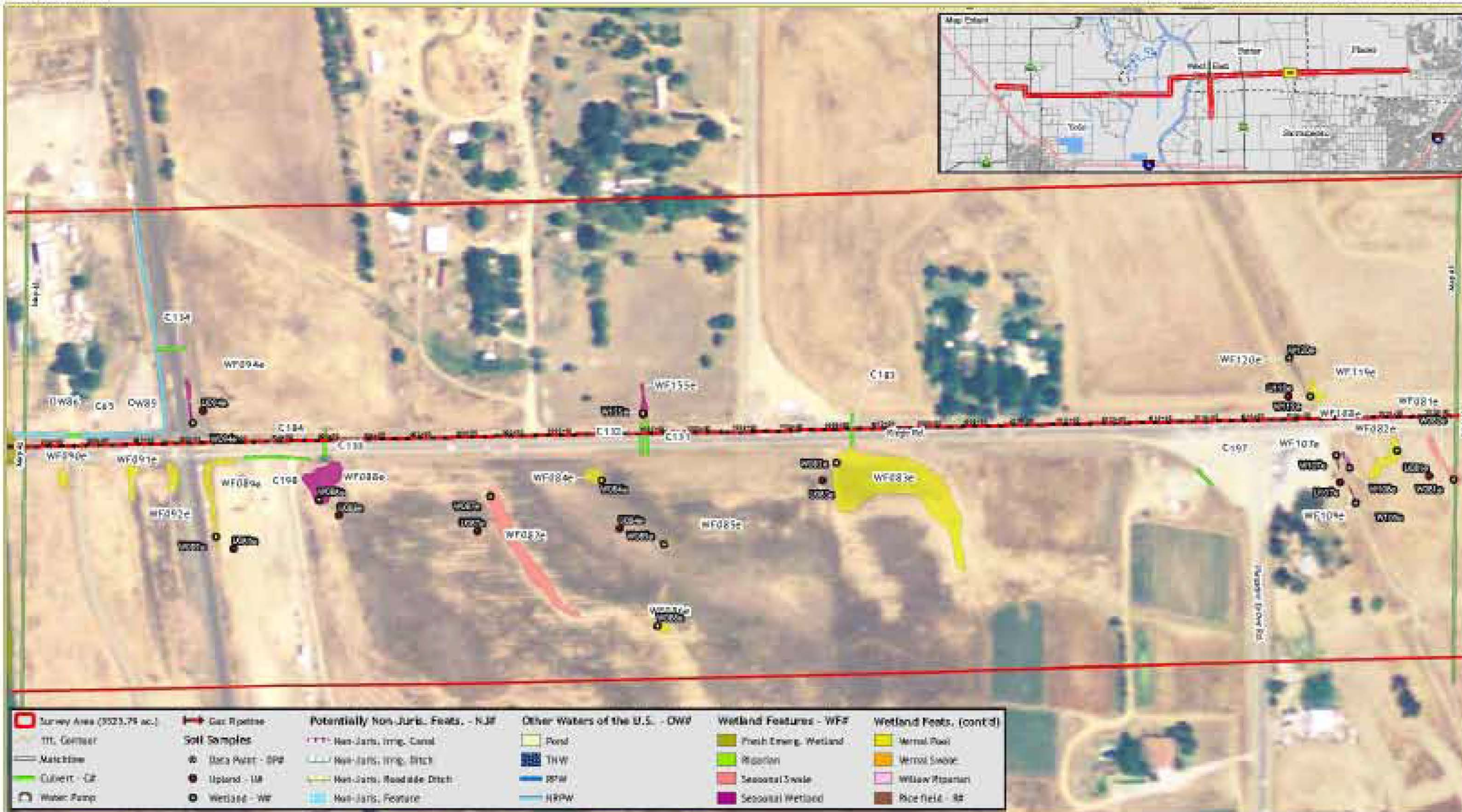

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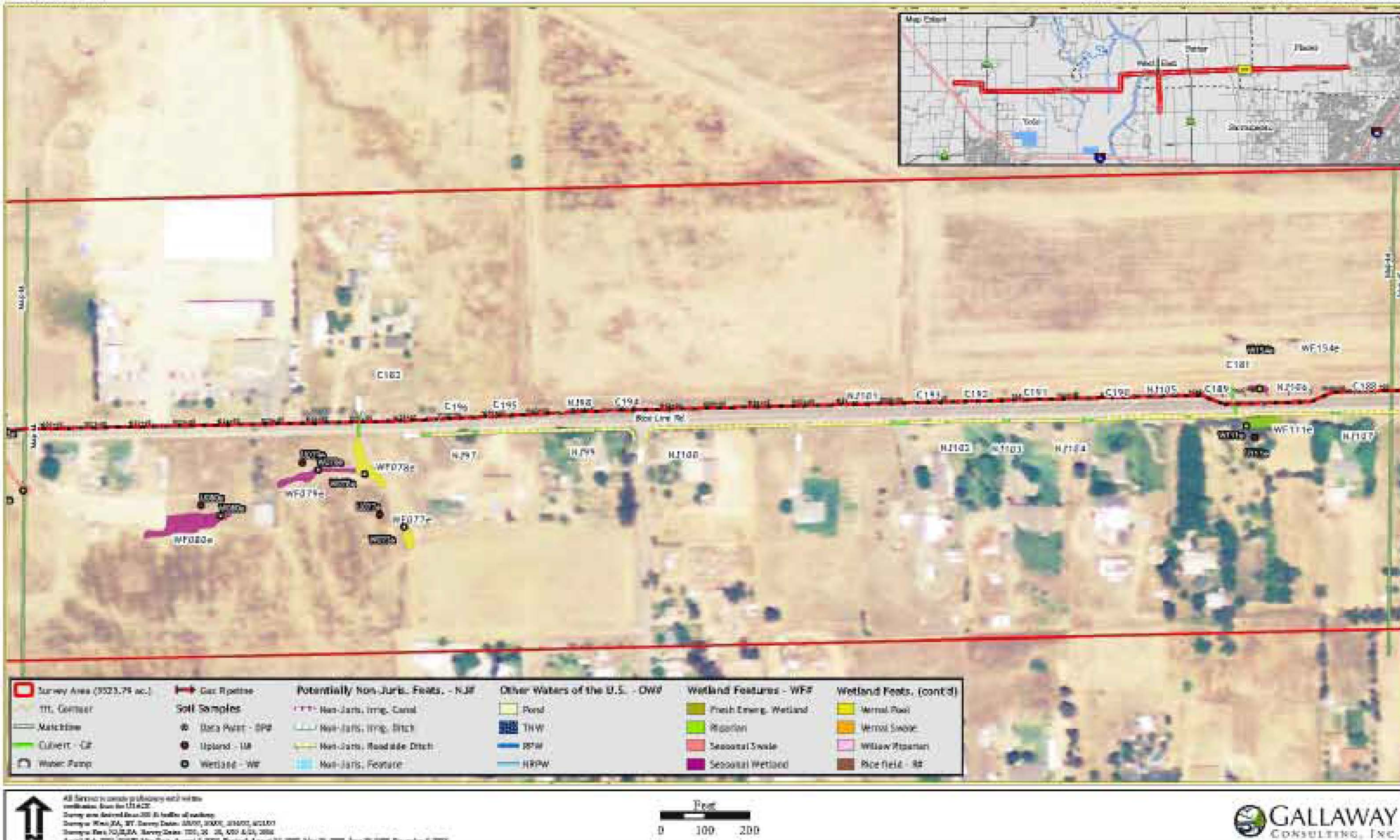

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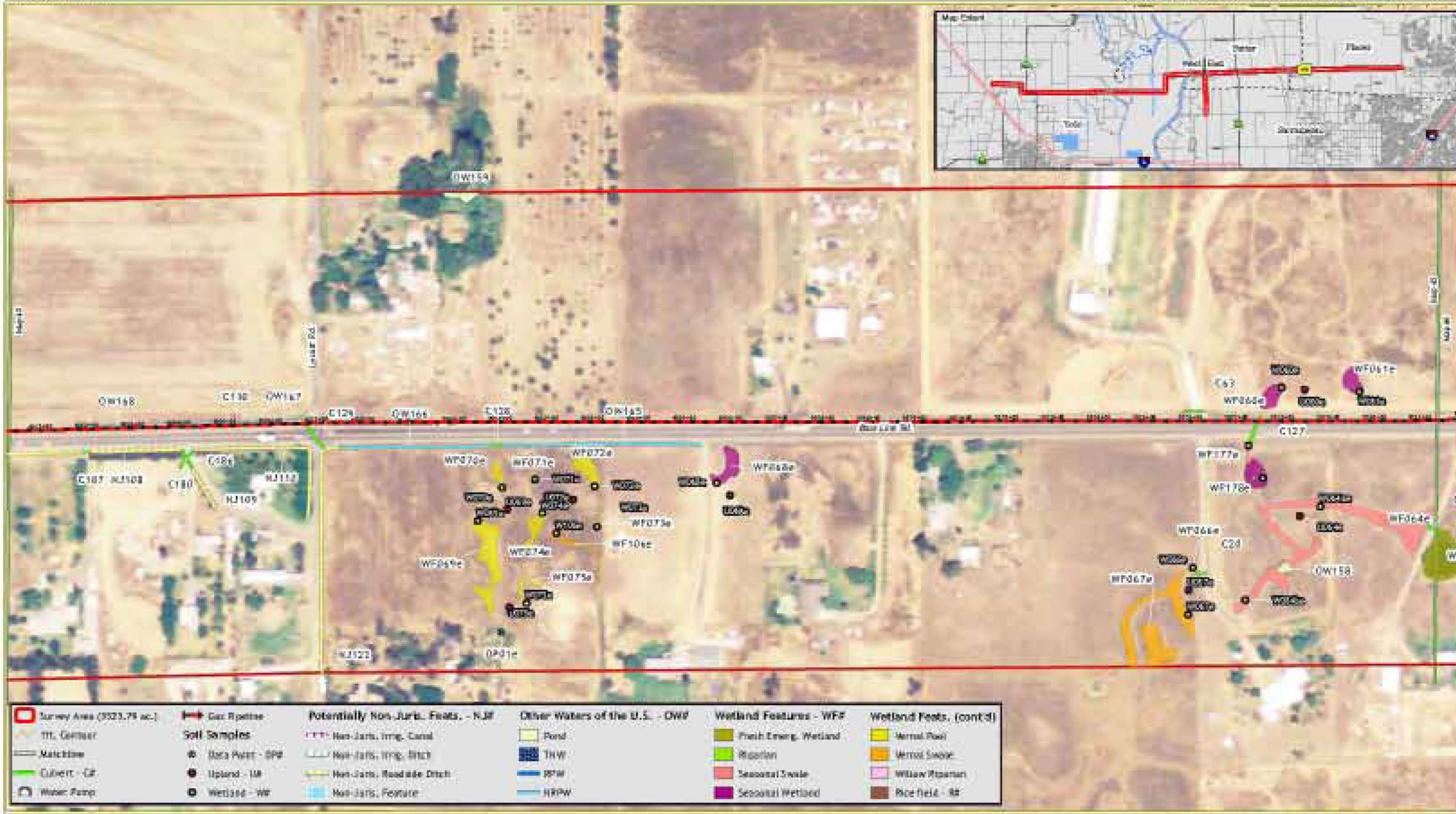

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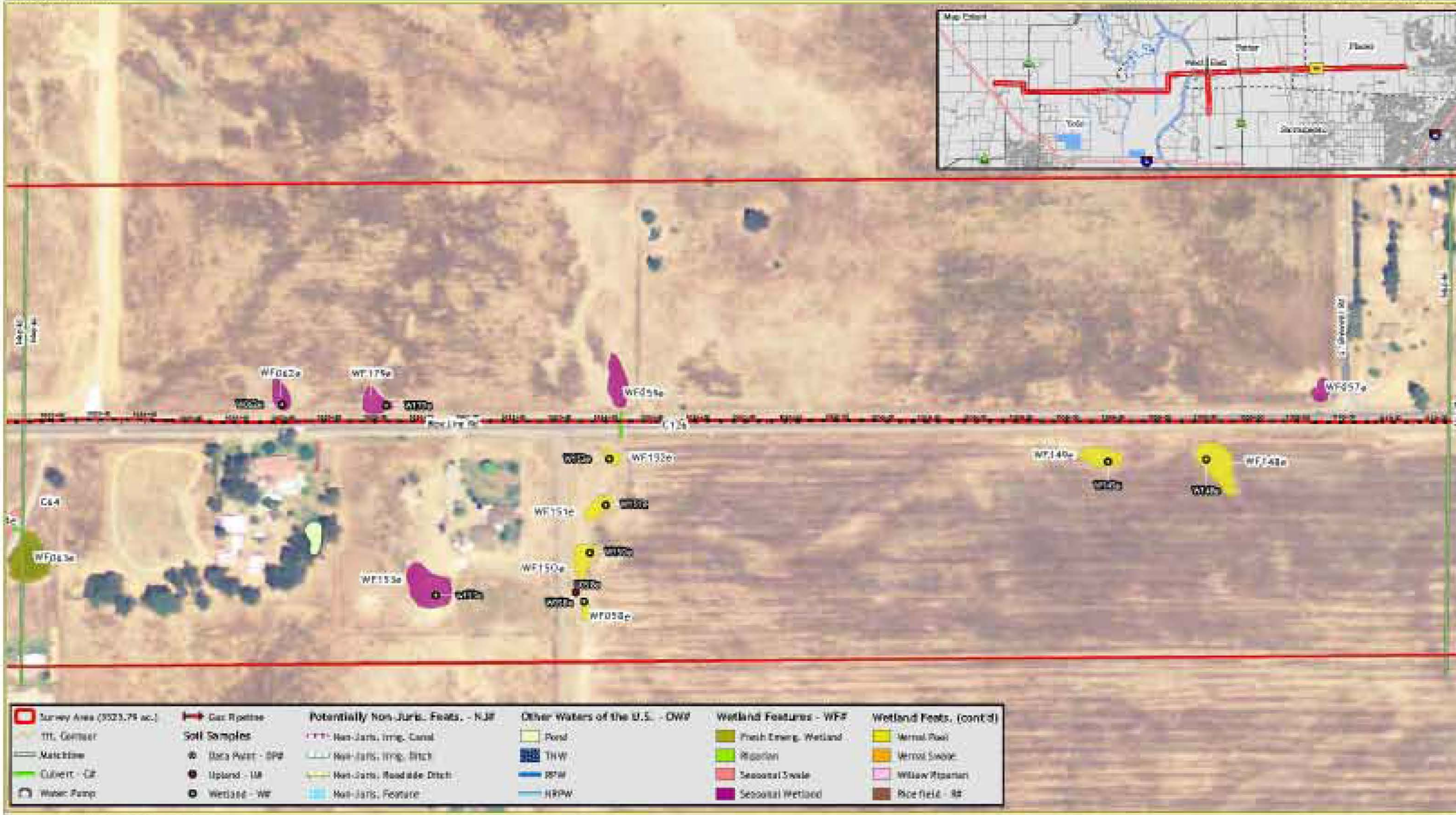

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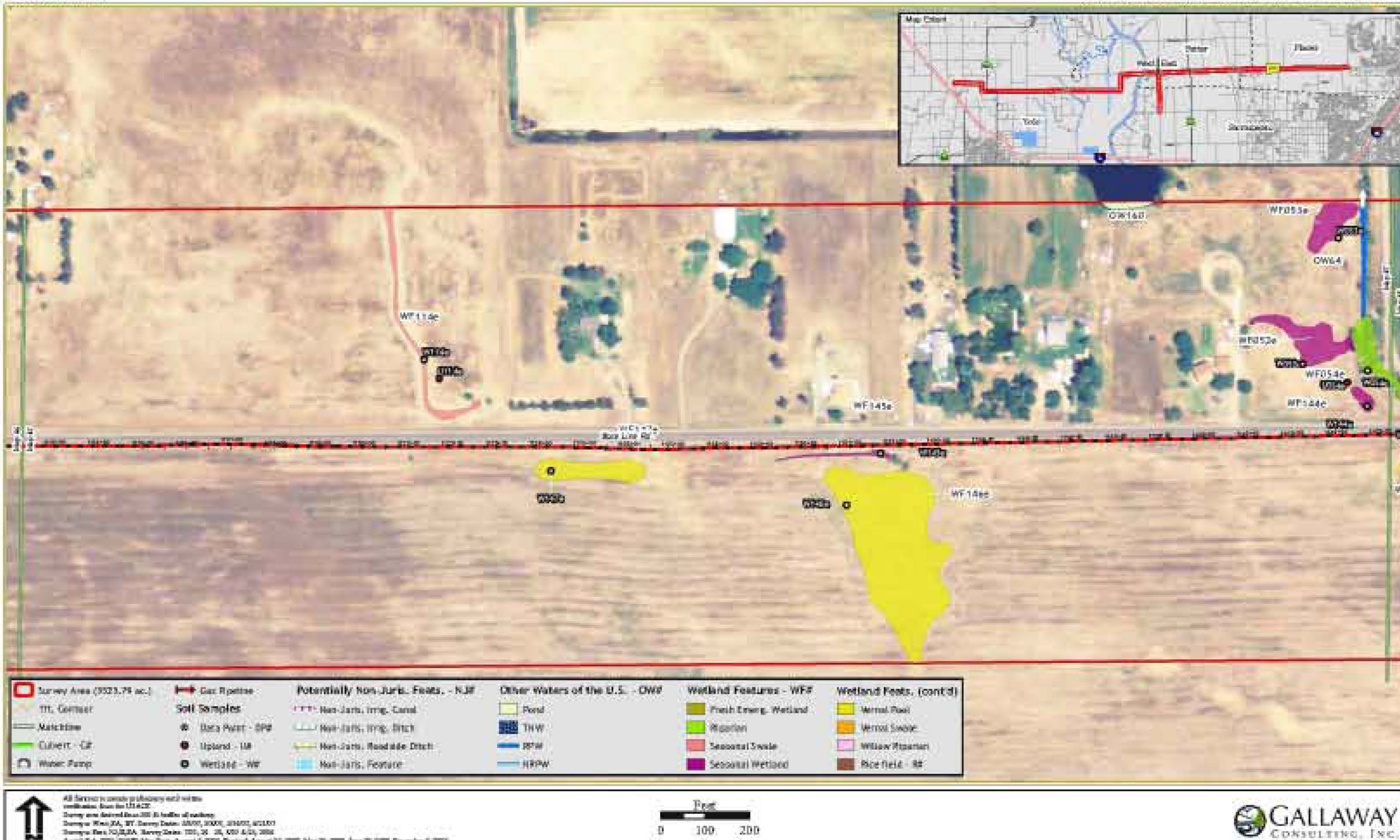

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CONSULTING, INC.

Feet

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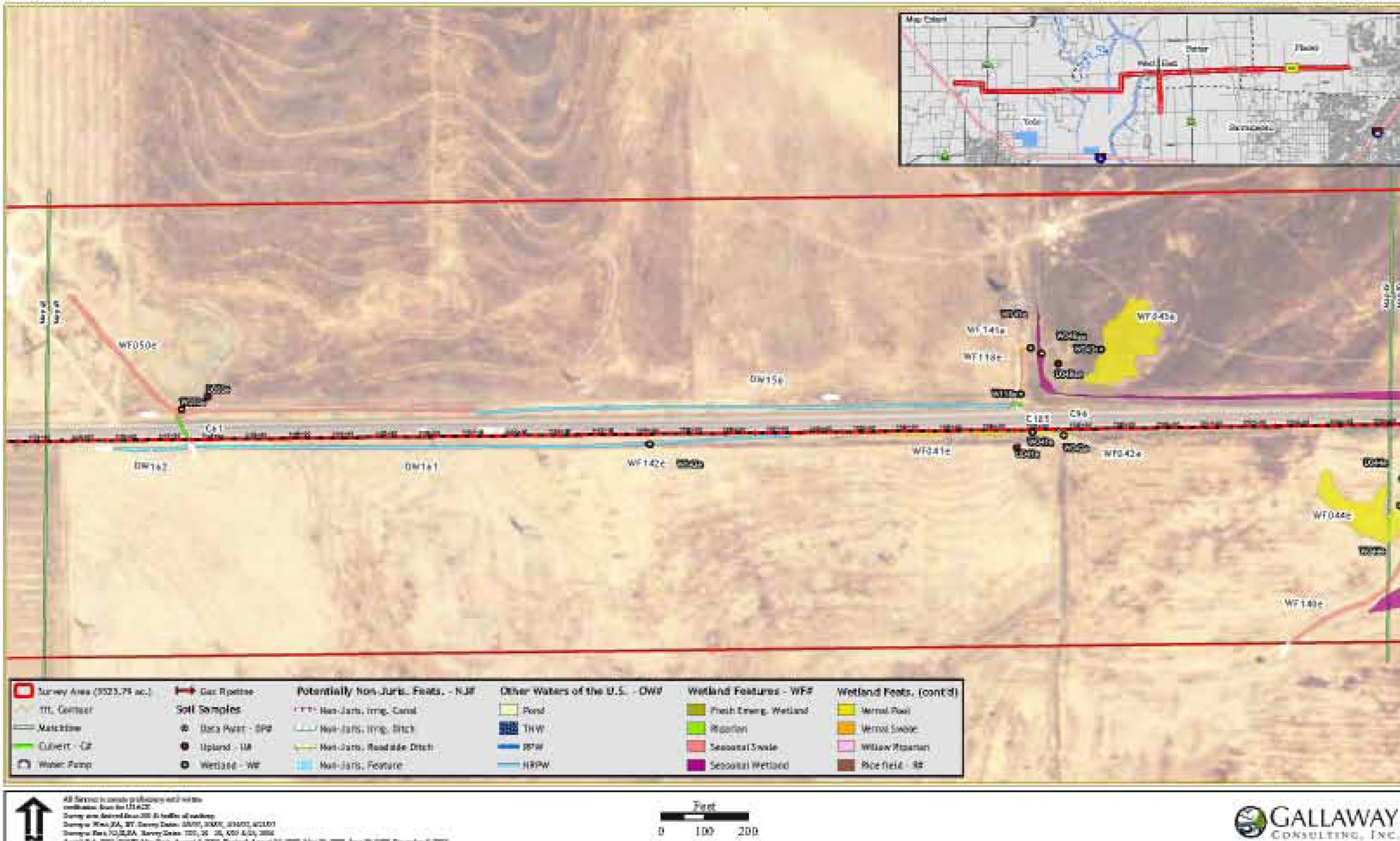

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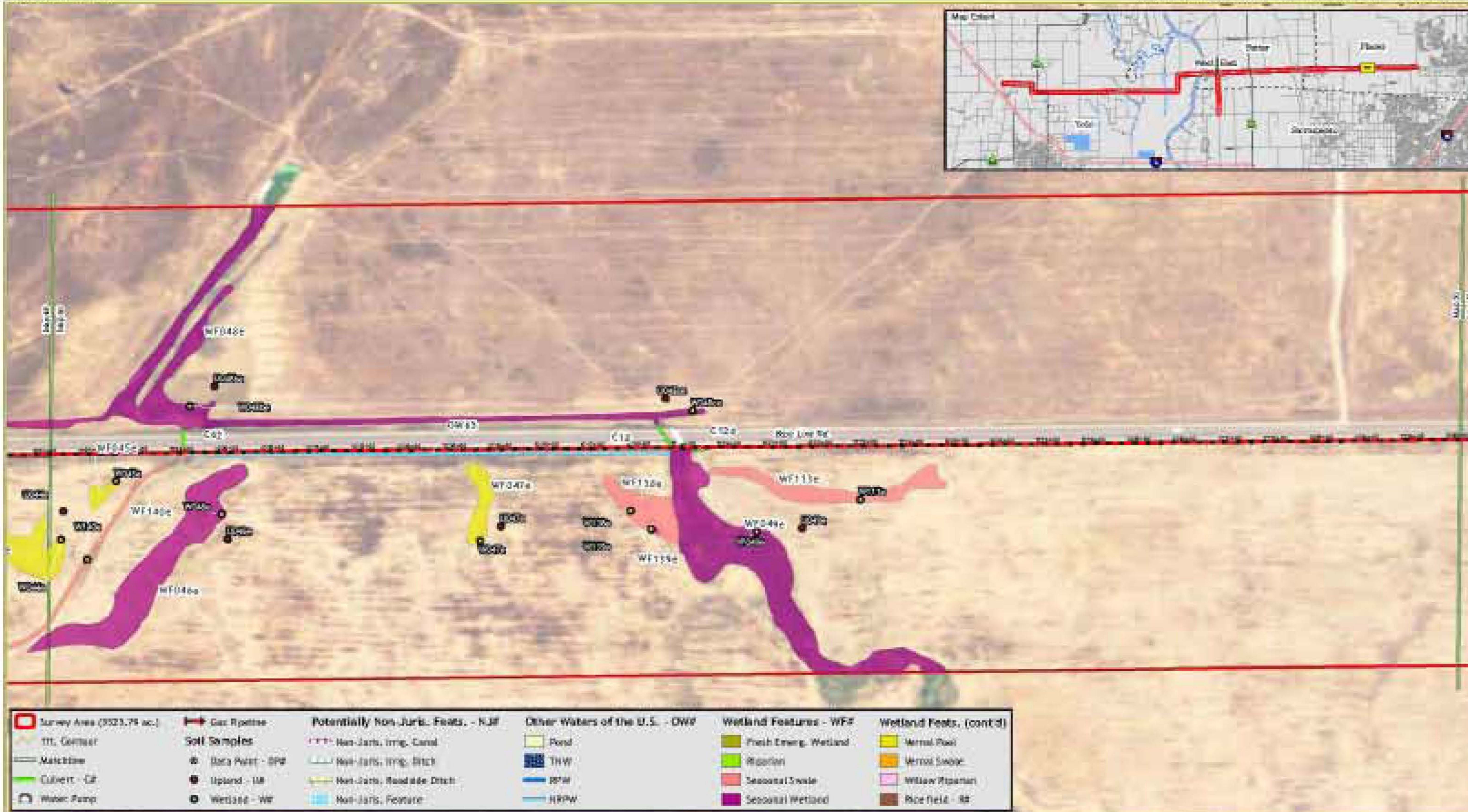

Feet
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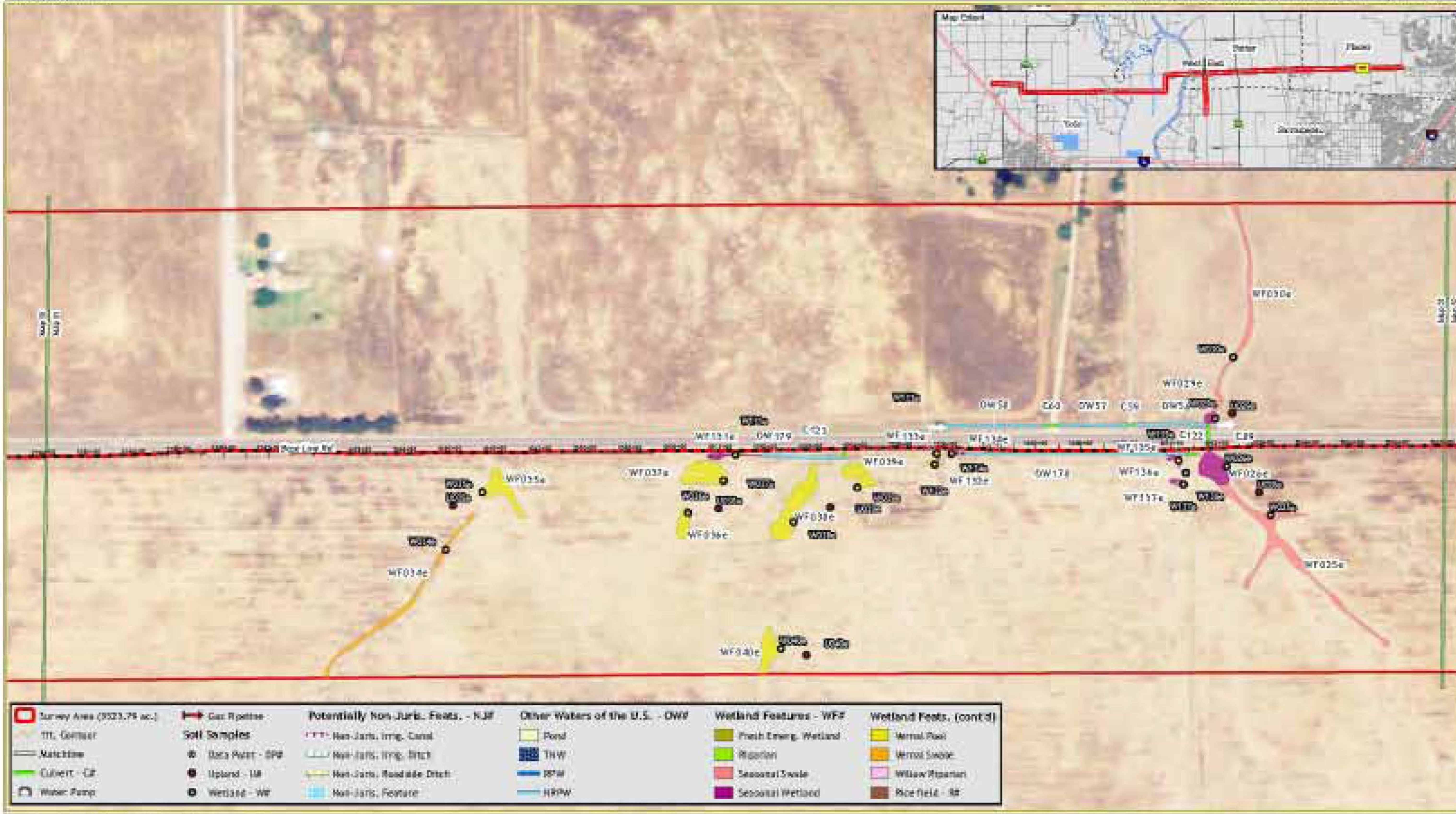

Feet

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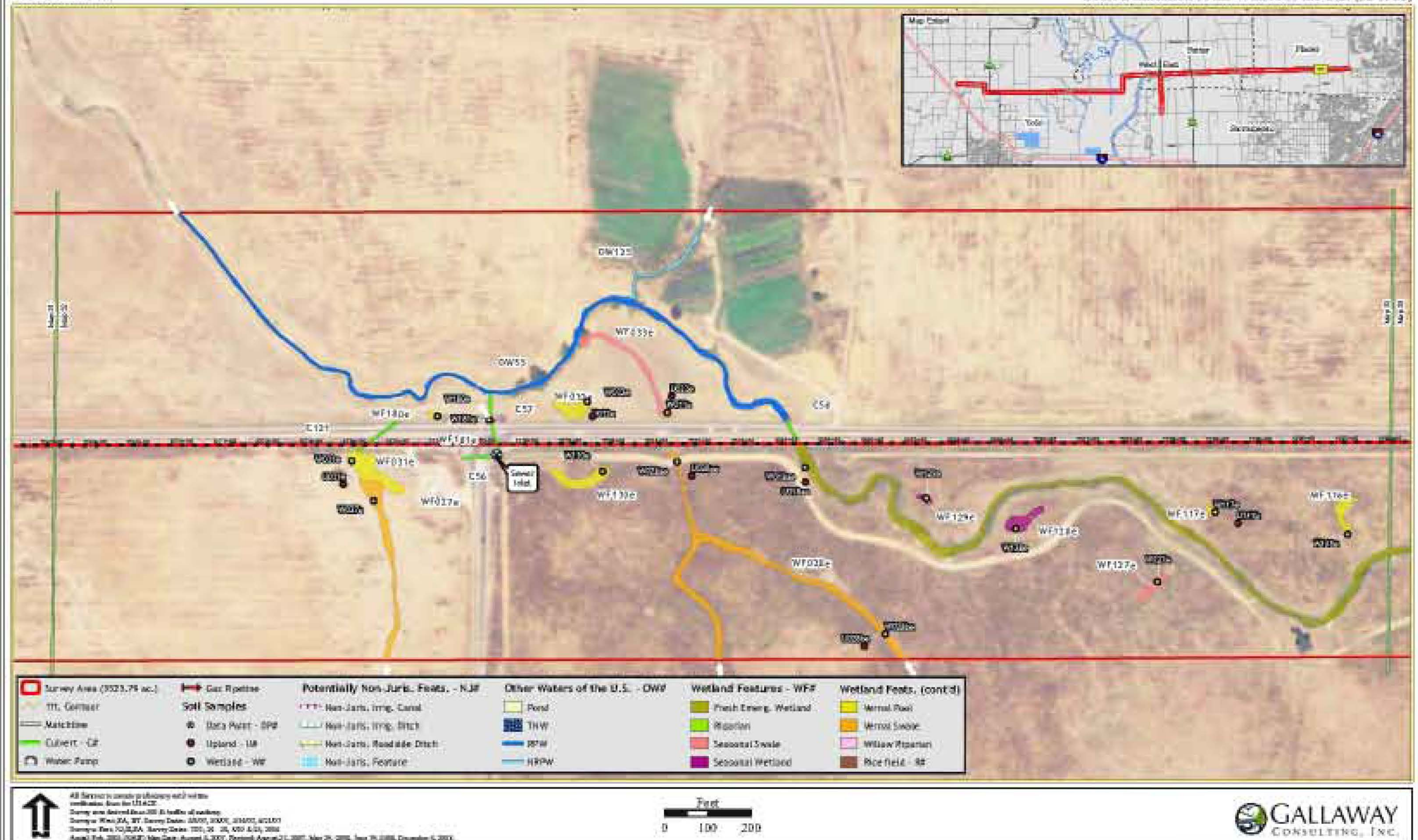
OW125
WF033e
OW55
C57
C58
WF180e
C121
WF181e
WF031e
C56
WF027e
WF130e
WF028e
WF129e
WF118e
WF117e
WF116e
WF127e
Sewer Inlet
Survey Area (3523.79 ac.)
1ft. Contour
Matchline
Culvert - C#
Water Pump
Gas Pipeline
Soil Samples
Data Point - DP#
Upland - U#
Wetland - W#
Potentially Non-Juris. Feats. - NJ#
Non-Juris. Irrig. Canal
Non-Juris. Irrig. Ditch
Non-Juris. Roadside Ditch
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Fresh Emerg. Wetland
Riparian
Seasonal Swale
Seasonal Wetland
Wetland Feats. (cont'd)
Vernal Pool
Vernal Swale
Willow Riparian
Rice field - R#
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0
100
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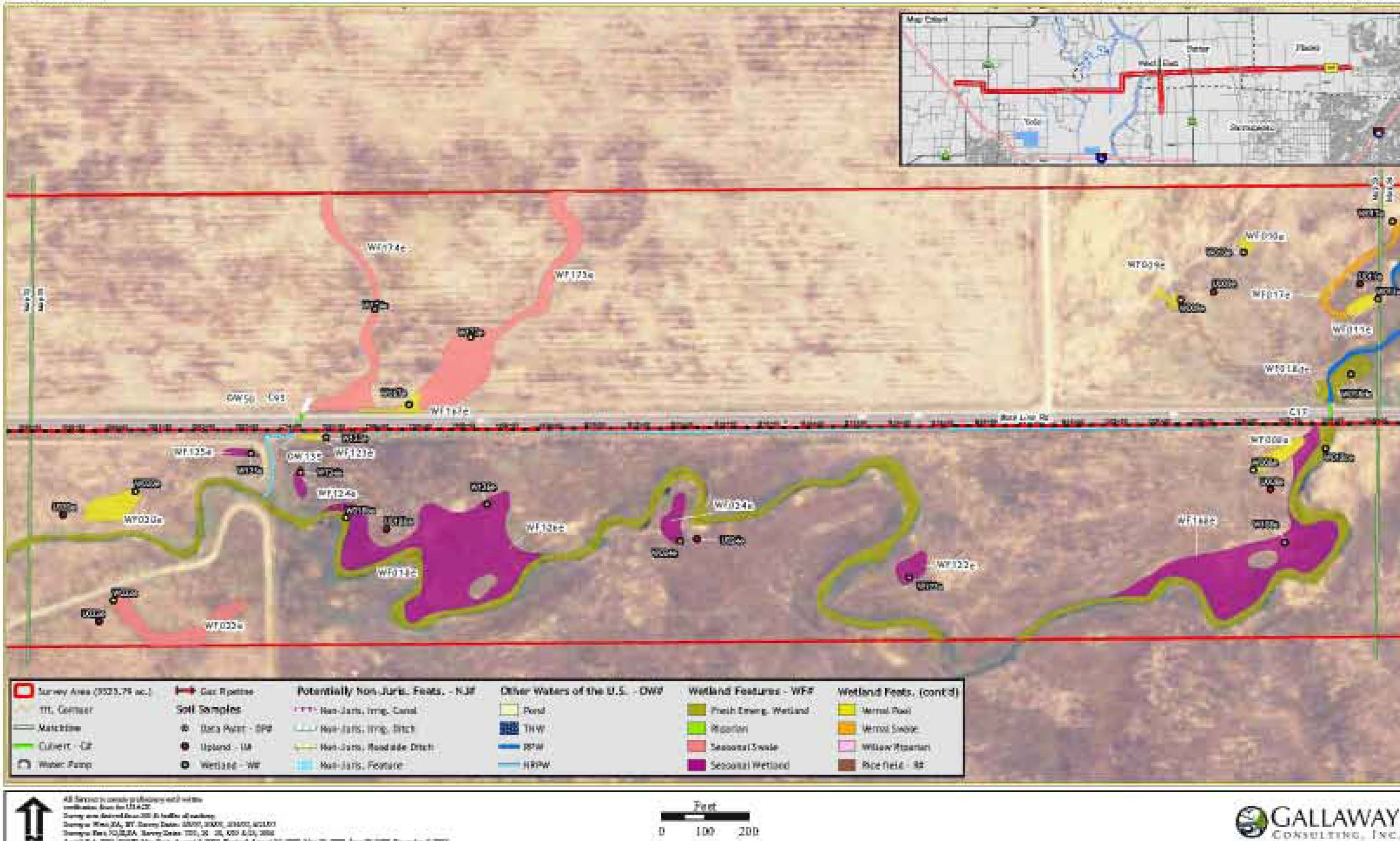

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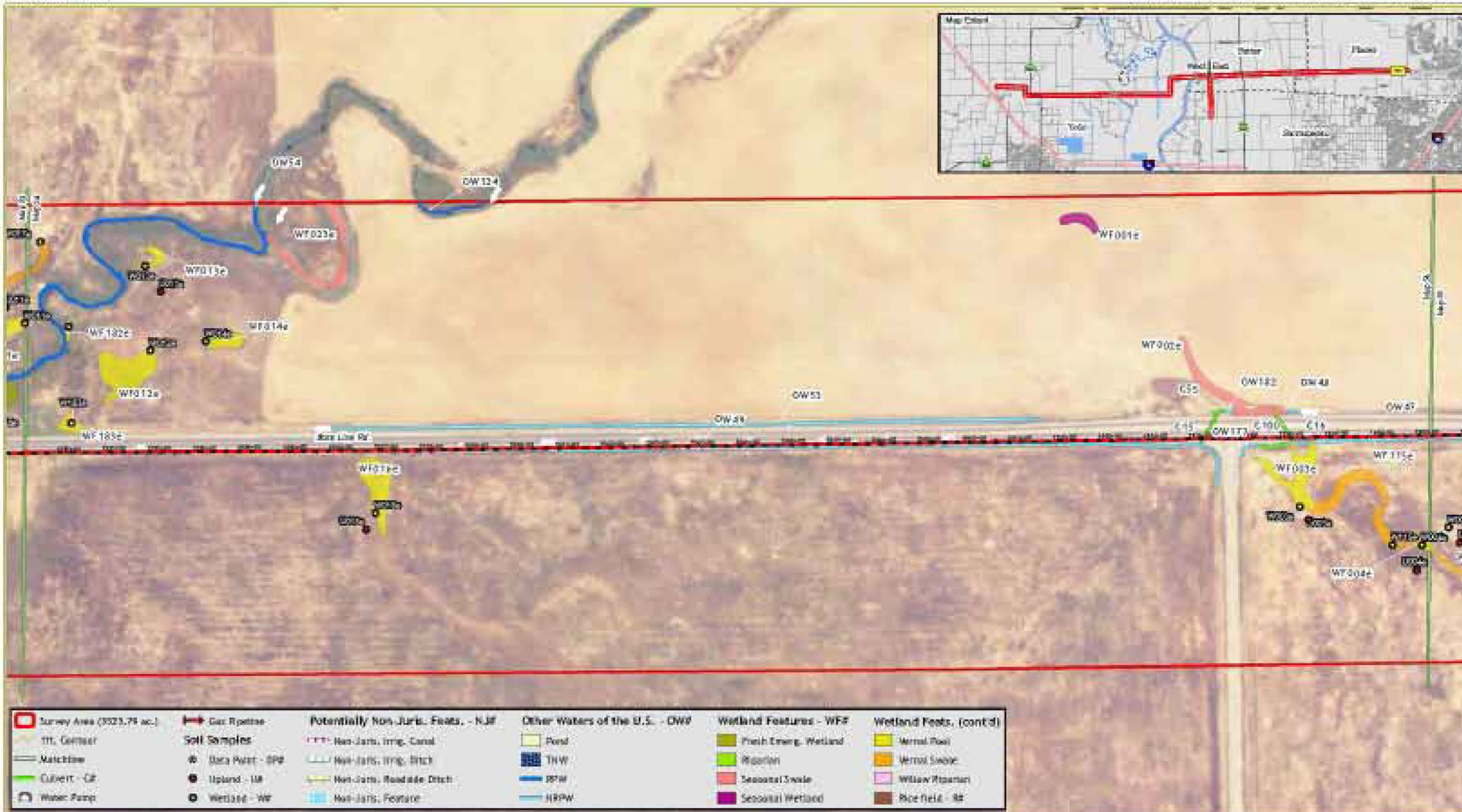

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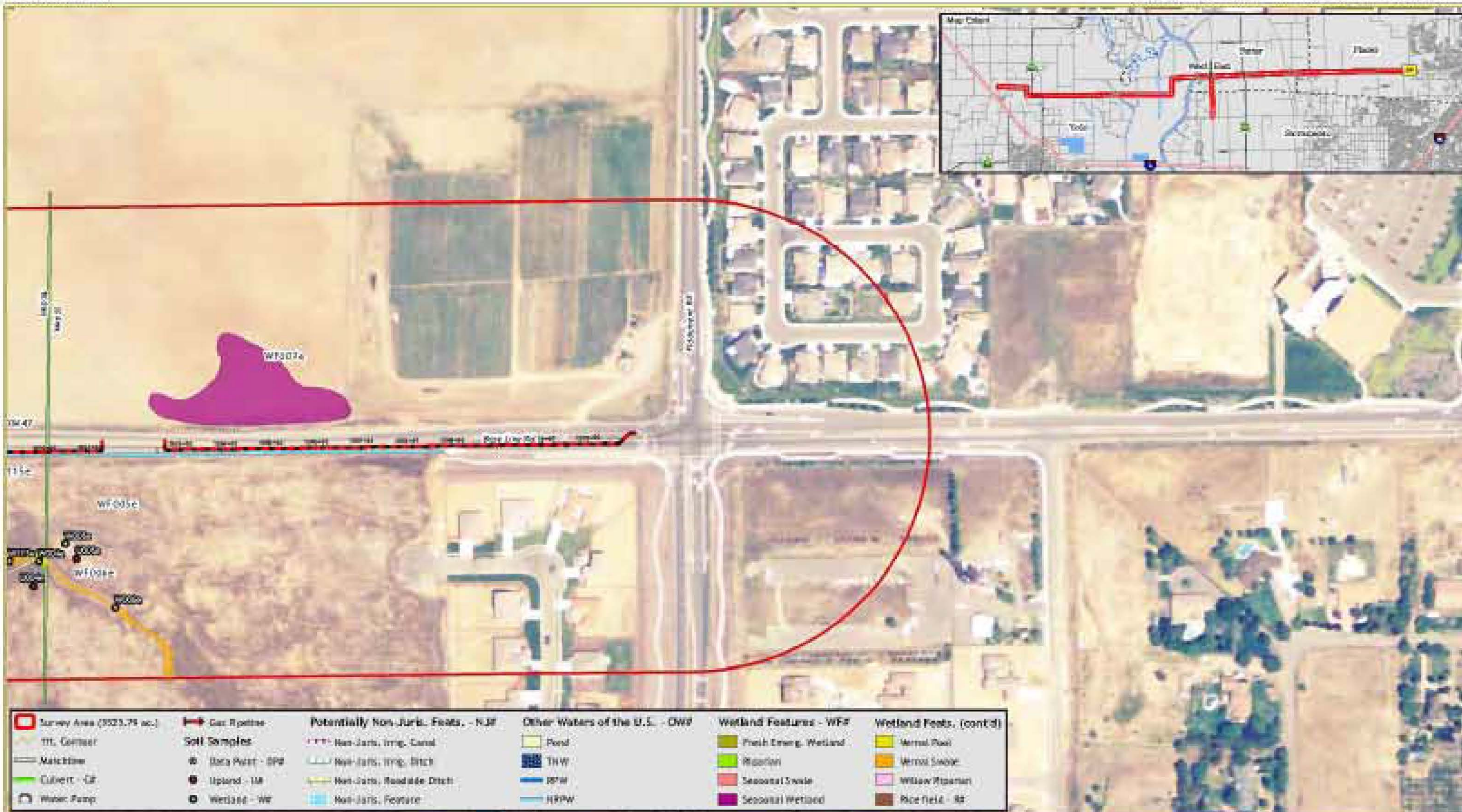

Feet

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