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September 26, 2013

Ms. Beverly Bastian
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Subject: Sutter Energy Center (97-AFC-2C), Wetland Delineation Report

Dear Ms. Bastian:

Attached please find Calpine Construction Finance Company, L.P. (Calpine) wetland delineation report titled "*Preliminary Delineation of Wetlands and other Water Bodies"* for the Sutter Energy Center (97-AFC-2C).

Please do not hesitate to contact Doug Davy at (916) 286-0278 or myself at (916)286-0249 if you have any questions regarding the information we have submitted.

Sincerely,

CH2M HILL

Douglas M. Davy, Ph.D.
Program Manager

Attachment

cc: M. Weinberg, Calpine
B. McBride, Calpine

ES0

Wetland Delineation Report

Preliminary Delineation of Wetlands and Other Water Bodies Sutter Energy Center

Sutter County, California

Submitted by

Calpine Construction Finance Company, L.P.

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Yuba City, California 95993

With Technical Assistance by

CH2MHILL®

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September 2013

Contents

Acronyms and Abbreviations

CCFC	Calpine Construction Finance Company, L.P.
CDEC	California Data Exchange Center
CFR	Code of Federal Regulations
CWA	Clean Water Act
DP	Detention Pond
FEMA	Federal Emergency Management Agency
GPS	global positioning system
ICF	ICF International
kV	kilovolt
NRCS	Natural Resources Conservation Service
OHWM	Ordinary High Water Mark
NWI	National Wetland Inventory
OBL	obligate
PA	Ponded Area
PG&E	Pacific Gas and Electric Company
SEC	Sutter Energy Center
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

SECTION 1

Introduction

This report presents the results of a delineation of wetlands and waters of the United States that was conducted for the Calpine Construction Finance Company, L.P. (CCFC) Sutter Energy Center facility. CCFC proposes to construct an auxiliary boiler and to expand the air-cooled condenser (ACC) at the existing 580-megawatt Sutter Energy Center (SEC) in Sutter County, California (see Figures 1 and 2). CCFC is seeking authorization for this construction through a Petition to Amend the California Energy Commission license for this facility. This delineation is for proposed activities associated with the construction of the ACC areas within the SEC site boundary. Off-site activities associated with the project also include the construction of an underground generator tie-line from the SEC property to a new substation site and a 30-acre substation. The wetland delineation for the off-site portions of the project was completed separately and is reported in a separate document (ICF 2012). The results of this delineation are considered preliminary pending verification by the USACE. Wetlands and other waters of the United States (US) are protected under the federal Clean Water Act (CWA). Activities that cause discharge of fill materials into waters of the US, including wetlands, must be authorized by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA.

This report includes a general description of the proposed project and its location and environmental setting in Section 1; a description of the wetland delineation methods in Section 2; and the delineation results in Section 3. The area included in the wetland delineation is shown in Figure 3.

1.1 Project Description

The proposed project involves technology upgrades at the SEC facility, and installation of a new generator tie-line and substation. As stated above, the project's effects on wetlands and waters of the U.S. along the bulk of the new generator tie-line and at the substation are addressed in a separate wetland delineation report. This report addresses only the activities associated with the technology upgrades and generator tie-line that will take place within the SEC facility boundary. These include the installation of a single transmission line tower and the on-site portion of the underground generator tie-line on the southwest side of the SEC facility, expansion of the existing ACC for about 80 feet outside of the existing SEC western fenceline, and the possible use of laydown and parking areas to the northeast of the existing SEC facility. The addition of the auxiliary boiler will take place within the existing SEC power block area and does not have the potential to affect wetlands and waters of the US. The activities within the scope of this report will be contained within the Limit of Investigation shown on Figure 3.

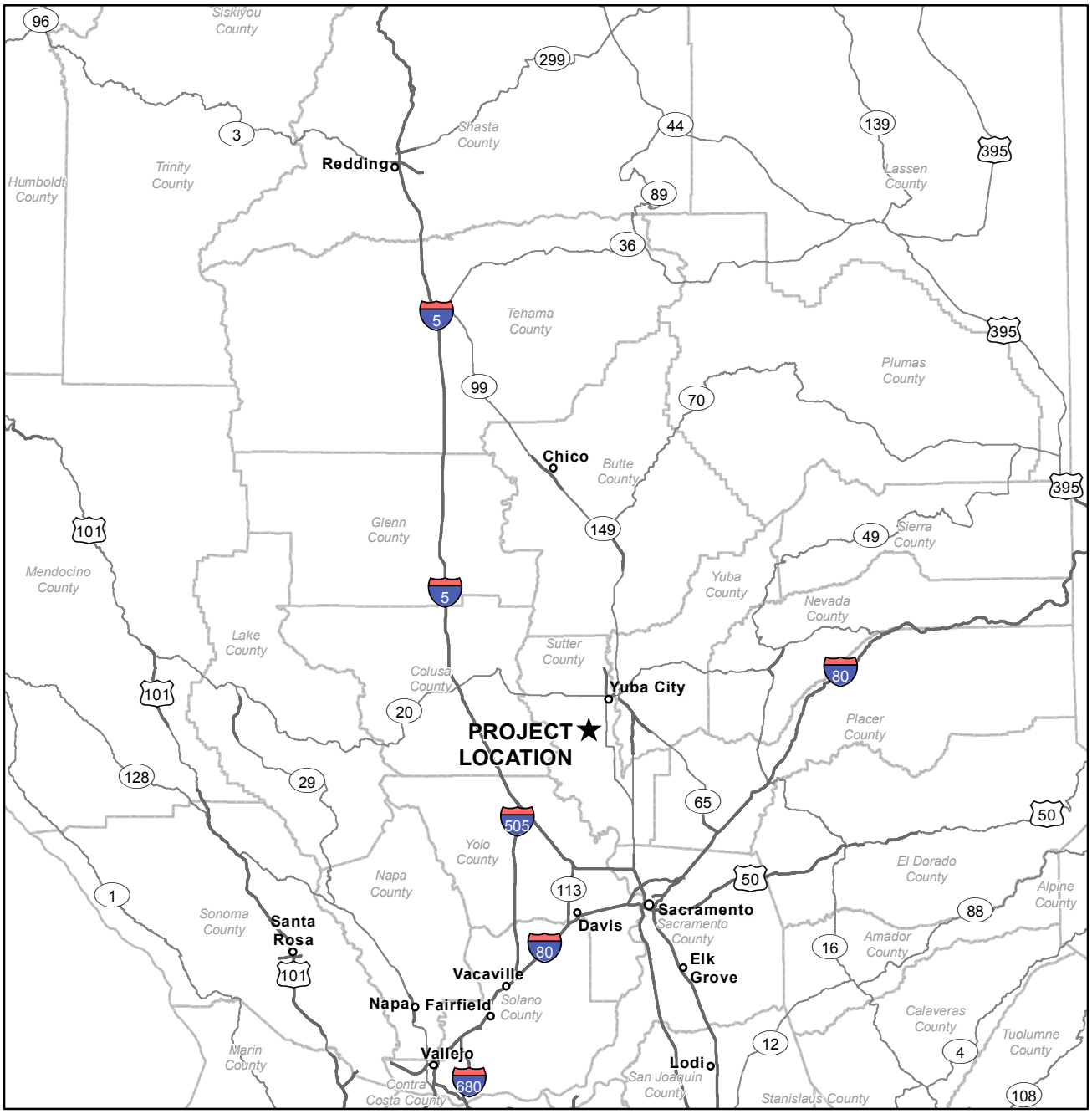
The existing SEC facility was constructed between 2000 and 2001 and came online in September 2001. The loss of all pre-existing wetland areas affected by construction of the SEC (5.83 total acres) was mitigated at the time of construction (CH2M HILL 1999a). The former extent of wetlands and the extent of previous SEC construction activities are documented in Appendix C. A single wetland area, designated as SPP-01, was not affected during the original SEC construction but was part of an ongoing wetland monitoring and protection plan (CH2M HILL 1999b). For that reason, SPP-01 was also considered as part of this delineation to characterize current conditions.

1.2 Project Applicant

The project applicant is Calpine Construction Finance Company, L.P. The contact information is as follows:

Calpine Construction Finance Company, L.P.
4160 Dublin Boulevard, Suite 100
Dublin, CA 94568-7755

Contact: Ms. Barbara McBride, Western Regional Director
Environmental Health and Safety
Work phone: 925-557-2238
Mobile phone: 925-570-0849
Email: Barbara.McBride@Calpine.com

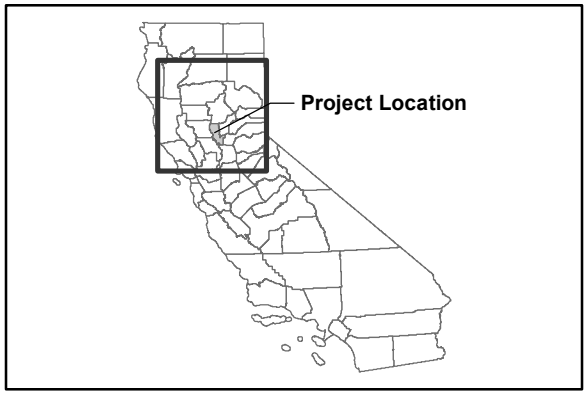


VICINITY MAP

LEGEND

★ Project Location

County Boundary



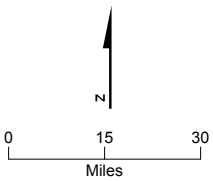


FIGURE 1
Project Location
Sutter Energy Center

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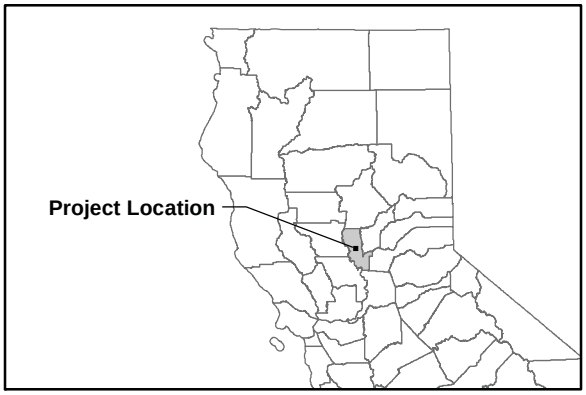
VICINITY MAP

LEGEND

- Sutter Energy Center
- Greenleaf I
- Proposed Substation
- Western O'Banion Substation
- Existing Aboveground Generator Tie-Line
- Proposed Underground Generator Tie-Line



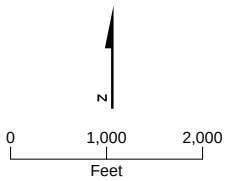
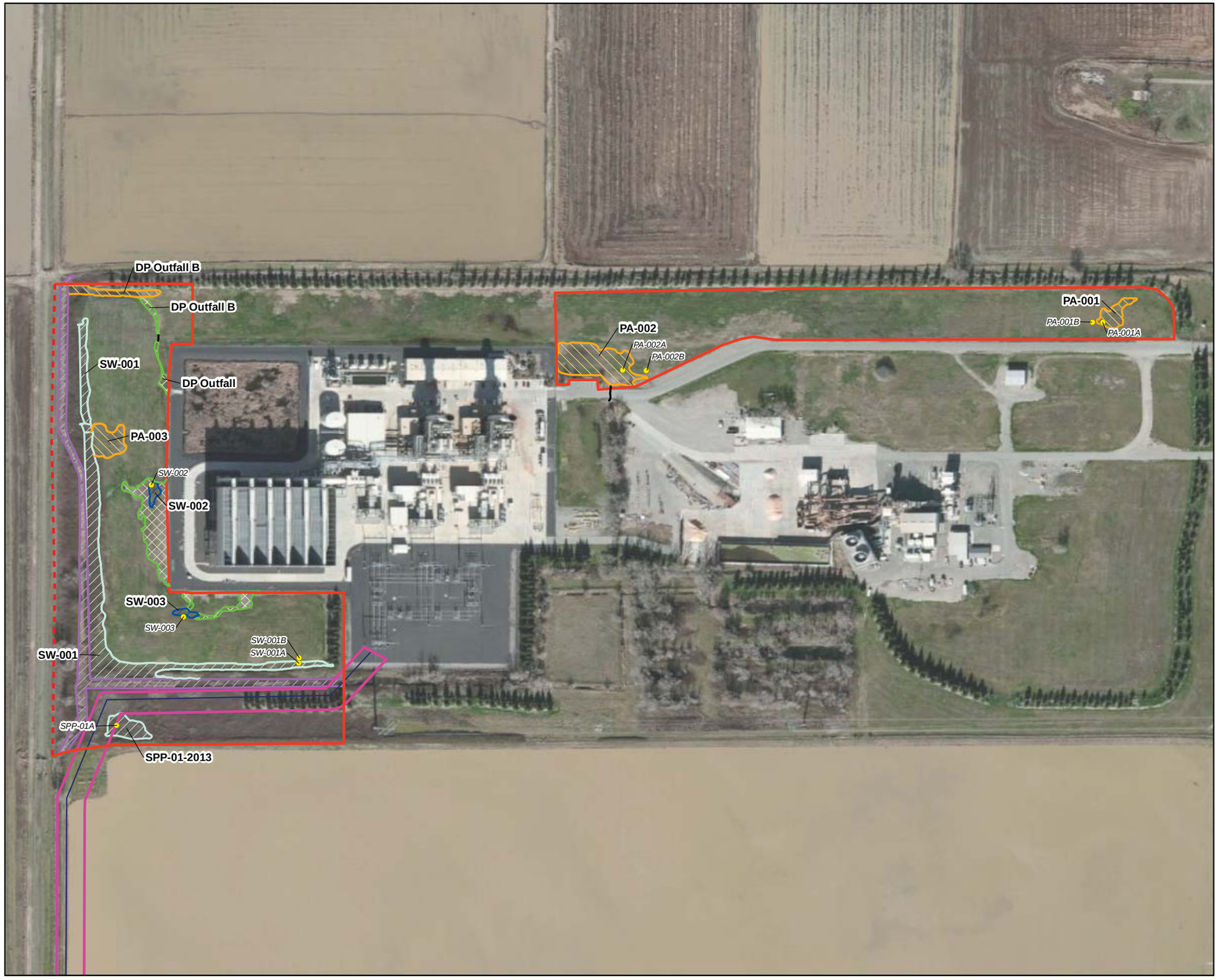


FIGURE 2
Project Features
Sutter Energy Center

CH2MHILL



VICINITY MAP

LEGEND

- Wetland Data Point
- Limit of Investigation (Dashed Where Approximate)
- Culvert
- Seasonal Ponding
- PEMC (palustrine, emergent, seasonally flooded) Wetland
- PEMA (palustrine, emergent, temporarily flooded) Wetland
- PEMF (palustrine, emergent, semipermanently flooded) Wetland
- Overland Flow/ Upland Swale Area
- Construction Area
- ROW

Notes:

1. Assessment of wetlands and potential habitat for listed seasonal crustaceans within potential ACC annex areas and construction laydown areas was conducted on January 18, February 21 and June 28, 2013 by CH2MHILL wetland scientist, Steve Long and biologist Rick Crowe.

2. Areas of investigation are regularly mowed. Vegetation control in these areas (along windbreaks) is also managed by herbicide applications that were observed during the January 18, 2013 site visit.

N

0 150 300
Feet

FIGURE 3
Wetland Features in the SEC Project Area
Sutter Energy Center

CH2MHILL

1.3 Project Location and Land Use

The project area is shown on Figure 3 and is located in a rural area approximately 7 miles southeast of Yuba City, California (Figure 1). The SEC facility is located at 5029 South Township Road in unincorporated Sutter County (Figure 2). The project area is located on the U.S. Geological Survey (USGS) Gilsizer Slough 7.5 minute Quadrangle in Section 24, Township 14 North, Range 02 East. For the purposes of this document, the project area consists of the portions of the SEC facility site where direct impacts from this project will occur that are within the outer property boundary of the SEC. The proposed new generator tie-line and substation wetland delineation is included in a separate report (ICF 2012).

Access to the project area is by way of a paved, on-site roadway that connects the SEC facility to South Township Road. The western and southwest portions of the SEC property are accessed through a gate in the westernmost fence at the SEC facility. The SEC facilities and power block occupy approximately 16 acres of a 38-acre parcel. Adjacent to this parcel is a separate 39-acre parcel that is the site of a separate biomass drying/power plant facility. This wetland delineation included two separate areas on the 38-acre SEC property. One of these approximately 11 acres in area, situated to the west and southwest of the SEC power block, and is where the ACC expansion and new generator tie-line interconnection will occur. The second, approximately 15-acre area, is located to the northeast of the SEC facilities and will be available for worker parking and construction laydown. The boundaries of these two areas are marked on Figure 3 and on Figure A-1 in Appendix A as the limits of investigation. Other portions of the SEC site and adjacent property/parcel are not part of this study. These two areas are the areas within which the project has the potential to affect jurisdictional wetlands and waters of the United States.

The dominant land use in the project area is irrigated agriculture. Lands to the north, south and west of the SEC site are used primarily for the production of rice (*Oryza sativa*). There are some fields to the north that are used for irrigated row crops, as well as nut tree groves to the northeast and southeast of the SEC facility. The surrounding area has a series of drainage ditches that flow in the north-to-south and east-to-west directions toward the Sutter Bypass floodway, which is approximately 2 miles to the west of the SEC property.

1.4 Environmental Setting

The project area is located within the Great Valley ecological section of the California Dry Steppe Province, which is characterized by hot summers and mild winters with precipitation occurring mostly in the winter. Landscapes in this region are mostly low hills and alluvial plains. The Great Valley ecological section is characterized as a low-elevation alluvial plain formed on non-marine sedimentary rocks. The cover type is primarily agricultural; however, there are small patches of annual grasslands, western hardwoods, and wet grasslands. The SEC facility is found within the Butte Sink-Sutter Basin ecological subsection (California Ecological Unit 262Ac) (Miles and Goudey 1998; McNab et al. 2005).

The project area has been filled and graded during the previous construction of the Greenleaf and SEC facilities. The topography is nearly level to very slightly undulating with approximate topographical elevations ranging from 40 feet near the eastern site entrance on South Township Road to about 38 feet in the southwest corner of the project area. In the project area there are larger ditches flowing from north to south along the west side of South Township Road and along the western boundary of the SEC property (see Figure 3). There are smaller, connecting drainage channels that flow from east to west along the north and south sides of the SEC property.

The following sections provide additional information on the terrestrial vegetation, climate and hydrology, and soils.

1.4.1 Terrestrial Vegetation

Terrestrial vegetation in the majority of the project area is characterized by mowed annual grassland with shrubs and native trees limited to the banks of drainage channels. There are planted trees on berms to the north and south of the SEC property to serve as visual screens for the facility. Naturalized annual grasses in the area include soft chess (*Bromus hordeaceus*), rip-gut brome (*Bromus diandrus*), slender wild oats (*Avena barbata*), foxtail (*Hordeum murinum* ssp*. leporinum*), and wild rye (*Lolium perenne [multiflorum]*). Common forb species include yellow-star thistle (*Centaurea soltitialis*), curly dock (*Rumex crispus*), black mustard (*Brassica nigra*), long-beaked filaree (*Erodium botrys*), and winter vetch (*Vicia villosa*). Observed trees along ditch banks to the west of the SEC include cottonwood (*Populus fremontii*) and Goodding's black willow (*Salix gooddingii*). Additional information on the vegetation in potential jurisdictional wetlands or waters of the U.S. is provided in Section 3, Results.

1.4.2 Climate and Hydrology

Regional WETS (wetlands determination) Station climate data were obtained from the Nicolaus 2 Weather Station CA6194, located approximately eleven miles south-southeast of the project area. Average annual precipitation is 19.6 inches, most of which occurs as rainfall between October and April (Natural Resources Conservation Service [NRCS] 2002).

The project is located within the Sutter Bypass Watershed (Hydrologic Unit Code 18020106) that encompasses approximately 176,725 acres. The Sutter Bypass is connected to the Sacramento River to the south and west of the project area. Additional information on local hydrology is provided in Section 3, Results.

1.4.3 Soils

Soils in the project area have been mapped by the NRCS and include Gridley clay loam and Tisdale clay loam. Brief descriptions of these soils are provided below based on the United States Department of Agriculture's Custom Soil Resources Report provided in Appendix B (NRCS 2013a) and the Official Soil Series Descriptions (NRCS 2013b). All colors are for moist soil.

Gridley clay loam soils [132] comprise the entire project area including the areas to the west and south and to the northeast of the existing SEC facility. These soils are moderately well drained and are found on low terraces and basin rims and have slopes of 0 to 1 percent. They are formed in alluvium from mixed sources. Gridley clay loam is not listed as a hydric soil in Sutter County, except for Oswald soil inclusions on basin floors (0 to 3 percent of total). In a typical profile the surface horizon is a brown (10YR 5/3) clay loam to a depth of 19 inches, underlain by a brown (10YR 5/3) clay from 19 to 37 inches. From 37 to 62 inches the soil is a very pale brown (10YR 7/4) siltstone. This soil has slow permeability and runoff.

Tisdale clay loam soils are not found within the project area investigated for this delineation but were mapped to the south and east of the existing SEC facility. These soils are moderately well drained and are found on low terraces and have slopes of 0 to 2 percent. They are formed in alluvium from mixed sources. Tisdale clay loam is not listed as a hydric soil in Sutter County, except for Oswald soil inclusions on floodplains (0 to 5 percent of total). In a typical profile the surface horizon is a brown (10YR 5/3) clay loam to a depth of 11 inches, underlain by a pale to light yellowish brown (10YR 6/3 to 6/4) clay loam from 11 to 31 inches. From 31 to 40 inches the soil is a very pale brown (10YR 8/3) siltstone. This soil has moderately slow permeability and very slow runoff.

SECTION 2

Methods

A wetland delineation for the proposed project was completed by wetland scientist Steven Long and biologist Rick Crowe of CH2M HILL on January 18, February 21, and June 28, 2013. The purpose of the wetland delineation was to determine the limits of jurisdictional wetlands or waters of the U.S. within the project area to the west, south, and northeast of the SEC facility (Figure 3). The following subsections describe the pre-field investigations, field sampling procedures, methods used to delineate and map the wetland boundaries, and wetland classifications.

2.1 Pre-field Investigation

Prior to the field surveys, relevant information pertaining to site conditions, wetlands and other water resources was reviewed. The following materials (provided in the appendices as indicated) were included in this data review:

- Natural Resources Conservation Service Web Soil Survey (Appendix B)
- USGS Gilsizer Slough topographic quadrangle map (Appendix C)
- National Wetlands Inventory Maps (Appendix C)
- National Hydrologic Data Set Maps (Appendix C)

2.2 Wetland Delineation

Wetlands are defined as areas that are "inundated by surface water or groundwater with 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. Wetlands generally include swamps, marshes, bogs, and similar areas" (Title 40 Code of Federal Regulations [CFR], Section 230.3, and Title 33 CFR, Section 238). The survey methodology followed the *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008).

Wetland determination data points were established at 9 locations, including 2 wetland data points and 7 upland data points (see Figures 3 and A-1). The locations for these points were chosen in the field at places that were considered to be representative of the wetland boundary being delineated or to characterize conditions within and adjacent to potential wetland (ponding) areas. Appendix F includes the completed Wetland Determination Data Sheets. The following subsections describe the field methods used during the wetland delineation.

2.2.1 Vegetation

At each sample point, plant species were identified and the percent cover was visually estimated and recorded. Herbaceous vegetation was sampled in an approximately 5-foot radius around the sample point. Taxonomic designations follow *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012). The *National Wetland Plant List* (U.S. Department of Agriculture [USDA] 2012) was used to evaluate the wetland indicator status of each plant species identified. Dominant species included the most abundant species whose cumulative cover accounted for at least 50 percent of the total cover, and any single species that accounted for at least 20 percent of the total vegetative cover. Appendix F provides a list of plant species observed at the sample points and of other common species observed in the wetland study area during the field survey.

2.2.2 Soils

Descriptions of soils were made by examining test pits, excavated using a tile spade, which ranged in depth from 7 to 20 inches. At each data point, soil morphological features such as texture, color, and

redoximorphic features (if present) were noted. Soil texture was estimated in the field by feel (Thien 1979), and moist soil colors were determined using Munsell soil color charts.

2.2.3 Hydrology

The presence of wetland hydrology was determined based on current as well as previous field observations of saturation and/or inundation, water staining, sediment deposits, and drift deposits. Seasonal rainfall, site drainage, landscape position, and general site topography also were taken into consideration while making wetland hydrology determinations.

2.3 Wetland and Water Boundary Mapping

A Trimble Geo-XT global positioning system (GPS) device was used to map the limits of the wetland boundaries. Wetland boundaries were determined in the field based on observations of hydrophytic vegetation, evidence of wetland hydrology, and on-site microtopography. Soil characteristics were generally not useful in differentiating the wetland boundaries because all the wetland areas (except SPP-01) were located on areas that had been filled (either imported or locally graded) during the SEC construction between the years 2000 and 2001.

2.4 Delineation of Nonwetland Waters of the United States

Non-wetland waters of the U.S. include water bodies such as rivers, streams, lakes, and ponds. In the absence of adjacent wetlands, the jurisdiction of the USACE extends to the limits of the ordinary high-water mark (OHWM), which is defined as “the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 CFR 328.3 [e]).

On-site linear features include the drainage channels that were delineated by walking the channel bed (except where dense blackberry thickets made this inaccessible) and noting the characteristics of the features such as substrate, in-channel and adjacent vegetation, evidence of flow, and hydrologic modifications such as culverts or weirs. To the extent possible, the drainage channel OHWM was mapped in the field with a Trimble Geo-XT. The ordinary high water mark was determined based on observed water staining, drift and debris deposits, scouring, and other indicators of ordinary high-water flows. Representative site photographs are provided in Appendix G.

2.5 Classification

Classification of wetlands and other waters identified during the survey follows the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). This classification methodology was developed by the U.S. Fish and Wildlife Service as part of the National Wetland Inventory (NWI) program. The hierarchical classification includes systems, subsystems, and classes to generally categorize the various aquatic habitats. Modifiers are used to denote specific water regimes and/or highly altered areas (excavated or impounded wetlands). Additional details regarding the classification of wetlands identified on the SEC property are provided in Section 3.

SECTION 3

Results

3.1 Survey Conditions

No evidence of significant recent disturbance was noted in the project area at the time of the survey; however, the annual grassland habitats to the south and west and to the northeast of the SEC facility were being regularly mowed as part of the normal SEC maintenance activities.

The rainfall information provided in Appendix D indicates that, in general, the 2012-2013 winter season was wetter than average (by 156 to 168 percent) in the early months (late November and early December 2012, respectively) due to limited, heavy rainfall events. However, the latter part of the rainy season (January, February and March 2013) was much drier than average (24 to 46 percent of normal). There was a slight recovery toward normal rainfall patterns in April 2013 at the end of the rainy season. The drier-than-normal winter conditions could affect plant cover in the upland zones, including isolated ponds, on the areas of fill surrounding the SEC facility. Plant cover within wetland areas on the west and south sides of the SEC are much less likely to have been affected by the relative lack of rainfall in 2012-2013 because these areas benefit from overflow from the adjacent drainage channels.

Prior to the first field visit on January 18, 2013, there was a precipitation event between January 5 and 7, 2013 that resulted in a 0.78-inch accumulation, based on the daily totals recorded at Sacramento Municipal Airport, approximately 25 miles south-southeast from SEC (California Data Exchange Center [CDEC] 2013). During the first site visit, there was standing water in several areas to the west, south, and northeast of the SEC facility. The extent of inundation was mapped at these ponding areas and data were collected on the Wetland Determination Data Forms (included in Appendix F) to evaluate wetland conditions. However, because grasses and forbs were just emerging, it was not possible to adequately characterize vegetation conditions at this time.

Between the first and second site visits there were three rainfall events, occurring on January 23 (0.16 inch), February 7 (0.08 inch), and February 18 to 19 (0.35 inch). On the February 21, 2013 site visit, there was no standing surface water in any of the previously identified ponding or wetland features with the exception of very limited water within tire tracks in the feature designated as Ponding Area (PA)-002 and at the Detention Pond (DP) Outfall in the northwest corner of the project area. This was also the first date that SPP-01 wetland area was visited (see Figure 3).

3.2 Data Review

The available information from various sources is summarized in Appendix C of this report, and indicates the following. The north-south aligned drainage channels that are located to the west and east of the SEC facility are shown as blue line features on the Gilsizer Slough Valley 7.5 minute USGS topographic quadrangle (see Figure C-1 in Appendix C) but are not shown as blue lines on the National Hydrologic Dataset (NHD) map (see Figures C-2 and C-3). The SEC site is above the Federal Emergency Management Agency (FEMA) 100-year floodplain elevation (see Figure C-4).

The NWI mapping shows that these north-south drainages to the east and west of the SEC are mapped as riverine features (see Figure C-5). Otherwise, the nearest NWI-mapped freshwater wetland features to the SEC property are approximately 1.5 miles or more to the west within and adjacent to the Sutter Bypass. These mapped NWI features include PEM1Kh (palustrine, emergent, persistent, artificially flooded, diked/impounded) and PFOA (palustrine, forested, temporarily flooded) wetlands (see Figure C-6).

A wetland delineation was completed in 1997 as part of permitting for the original Sutter Power Plant (now SEC) facility (Foster Wheeler 1997). The map showing previously identified wetlands on the SEC is included in Appendix C (see Figure C-7). In particular, this map shows the pre-existing wetlands that were lost as a

result of the SEC construction between the years 2000 and 2001. This map shows that the previously mapped wetlands in the proposed project area to the west and south and northeast of the SEC facility do not directly underlie the ponding features that were identified as part of the current wetland investigation. As part of the permitting for the SEC facility, the construction-related loss of all pre-existing wetland areas (5.83 total acres) was mitigated before construction (CH2M HILL 1999a). An aerial photograph of the SEC facility during construction (see Figure C-8) shows the extent of the construction zone and material laydown and parking areas in early 2001. In addition to the extent of disturbance, the presence of the large construction crane in the western portion of the SEC property is noteworthy because it implies that the compaction and bearing capacity of the underlying fill was sufficient to allow the construction operations.

3.3 Observations for On-site Features

As previously discussed, the extent of water inundation was mapped on the first visit on January 18, 2013 for all but the wetland feature, SPP-01, which was visited on February 21 and June 28, 2013. Nearly all surface water in these features was gone by the time of the February 21 site visit, with the exception of limited water within the DP Outfall in the northwestern corner of the SEC property and within a couple of tire tracks in PA-002 (see Figure 3). In addition to the observed extent of inundation, this visit was also used to map other suspected areas of ponding (i.e., those with no standing water), as well as the sheet flow areas and drainage features to the west and south of the SEC facility.

Because vegetation was either just emerging or had been recently mowed during the January site visit, vegetation data were gathered primarily during the February 21, 2013 site visit and were supplemented on June 28, 2013, as needed. A list of plants observed in the wetland delineation area at SEC is provided in Appendix E. Completed Wetland Determination Data Forms are provided in Appendix F. A photographic record of the various mapped features that spans all three site visits is provided in Appendix G.

As a result of the site observations made during the three visits, it was determined that the potential jurisdictional wetlands in the SEC project area include four seasonal wetlands (SW-001, SW-002, SW-003, and SPP-01) as well as the adjacent drainage ditches shown on Figure A-1. Both SW-001 and SPP-01 satisfied the wetland criteria for vegetation, soils, and hydrology. Both of these features would be classified, according to the NWI system (Cowardin et al. 1979), as PEMC (palustrine, emergent, seasonally flooded) wetlands. The other two features, SW-002 and SW-003, were formed on recent (circa 2000-2001 SEC construction) fill soils so the hydric soil characteristics could not be used reliably.

The large drainage ditch to the west of the SEC limit of investigation is considered to be a water of the US because it was shown as a blue line on the USGS topographic map and was also mapped as a riverine feature on the NWI maps. Riparian tree species, such as cottonwood and Gooding's black willow, were observed at scattered locations along the large drainage ditch. There are two smaller drainage ditches on the SEC property: one running between the larger ditch and SW-001 on the west side of the SEC property; and one located just south of SW-001 in the southwest portion of the SEC property (see Figures 3 and A-1 in Appendix A). These smaller ditches had evidence of OHWM indicators (such as water marks, scour, and vegetation changes), as well as dominant obligate (OBL) vegetation within them. These smaller ditches were not mapped as blue lines, nor were they shown on the NWI mapping; however, given the dominance of obligate (OBL) wetland vegetation such as cattail, tule (*Schoenoplectus acutus*), and floating mosquitofern (*Azolla filiculoides*), they were also considered to be waters of the U.S. because they drain ultimately to the Sutter Bypass. These smaller ditches would be classified, according to the NWI system (Cowardin et al. 1979), as PEMF (palustrine, emergent, semi-permanently flooded) wetlands because they had water during all three site visits.

In the case of SW-002 and SW-003, these isolated features were both formed by very shallow ponding from uncontrolled runoff from the west and south sides of the SEC site. Despite the limited ability to hold water and the lack of hydric soil indicators at both of these locations, the presence of OBL vegetation at SW-002 and the presence of algae and aquatic invertebrates at SW-003 were considered to satisfy the wetland

criteria. These two features would be considered as PEMA (palustrine, emergent, temporarily flooded) wetlands (Cowardin et al. 1979).

For these two features, the SEC site runoff provides an artificially increased amount of water due to the large impervious area from which the surface water is collected. Even with actual standing water on January 18, 2013, the adjacent soil at SW-002 was not saturated, indicating limited water perching at the surface rather than a connection to shallow groundwater. Neither of these two features (SW-002 and SW-003) had water on February 21, 2013, which indicated that they are underlain by relatively permeable soil materials that drain readily. Furthermore, the local microtopographical relief at these locations had resulted from surface erosion or settlement of the former construction fill soils in place since 2001. These extremely shallow basins were not connected to the wetland areas to the south or west as evidenced by the lack of an apparent surface water flow channel. Neither of these seasonal wetland areas is located directly above formerly mapped wetland areas shown in Figure C-7.

The different ponding area features that were investigated (PA-001, PA-002, and PA-003), as well as the DP Outfall and the interconnecting channel located between the detention pond and the DP Outfall B (as it exits the site near the northwest corner of the SEC property), were not considered to be wetland features because they did not satisfy the criteria for more than one of the wetland parameters. The specific reasons for these determinations are given below.

Features PA-003 and PA-001 did not have any standing water during the three site visits. While the DP Outfall had water on January 18, 2013, this was because it was being flooded from the adjacent large ditch to the west. The DP Outfall was nearly free of standing water on February 21. Despite some evidence of algal matting upstream of the culvert on the interconnecting ditch, the DP Outfall and the ditch were both dominated by upland plants including Bermudagrass (*Cynodon dactylon*) and yellow-star thistle. Similarly, feature PA-002 had scattered surface water during the January 18, 2013 visit but the water was nearly gone (except within tire tracks) on February 21, 2013. It should be noted that the area to the north and south of the SEC access road, which included the PA-005 feature, had been graded prior to the June 28, 2013 site visit.

The potential jurisdictional wetlands at the SEC site are summarized in Table 1.

TABLE 1
Potential Jurisdictional Wetlands or Waters of the U.S. at the SEC Project Area

Feature ID	Description	Size (in acres)
Ditches	PEMF – palustrine, emergent, semipermanently flooded	0.854 ac
SW-001	PEMC – palustrine, emergent, seasonally flooded	0.862 ac
SW-002	PEMA – palustrine, emergent, temporarily flooded	0.025 ac
SW-003	PEMA – palustrine, emergent, temporarily flooded	0.0186 ac
SPP-01-2013	PEMC – palustrine, emergent, seasonally flooded	0.107 ac
Total		**1.867 ac**

Note:
Description of seasonal wetland (SW) areas follows National Wetland Inventory system (Cowardin et al. 1979)

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Appendix A:
Preliminary Jurisdictional Wetland Delineation Map

VICINITY MAP

LEGEND

- Wetland Data Point
- Limit of Investigation (Dashed Where Approximate)
- Culvert
- PEMC (palustrine, emergent, seasonally flooded) Wetland
- PEMA (palustrine, emergent, temporarily flooded) Wetland
- PEMF (palustrine, emergent, semipermanently flooded) Wetland
- Construction Area
- ROW

Notes:

1. Assessment of wetlands and potential habitat for listed seasonal crustaceans within potential ACC annex areas and construction laydown areas was conducted on January 18, February 21 and June 28, 2013 by CH2MHILL wetland scientist, Steve Long and biologist Rick Crowe.

2. Areas of investigation are regularly mowed. Vegetation control in these areas (along windbreaks) is also managed by herbicide applications that were observed during the January 18, 2013 site visit.

N

0 150 300
Feet

FIGURE A-1
Preliminary Jurisdictional Wetland Delineation in the Proposed SEC Work Areas
Sutter Energy Center

CH2MHILL

Appendix B:
NRCS Soil Survey Information

United States Department of Agriculture

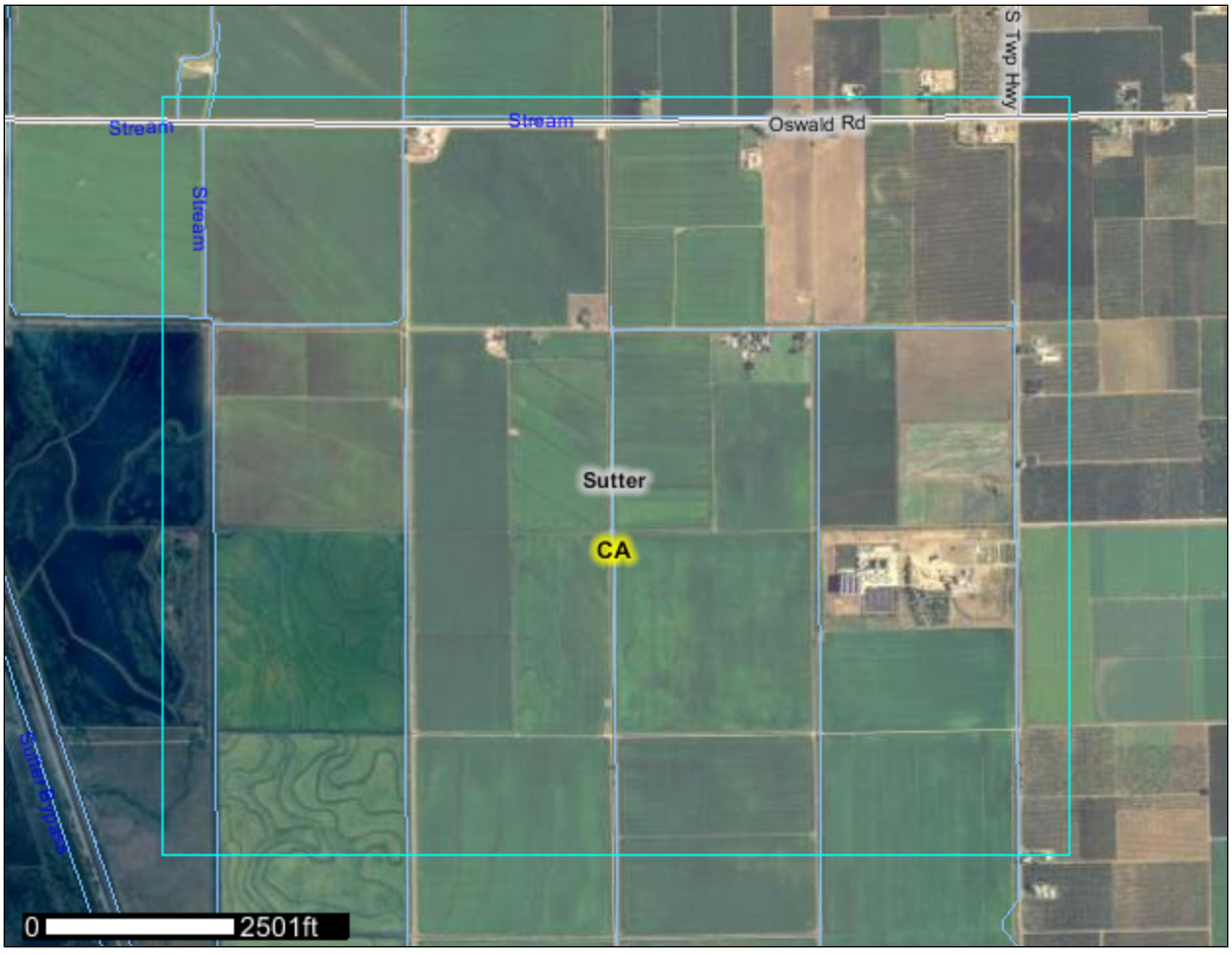
NRCS

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 Sutter County, California

Sutter Energy Center



July 5, 2013

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.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

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.

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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.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

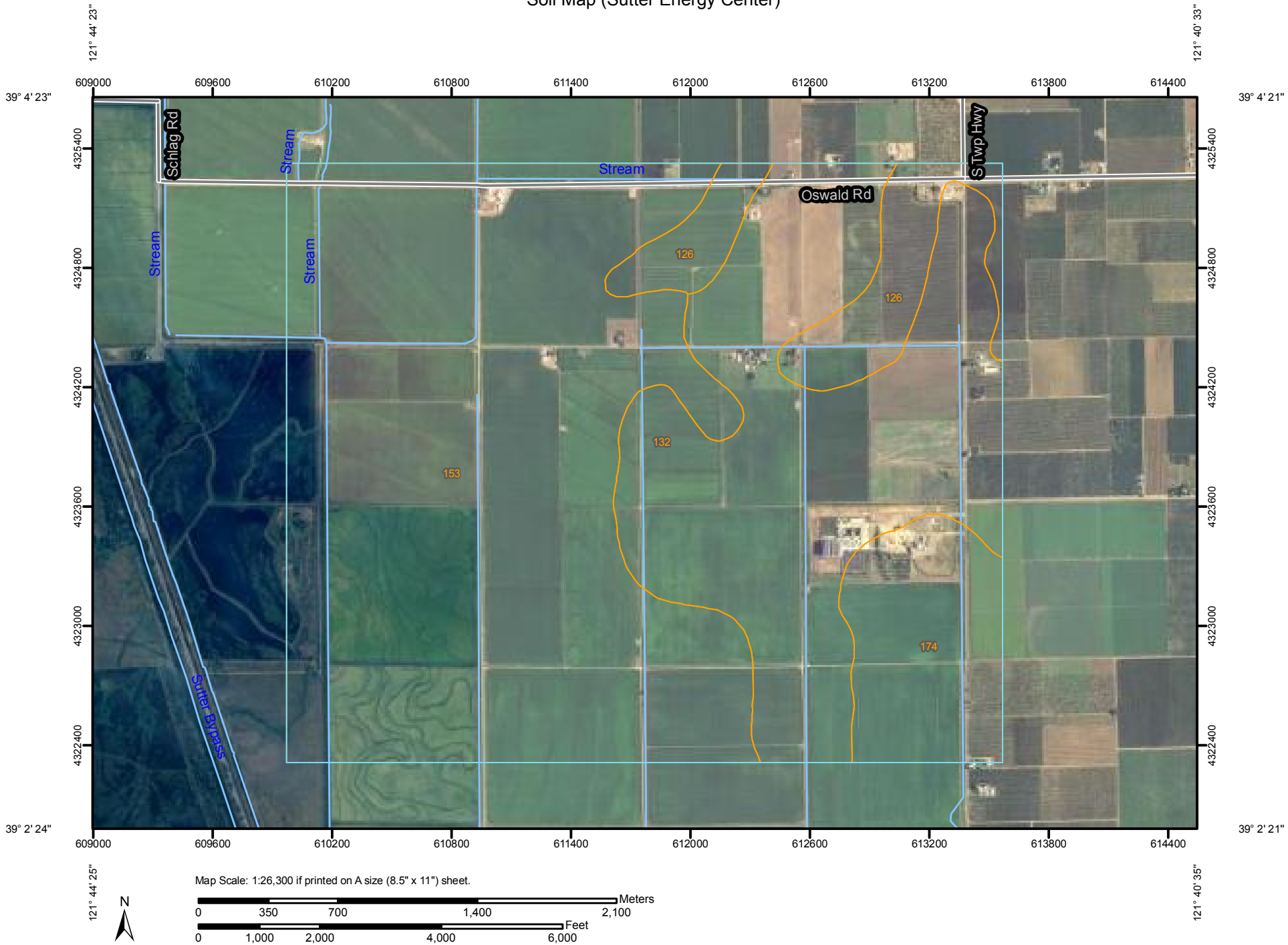
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Sutter Energy Center)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- 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

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:26,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sutter County, California
Survey Area Data: Version 7, Aug 31, 2009

Date(s) aerial images were photographed: 9/29/2005; 6/30/2005

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 (Sutter Energy Center)

Sutter County, California (CA101)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
126	Conejo-Tisdale complex, 0 to 2 percent slopes	180.5	6.7%
132	Gridley clay loam, 0 to 1 percent slopes	801.1	29.9%
153	Oswald clay, 0 to 2 percent slopes	1,474.1	55.1%
174	Tisdale clay loam, 0 to 2 percent slopes	221.1	8.3%
Totals for Area of Interest		**2,676.7**	**100.0%**

Map Unit Descriptions (Sutter Energy Center)

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.

Sutter County, California

126—Conejo-Tisdale complex, 0 to 2 percent slopes

Map Unit Setting

Landscape: Valleys
Elevation: 30 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

Conejo, loam, and similar soils: 45 percent
Tisdale, clay loam, and similar soils: 40 percent
Minor components: 15 percent

Description of Conejo, Loam

Setting

Landform: Terraces
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 2 percent
Depth to restrictive feature: 40 to 60 inches to dense material
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: Moderate (about 7.1 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability classification (irrigated): 1
Land capability (nonirrigated): 4c
Hydrologic Soil Group: B

Typical profile

0 to 11 inches: Loam
11 to 42 inches: Loam
42 to 46 inches: Weathered bedrock

Description of Tisdale, Clay 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 loamy alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
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: Moderate (about 8.8 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability classification (irrigated): 3s
Land capability (nonirrigated): 4s
Hydrologic Soil Group: C

Typical profile

0 to 11 inches: Clay loam
11 to 31 inches: Loam, clay loam
31 to 35 inches: Weathered bedrock

Minor Components

Conejo

Percent of map unit: 4 percent

Gridley

Percent of map unit: 4 percent

Liveoak

Percent of map unit: 4 percent

Oswald

Percent of map unit: 3 percent
Landform: Basin floors

132—Gridley clay loam, 0 to 1 percent slopes

Map Unit Setting

Landscape: Basins, valleys
Elevation: 20 to 80 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 61 to 64 degrees F

Map Unit Composition

Gridley and similar soils: 80 percent

Minor components: 20 percent

Description of Gridley

Setting

Landform: Terraces
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 1 percent
Depth to restrictive feature: 20 to 40 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
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.5 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability classification (irrigated): 3s
Land capability (nonirrigated): 4s
Hydrologic Soil Group: C

Typical profile

0 to 19 inches: Clay loam
19 to 37 inches: Clay

Minor Components

Capay

Percent of map unit: 4 percent

Conejo

Percent of map unit: 4 percent

Liveoak

Percent of map unit: 3 percent

Marcum

Percent of map unit: 3 percent

Oswald

Percent of map unit: 3 percent
Landform: Basin floors

Tisdale

Percent of map unit: 3 percent

153—Oswald clay, 0 to 2 percent slopes

Map Unit Setting

Landscape: Valleys
Elevation: 20 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

Oswald, clay, and similar soils: 90 percent
Minor components: 10 percent

Description of Oswald, 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: 20 to 40 inches to paralithic bedrock
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 18 to 42 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability classification (irrigated): 3w
Land capability (nonirrigated): 4w
Hydrologic Soil Group: D

Typical profile

0 to 15 inches: Clay
15 to 33 inches: Clay
33 to 37 inches: Weathered bedrock

Minor Components

Conejo

Percent of map unit: 4 percent

Gridley
Percent of map unit: 3 percent

Tisdale
Percent of map unit: 3 percent

174—Tisdale clay loam, 0 to 2 percent slopes

Map Unit Setting
Landscape: Valleys
Elevation: 10 to 100 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 270 days

Map Unit Composition
Tisdale and similar soils: 75 percent
Minor components: 25 percent

Description of Tisdale

Setting
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed loamy alluvium

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
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: Low (about 5.4 inches)

Interpretive groups
Farmland classification: Farmland of statewide importance
Land capability classification (irrigated): 3s
Land capability (nonirrigated): 4s
Hydrologic Soil Group: C

Typical profile
0 to 11 inches: Clay loam
11 to 31 inches: Clay loam
31 to 35 inches: Weathered bedrock

Minor Components

Oswald
Percent of map unit: 5 percent
Landform: Flood plains

Conejo
Percent of map unit: 5 percent

Gridley
Percent of map unit: 5 percent

Liveoak
Percent of map unit: 5 percent

Unnamed w/ hardpan
Percent of map unit: 5 percent

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Legend

Soil Map

Scale (not to

Warning: Soil Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:24,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Report — Hydric Soil List - All Components

CA101-Sutter County, California

Map symbol and map unit	Component/Local	Comp.	Landform	Hydric	Hydric criteria

name	Phase	pct.		status	met (code)
132: Gridley clay loam, 0 to 1 percent slopes	Gridley	80	Terraces	No	—
	Capay	4	—	No	—
	Conejo	4	—	No	—
	Tisdale	3	—	No	—
	Liveoak	3	—	No	—
	Marcum	3	—	No	—
	Oswald	3	Basin floors	Yes	2,4
153: Oswald clay, 0 to 2 percent slopes	Oswald-Clay	90	Basin floors	Yes	2,4
	Conejo	4	—	No	—
	Tisdale	3	—	No	—
	Gridley	3	—	No	—
174: Tisdale clay loam, 0 to 2 percent slopes	Tisdale	75	Terraces	No	—
	Gridley	5	—	No	—
	Liveoak	5	—	No	—
	Oswald	5	Flood plains	Yes	2,4
	Unnamed w/ hardpan	5	—	—	—
	Conejo	5	—	No	—

Description — Hydric Soil List - All Components

Hydric Soils

This table lists the map unit components and their hydric status in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of

Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
    a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    b. Show evidence that the soil meets the definition of a hydric soil;
3. Soils that are frequently ponded for long or very long duration during the growing season.
    a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    b. Show evidence that the soil meets the definition of a hydric soil;
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
    a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    b. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

References:

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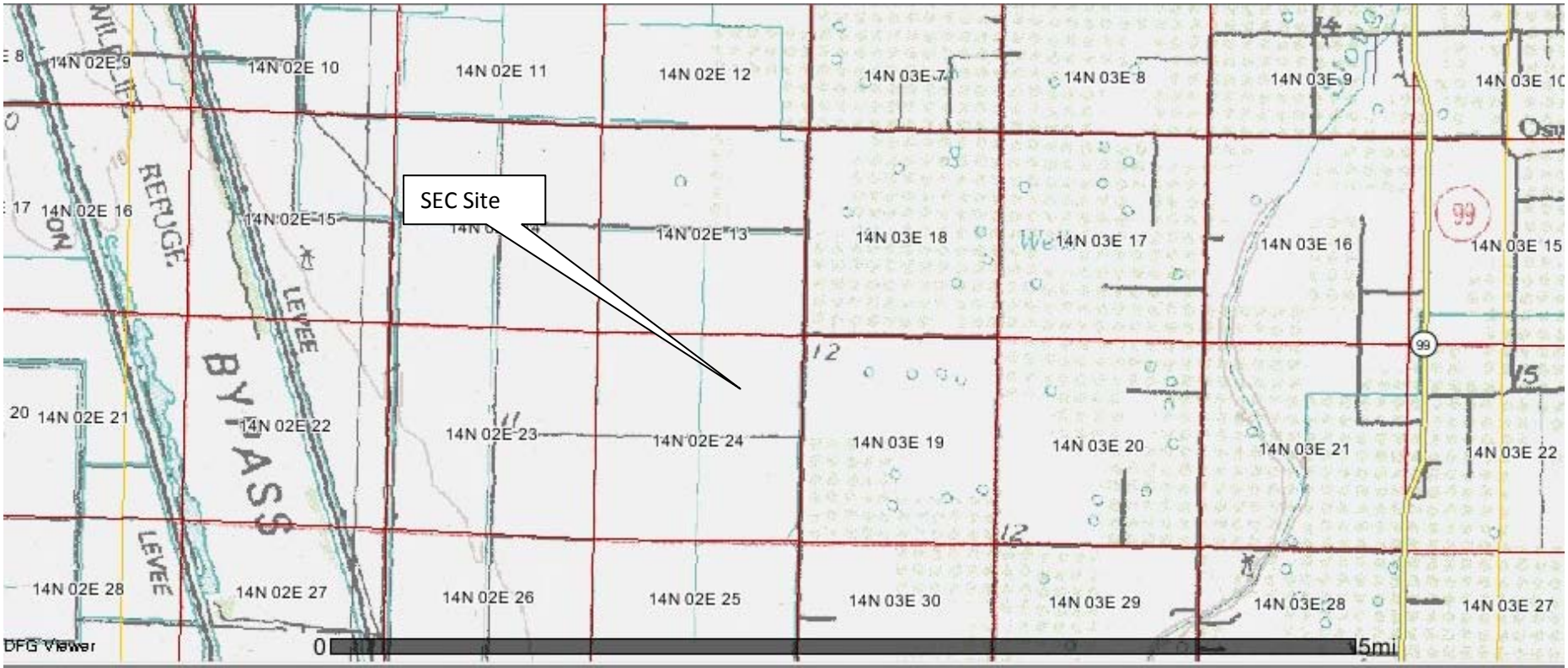
Vasilas, L.M., G.W. Hurt, and C.V. Noble, editors. Version 7.0, 2010. Field indicators of hydric soils in the United States.

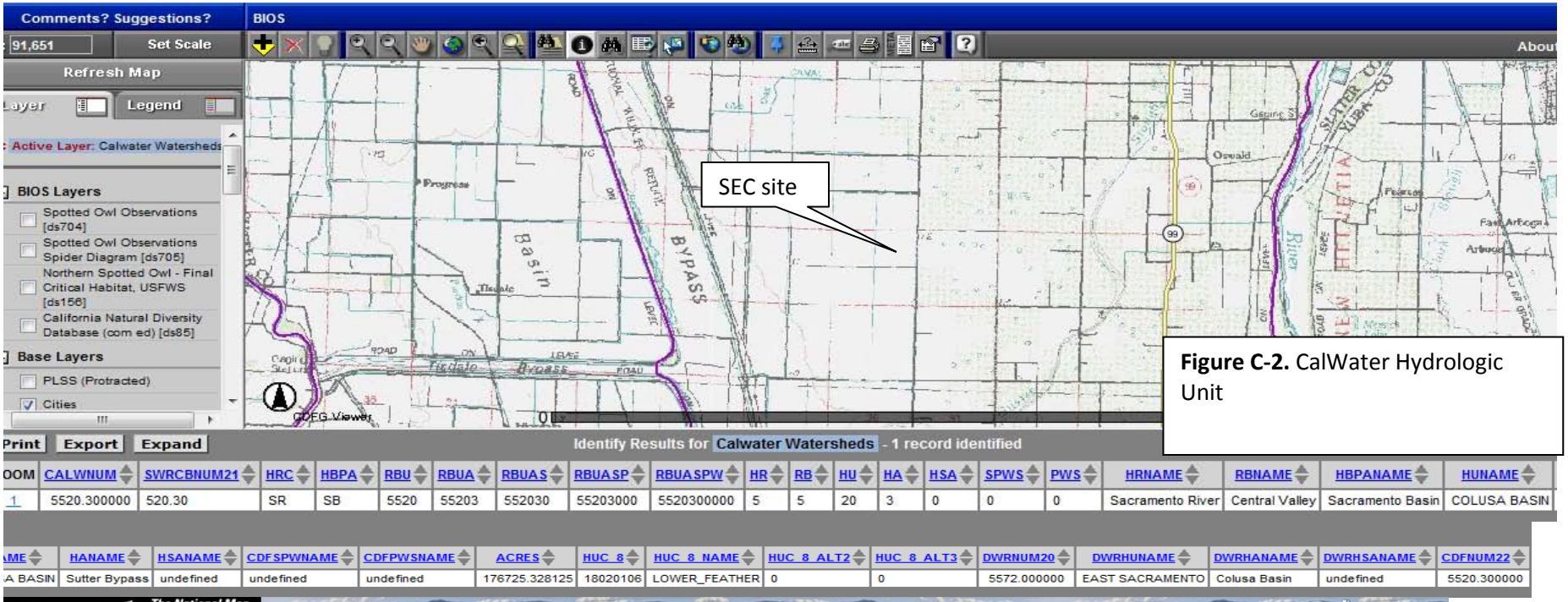
Appendix C:
Supporting Information



Identify Results for **Quadrangles (24K)** - 1 record identified

ZOOM	QUADCODE	USGSCODE	CNPSCODE	QUADNAME	UTMZONE
1	3912116	39121A6	544C	GILSIZER SLOUGH	10

Figure C-1. USGS Topographic Quadrangle Map



OOM	CALWNUM	SWRCBNUM21	HRC	HBPA	RBU	RBUA	RBUAS	RBUASP	RBUASPW	HR	RB	HU	HA	HSA	SPWS	PWS	HRNAME	RBNAME	HBPANAME	HUNAME
1	5520.300000	520.30	SR	SB	5520	55203	552030	55203000	5520300000	5	5	20	3	0	0	0	Sacramento River	Central Valley	Sacramento Basin	COLUSA BASIN

AME	HANAME	HSANAME	CDFSPWNAME	CDFPWSNAME	ACRES	HUC_8	HUC_8_NAME	HUC_8_ALT2	HUC_8_ALT3	DWRNUM20	DWRHUNAME	DWRHANAME	DWRHSANAME	CDFNUM22
A BASIN	Sutter Bypass	undefined	undefined	undefined	176725.328125	18020106	LOWER_FEATHER	0	0	5572.000000	EAST SACRAMENTO	Colusa Basin	undefined	5520.300000

Figure C-2. CalWater Hydrologic Unit

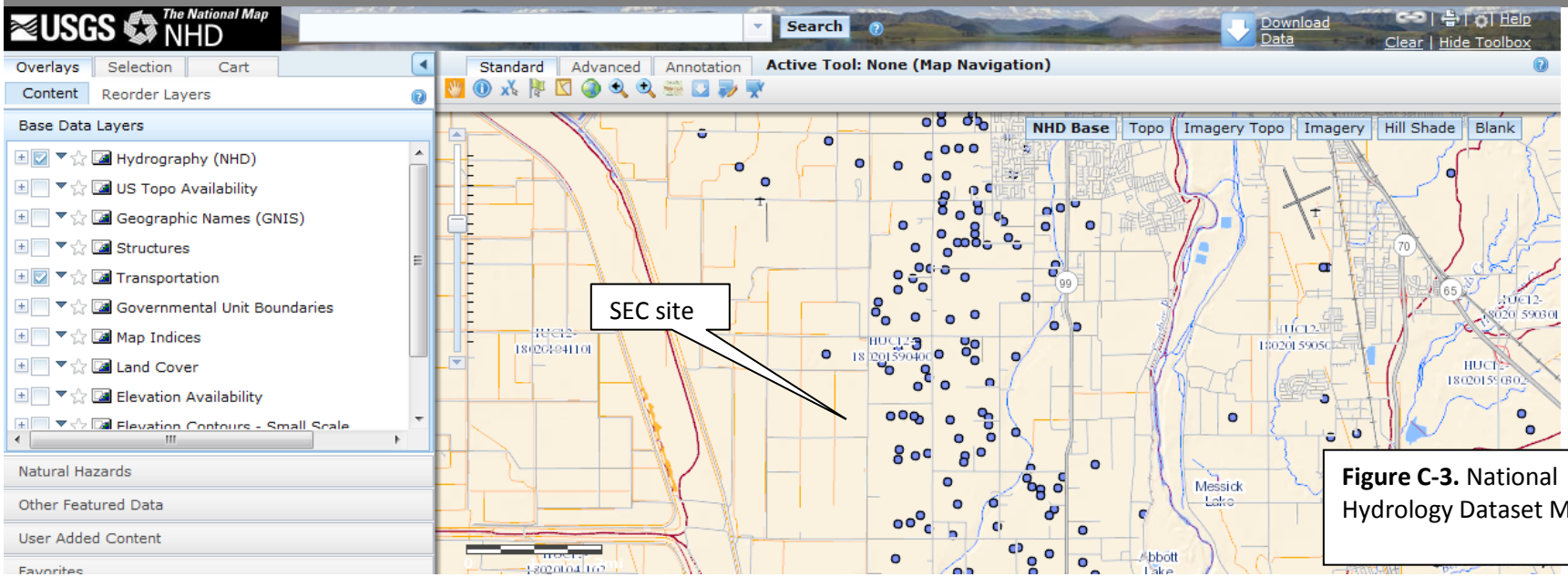


Figure C-3. National Hydrology Dataset Map

SOURCE: USGS National Hydrology Dataset at http://viewer.nationalmap.gov/viewer/nhd.html?p=nhd

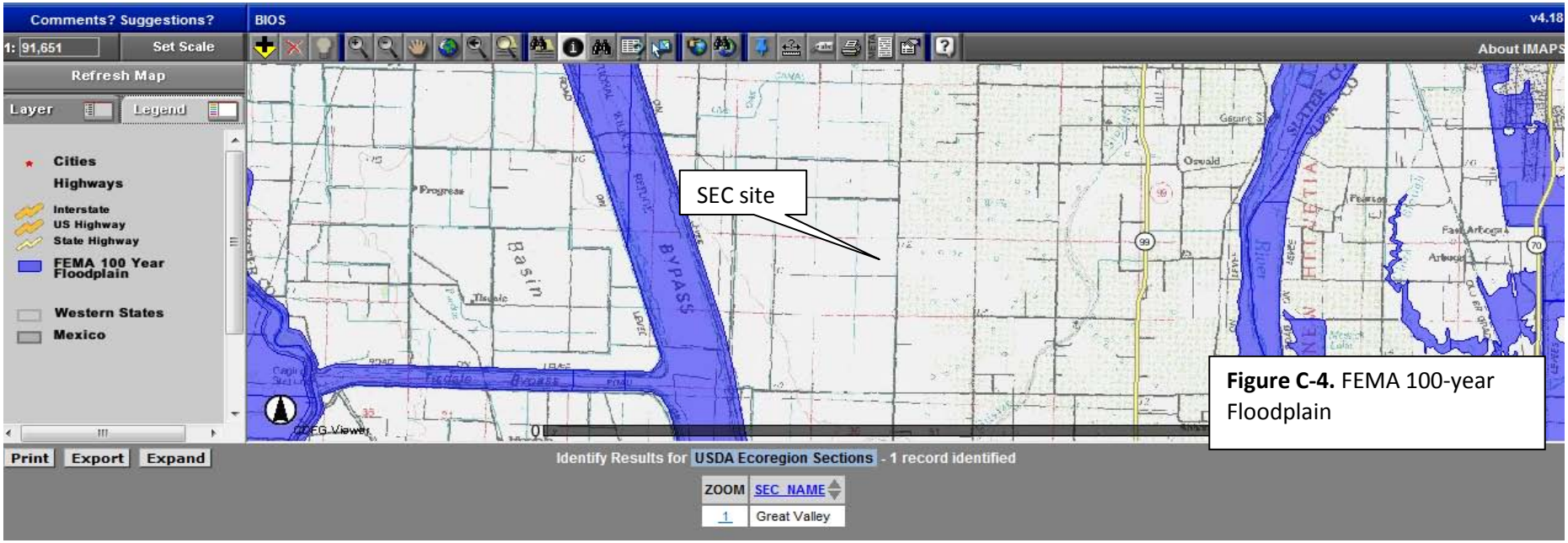


Figure C-4. FEMA 100-year Floodplain

262 California Dry Steppe Province

262A Great Valley Section

Code	Description
262Aa	North Valley Alluvium
262Ab	Northern Eastside Terraces
262Ac	Butte Sink - Sutter Basin
262Ad	Colusa Basin
262Ae	Sutter Buttes
262Af	River Alluvium
262Ag	Hardpan Terraces
262Ah	Yolo Alluvial Fans
262Ai	Yolo - American Basins
262Aj	Sodic Claypan Terraces
262Ak	Montezuma Hills
262Al	Delta
262Am	Delta Basins
262An	Winters Terraces
262Ao	Camanche Terraces
262Ap	Lodi Alluvium
262Aq	Westside Alluvial Fans and Terraces
262Ar	Caswell Basin
262As	Manteca - Merced Alluvium
262At	San Joaquin Basin
262Au	Granitic Alluvial Fans and Terraces
262Av	Tulare Basin
262Aw	Panoche and Cantua Fans and Basins
262Ax	Antelope Plain
262Ay	South Valley Alluvium and Basins
262Az	Elk Hills and South Valley Terraces

SOURCE: http://www.fs.usda.gov/detailfull/r5/forest-grasslandhealth/?cid=fsbdev3_048074&width=full

SEC Site is listed as Subsection **262Ac**: Butte Sink - Sutter Basin

Description of Ecological Subregions: Sections of the Conterminous United States

262-California Dry Steppe Province

The climate of this province consists of hot summers and mild winters with precipitation occurring mostly during winter. Landscape is alluvial plains with low hills. Vegetation was originally herbaceous, but now is largely irrigated agricultural crops.

262A-Great Valley Section

This section has a low-elevation fluvial plain formed on nonmarine sedimentary rocks. Cover type is primarily agricultural; small areas of natural cover types remain that include annual grasslands, western hardwoods, and wet grasslands. (Photo: R. Ettner, USDA Forest Service)

SOURCE: McNab, W.H.; Cleland, D.T.; Freeouf, J.A.; Keys, Jr., J.E.; Nowacki, G.J.; Carpenter, C.A., comps. 2005. Description of ecological subregions: sections of the conterminous United States [CD-ROM]. Washington, DC: U.S. Department of Agriculture, Forest Service. 80 p.

U.S. Fish and Wildlife Service
National Wetlands Inventory

SEC NWI Map
Detail

Aug 1, 2013

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Riparian Status

- Digital Data

User Remarks:

SOURCE: National Wetlands Inventory (USFWS 2013) accessed online at http://www.fws.gov/wetlands/Wetlands-Mapper.html

U.S. Fish and Wildlife Service
National Wetlands Inventory

Sutter Energy Center

Jul 5, 2013

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

User Remarks:

SOURCE: National Wetlands Mapper (USFWS 2013) accessed online at http://www.fws.gov/wetlands/Wetlands-Mapper.html

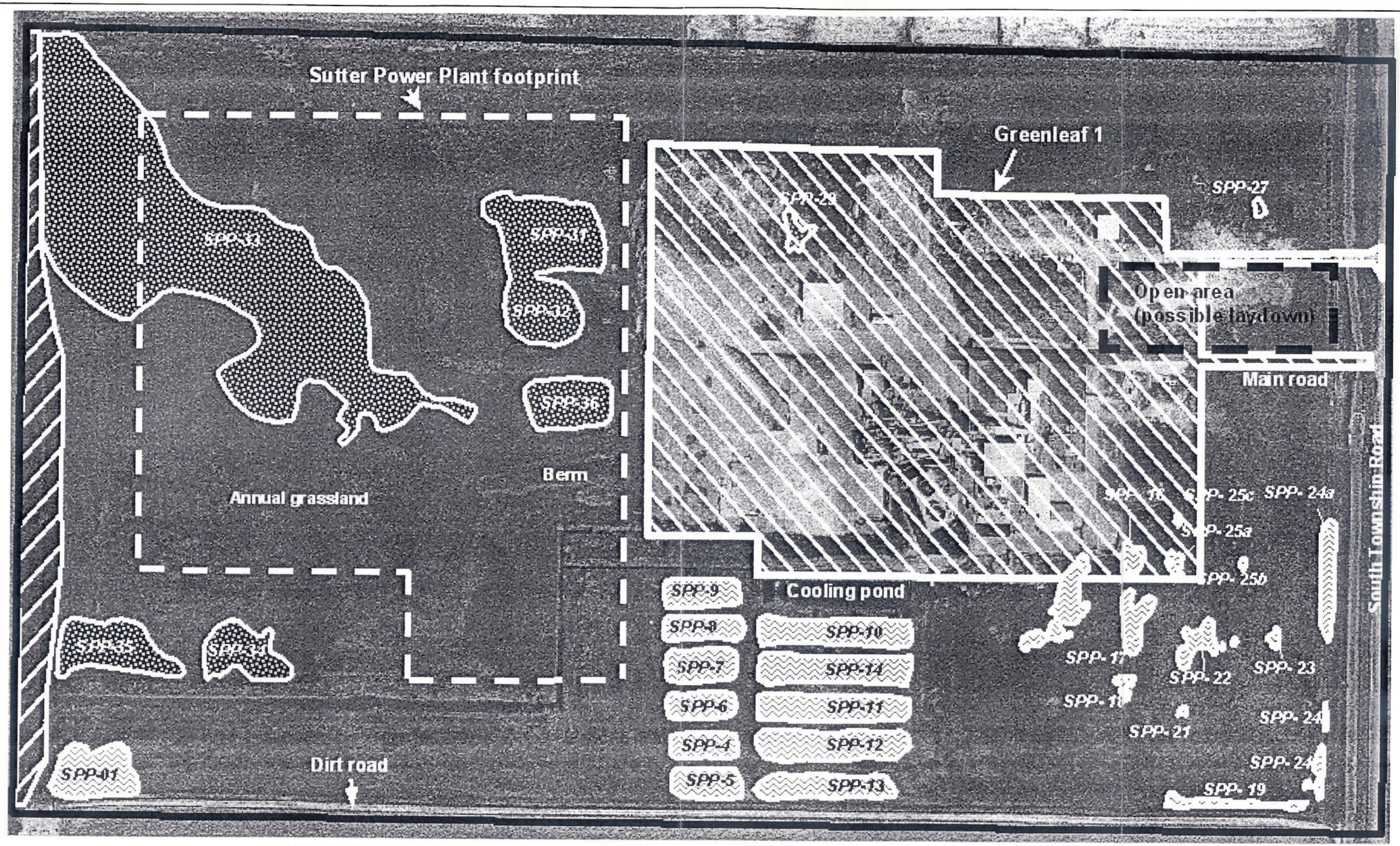
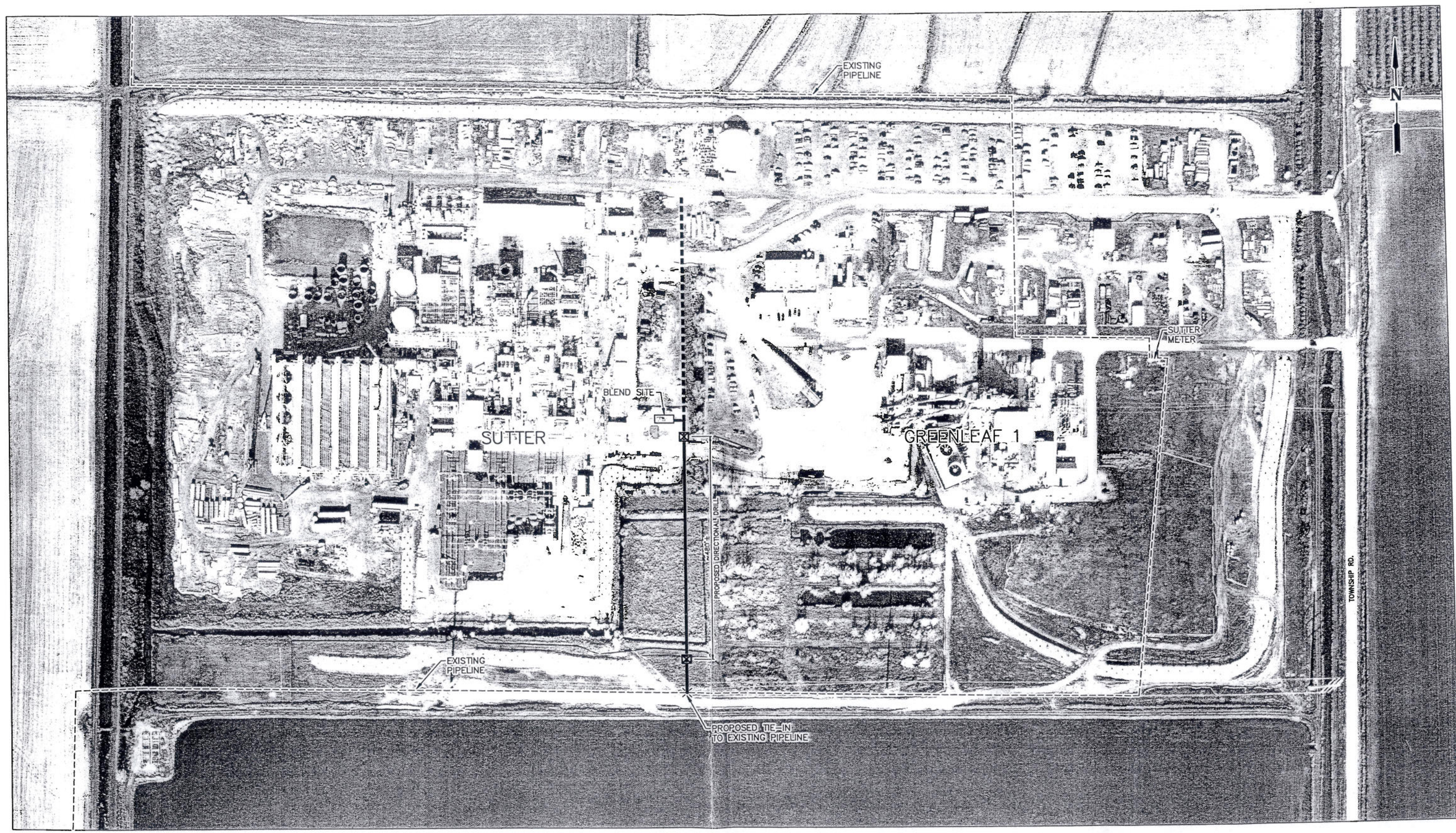


Figure C-1
Wetlands and Habitats on the SPP Project Site
SUTTER POWER PLANT PROJECT

Source: *Sutter Causeway and Grimes, California, 7 1/2min. topographic quadrangles, photorevised 1973.*
FOSTER WHEELER ENVIRONMENTAL

152667 99 01 Fig C 1 Wetlands 5 14 99 MO

CH2MHILL



LEGEND:

- EXISTING PIPELINE
- PRIMARY PIPELINE ROUTE (810' FT.) – BASE OPTION
- PROPOSED PULL BACK STRING

1"=100' 100' 0' 100' 200'

REV.	DATE	BY	DESCRIPTION
D	4/03/01	IP	REVISED – ISSUED FOR APPROVAL
C	2/26/01	IP	REVISED – ADDED ALTERNATE ROUTE
B	2/21/01	IP	REVISED – ISSUED FOR REVIEW
A	1/4/01	IP	ISSUED FOR REVIEW

REVISION

SPEC SERVICES
SPEC Services, Inc.
17101 Bushard Street
Fountain Valley, CA 92708
(714) 963-8077
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CALPINE

MONTIS NIGER INTERCONNECT
TO SUTTER POWER PLANT
YUBA CITY, CALIFORNIA

EXHIBIT MAP

DRAWN	DATE	CHECKED	APPROVED	SCALE	
IP	1/4/01	HG	–	1"=100'	2485-EX-01

Appendix D:
Climatic Data

WETS Station : NICOLAUS 2, CA6194 Creation Date: 08/29/2002
Latitude: 3855 Longitude: 12133 Elevation: 00040
State FIPS/County(FIPS): 06101 County Name: Sutter
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	30% chance will have more than	avg # of days w/.1 or more	avg total snow fall
January	-----	-----	-----	3.89	1.99	4.75	7	0.0
February	-----	-----	-----	3.27	1.36	3.98	6	0.0
March	-----	-----	-----	3.19	1.67	3.89	6	0.0
April	-----	-----	-----	1.25	0.55	1.55	3	0.0
May	-----	-----	-----	0.55	0.08	0.65	1	0.0
June	-----	-----	-----	0.24	0.00	0.29	0	0.0
July	-----	-----	-----	0.06	0.00	0.00	0	0.0
August	-----	-----	-----	0.05	0.00	0.00	0	0.0
September	-----	-----	-----	0.44	0.00	0.48	1	0.0
October	-----	-----	-----	1.15	0.51	1.45	2	0.0
November	-----	-----	-----	2.56	1.13	3.17	5	0.0
December	-----	-----	-----	2.90	1.44	3.54	5	0.0
Annual	-----	-----	-----	------	15.43	22.25	--	----
Average	0.0	0.0	0.0	------	------	------	--	----
Total	-----	-----	-----	19.57	------	------	36	0.0

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 *	---------- ------	---------- ------	---------- ------
70 percent *	---------- ------	---------- ------	---------- ------

* Percent chance of the growing season occurring between the Beginning and Ending dates

total 1963-2002 prcp

Station : CA6194, NICOLAUS 2

-------   Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
63	3.80	2.23	3.33	4.30	0.81	0.32		0.00	0.12	2.30	4.78	0.34	22.33
64	4.16	0.25	M1.30	0.39	0.24	0.26	0.00	0.05	0.00	1.58	3.39	3.93	15.55
65	2.93	0.67	0.83	3.23	0.07	0.01	0.00	0.75	0.05	0.08	4.63	2.21	15.46
66	1.86	1.79	0.36	1.45	0.25	0.07	0.06	0.00	0.00	0.00	6.90	3.15	15.89
67	6.83	0.56	3.71	4.11	0.06	0.96	0.00	0.00	0.07	0.60	1.83	1.24	19.97
68	4.69	3.46	3.00	0.31	0.24	0.32	0.00	0.25	0.04	1.01	4.08	5.14	22.54
69	8.90	6.06	1.94	1.76	0.01	0.00	0.00	0.00	0.00	1.05	0.58	4.71	25.01
70	6.41	1.50	2.22	0.50	0.00	0.33	0.00	0.00	0.00	0.87	6.37	5.40	23.60
71	1.06	0.16	2.82	0.40	0.84	0.07	0.00	0.00	0.06	0.27	1.16	4.69	11.53
72	0.97	1.50	0.30	1.14	0.58	0.34	0.00	0.00	0.92	1.70	5.04	2.10	14.59
73	8.42	7.02	2.72	0.65	0.08	0.00	0.00	0.00	0.58	1.36	5.56	4.51	30.90
74	3.19	1.01	4.57	0.87	0.00	1.04	1.38	0.00	0.00	1.16	1.22	3.16	17.60
75	0.64	7.85	4.90	0.78	0.00	0.05	0.04	0.12	0.00	2.35	0.73	1.00	18.46
76	0.67	1.03	0.90	1.53	0.00	0.07	0.00	0.29	0.76	0.05	0.53	0.33	6.16
77	1.23	1.54	0.90	0.00	1.47	0.00	0.10	0.00	0.82	0.54	2.14	3.48	12.22
78	8.89	2.86	5.14	3.06	0.00	0.00	0.00	0.00	0.52	0.00	4.24	0.82	25.53
79	5.06	4.28	2.69	1.18	0.14	0.00	0.12	0.00	0.14	1.93	2.76	3.64	21.94
80	4.33	7.35	1.79	0.58	0.73	0.35	0.15	0.00	0.00		0.25	2.65	18.18
81	4.44	0.72	4.24	1.38	0.36	0.00	0.00	0.00	0.63	2.45	6.17	4.10	24.49
82	3.81	2.23	5.36	5.03	0.00	0.17	0.00	0.00	1.10	2.97	5.36	2.26	28.29
83	5.49	4.88	8.15	3.87	0.32	0.98	0.00	0.00	0.99	0.85	6.25	7.06	38.84
84	0.43	1.68	1.74	0.47	0.01	0.12	0.00	0.27	0.01	2.66	5.50	1.67	14.56
85	1.21	M1.24	2.70	0.11	0.01	0.07	0.00	0.08	0.79	0.84	3.98	2.27	13.30
86	3.88	6.87	3.51	0.80	0.20		0.00	0.00	1.79	0.20	0.33	1.31	18.89
87	2.63	2.72	3.40	0.13	0.04	0.00	0.00		0.00	1.74	2.59	4.87	18.12
88	4.10	0.30	0.47	2.16	0.50	0.28	0.01	0.00	0.00	0.11	3.04	3.51	14.48
89	M1.60	1.34	6.43	0.32	0.37	0.79	0.00	0.34	3.17	1.77	1.43	0.11	17.67
90	5.12	3.22	1.50	0.30		0.00	0.00	0.00	0.00	0.45	0.74	1.65	12.98
91	0.65	2.69	8.27	0.30	0.54	0.52	0.02	0.15	0.01	0.93	0.33	2.65	17.06
92	2.20	6.32	2.97	1.17	0.04	0.36	0.00	0.00	0.00	1.76	0.41	5.61	20.84
93	8.34	5.36	2.28	0.89	1.27	0.65	0.00	0.00	0.00	0.61	2.49	2.25	24.14
94	2.77	3.45	0.41	0.73	0.66	0.00	0.00	0.00	0.07	0.60	4.58	4.48	17.75
95	10.04	0.14	8.14	1.21	1.20			0.00	0.00	0.00	0.00	5.35	26.08
96	3.29	6.09	2.53	3.25	2.43	0.00	0.00	0.00	0.00	1.83	1.10	6.72	27.24
97	8.28	0.23	0.98	0.31	0.52	0.75	0.00	0.24	0.32	1.24	4.33	2.57	19.77
98	5.96		2.07	2.11	2.45	0.02	0.00	0.00	0.38	1.09	2.45	1.53	18.06
99	2.85	3.77	1.48	1.34	0.09	0.02	0.00	0.00	0.00	0.23	1.49	0.29	11.56
0	5.09	7.12	2.28	1.58	1.12	0.09	0.00	0.00	0.22	1.73	0.75	0.38	20.36
1	3.69	4.28	1.87	0.88	0.00	0.12	0.00	0.00	0.23	0.50	2.59	5.67	19.83
2													

SOURCE: http://www.wcc.nrcs.usda.gov/ftpref/support/climate/wetlands/ca/06101.txt

FEATHER RIVER NEAR NICOLAUS *(NIC)*

Elevation: 43' · FEATHER R basin · Operator: CA Dept of Water Resources

Provisional data, subject to change.

Query executed Monday at 11:39:20

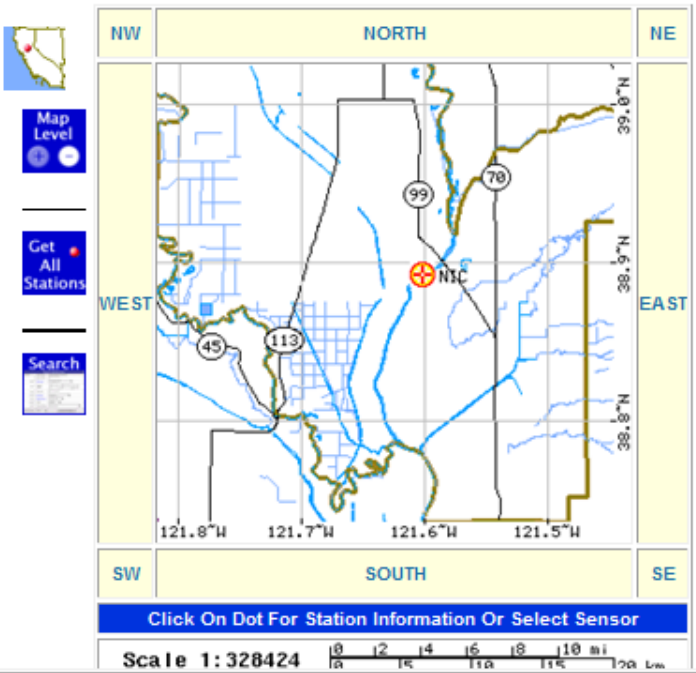
Earlier

Date	*RAIN INCHES*	
08/2011	0.00	
09/2011	0.00	
10/2011	1.43	
11/2011	0.93	
12/2011	0.10	
01/2012	3.55	
02/2012	0.81	
03/2012	4.47	
04/2012	2.24	
05/2012	0.02	
06/2012	0.00	
07/2012	--	
08/2012	--	
09/2012	--	
10/2012	1.07	
11/2012	4.28	
12/2012	4.52	
01/2013	0.94	
02/2013	0.81	
03/2013	1.46	
04/2013	0.92	e
05/2013	--	
06/2013	--	
07/2013	--	

SOURCE: http://cdec.water.ca.gov/cgi-progs/queryMonthly?NIC; accessed on July 29, 2013

CDEC Station Locator - FEATHER RIVER NEAR NICOLAUS *(NIC)*

Located at elevation 43 feet in the FEATHER R basin. Latitude 38.891, Longitude -121.604.



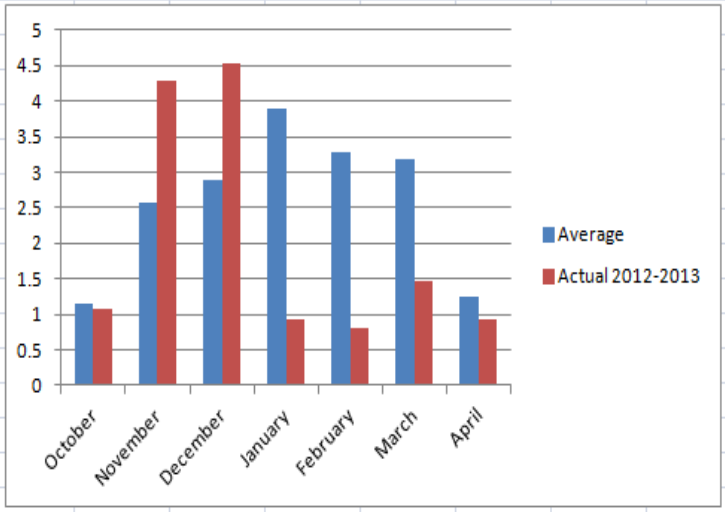
Station:

Other stations in the area:

BJP - BYRON JACKSON PUMPS
BPG - BEAR RIVER AT PLEASANT GROVE RD
BRF - DRY BEAR CONFLUENCE - FCO
FRE - SACTO R AT FREMONT WEIR (CREST 33.5')
KNL - SACRAMENTO RIVER AT KNIGHTS LANDING
PM1 - PUMPING PLANT 1
RCS - RIDGE CUT SLOUGH AT KNIGHTS LANDING
SB1 - SUTTER BYPASS CHANNEL AT PUMPING PLANT 1
SBP - SUTTER BYPASS AT RD 1500 PUMP
SSK - SACRAMENTO SLOUGH NR KARNAK
VON - SACRAMENTO RIVER AT VERONA
WSL - WILLOW SLOUGH AT SB WEST BURROW PIT

Comparison of the 2012-2013 Rainfall Data to the Average Annual Estimates

Month	Average	Actual 2012-2013	Percentage
October	1.15	1.07	93.0
November	2.56	4.28	167.2
December	2.9	4.52	155.9
January	3.89	0.94	24.2
February	3.27	0.81	24.8
March	3.19	1.46	45.8
April	1.25	0.92	73.6
Total	**18.21**	**14**	**76.9**



Appendix E:
Plant Species Observed in the Wetland Delineation Area

Table E-1. List of Plants Observed in the SEC Delineation Area in January, February, and June 2013

Common Name	***Scientific Name***	**Wetland Indicator Status**	**Name Change?**
slender wild oat	*Avena barbata*	NL	
mosquitofern	*Azolla filiculoides*	OBL	
black mustard	*Brassica nigra*	NL	
ripgut brome	*Bromus diandrus*	NL	
soft chess	*Bromus hordeaceus*	FACU	
yellow star-thistle	*Centaurea solstitialis*	NL	
Canadian horseweed	*Conyza canadensis*	FACU	
Bermudagrass	*Cynodon dactylon*	FACU	
Umbrella sedge	*Cyperus eragrostis*	FACW	
long-beaked filaree	*Erodium botrys*	FACU	
cutleaf geranium	*Geranium dissectum*	NL	
Mediterranean barley	*Hordeum marinum* ssp gussoneanum	FAC	
foxtail barley	*Hordeum murinum* ssp leporinum	FACU	
hairy cat's ear	*Hypochaeris radicata*	FACU	
soft rush	*Juncus effusus*	FACW	
broad-leaf pepperwort	*Lepidium latifolium*	FAC	
Italian ryegrass	*Lolium multiflorum*	NL	*Festuca perennis* in Baldwin et al. 2012
perennial ryegrass	*Lolium perenne*	FAC	*Festuca perennis* in Baldwin et al. 2012
miniature lupine	*Lupinus bicolor*	NL	
Hyssop's loosestrife	*Lythrum hyssopifolia*	OBL	
bur-clover	*Medicago polymorpha*	NL	
cultivated rice	*Oryza sativa*	OBL	
Dallisgrass	*Paspalum dilatatum*	FAC	
narrowleaf plantain	*Plantago lanceolata*	FAC	
Rabbitsfoot grass, annual beard grass	*Polypogon monspeliensis*	FACW	
Cottonwood	*Populus fremontii*	NL (FAC+)	
wild radish	*Raphanus sativus*	NL	
Himalayan blackberry	*Rubus armeniacus*	FACU	formerly *Rubus discolor*
curly dock	*Rumex crispus*	FAC	
Gooding's black willow	*Salix gooddingii*	NL	
Common tule	*Schoenoplectus acutus*	OBL	formerly *Scirpus acutus* var. *occidentalis*
Old Man in the Spring	*Senecio vulgaris*	FACU	
Johnsongrass	*Sorghum halepense*	FACU	
Puncture vine	*Tribulus terrestris*	NL	
Broadleaf cattail	*Typha latifolia*	OBL	
Purple-top vervain	*Verbena bonariensis*	FACW	
common vetch	*Vicia sativa*	FACU	

Notes:

1.Taxonomy follows current nomenclature per the Jepson Manual (Baldwin et al. 2012) and USDA Plants web site accessed at http://plants.usda.gov/java/.

2. **Boldface** entries indicate that plant samples were collected.

3. Wetland Indicator Status taken from the USDA Plants National Wetland Plant List (2012) available at http://plants.usda.gov/wetland.html or taken from Reed (1997) with status shown in parentheses when the species was not listed in the USDA Wetland Plant List (2012).

Wetland Indicator Status abbreviations defined as follows:

NL = Not Listed. Assumed to be UPL unless otherwise indicated in parentheses.

OBL (Obligate) = Occurs almost always (estimated probability 99%) under natural conditions in wetlands

FACW (Facultative Wetlands) = Usually occurs in wetlands (estimated probability 67 to 99%) but occasionally found in non-wetlands

FAC (Facultative) = Equally likely to occur in wetlands or non-wetlands (estimated probability 34 to 66%)

FACU (Facultative Upland) = Ususally occurs in non-wetlands (estimated probability 67 to 99%) but occasionally found on wetlands (estimated probability 1 to 33%)

A positive (+) or negative (-) sign indicates a placement in either the higher or lower end of the frequency range; whereas * indicates a tentative status.

Appendix F:
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sutter Energy Center City/County: Sutter County Sampling Date: 1/28; 2/21; & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: SW-002

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: Section 24, T:14N, R:02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): concave Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 09.68" N Long: 121° 41' 54.09" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam, 0 to 1 percent slopes NWI classification: NONE

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:

Evidence of short term ponding from early season heavy rains; however, the very shallow feature is underlain by compacted fill soils that drained readily. Artificial increase in surface water runoff from site that is ponded in the very shallow, isolated basin that had formed on the construction fill.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: 0			
Herb Stratum (Plot size: 5 ft. rad)			
1. Lythrum hyssopifolium Feb 21	15	Y	OBL
2. Lupinus bicolor Feb 21	5	N	NL
3. Tribulus terrestris Feb 21	5	N	NL
4. Cynodon dactylon Feb 21	5	N	FACU
5. Senecio vulgaris Feb 21	1	N	FACU
6.			
7. Polypogon monspeliensis Jun 28	20	Y	FACW
8. Conzya canadensis Jun 28	5	N	FACU
Total Cover: 25 to 31			
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 75 % Cover of Biotic Crust 0

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 1	x 1 = 1
FACW species 1	x 2 = 2
FAC species 0	x 3 = 0
FACU species 3	x 4 = 12
UPL species 2	x 5 = 10
Column Totals: 7 (A)	25 (B)

Prevalence Index = B/A = 3.6

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:

Area is routinely mowed, evidence of sheet flow from site. Source of wetland vegetation likely from wind dissemination because the compacted fill soils were imported or graded from local soils for construction in the early 2000's.

SOIL

Sampling Point: SW-002

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
0-4	10YR 5/3	97	10YR 3/2	3	OM	ped surf	SCL	firm, sbk, coarse sand throughout, fill
4-14+	10YR 4/3	100	NONE				SICL	very firm, sbk, very fine gravel mixed throughout, fill

[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: Not Encountered

Depth (inches): >14 in.

Hydric Soil Present? Yes _____ No √

Remarks:

This is a compacted construction fill. This land was used to support a large crane during construction as evidenced by aerial photograph date April 2001 included in Appendix C.

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): 2.5 in. max

Water Table Present? Yes _____ No √ Depth (inches): >14 in

Saturation Present? (includes capillary fringe) Yes _____ No √ Depth (inches): >14 in

Wetland Hydrology Present? Yes √ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Heavy rains occurred in late November and early December. Evidence of sheet flow from adjacent site. Very shallow ponding proximity to PA-01 on Jan 18; however, this feature did not hold water once the heavy rains of early 2012-2013 winter were over. The heavy rains and ponding occurred after the area had been mowed. This resulted in the presence of a slight drift deposit, which was not considered to be a strong indicator of normal hydrologic conditions.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sutter Energy Center City/County: Sutter County Sampling Date: 1/18; 2/21; & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: SW-003

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: S:24, T:14N R:02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): concave Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 06.07" N Long: 121° 41' 53.05" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam, 0 to 1 percent slopes NWI classification: NONE

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:

Weak wetland vegetation indicators (dominant is FAC) and lack of hydric soils. Artificially increased runoff from adjacent SEC site but sufficient hydrology for algae and aquatic inverts.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: 0			
Herb Stratum (Plot size: 5 ft.)			
1. Hordeum marinum spp. gussoneanum	80	Y	FAC
2. Lythrum hyssopifolium	10	N	OBL
3. Hypochaeris radicata	1	N	NL
4. Plantago lanceolata	<1%	N	FAC
5.			
6.			
7.			
8.			
Total Cover: 92			
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 8 % 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	1	x 1 =	1
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	4 (A)		12 (B)

Prevalence Index = B/A = 3.0

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:

Area is routinely mowed. Bare ground dominated where sheet flow leaves south side of site.

SOIL

Sampling Point: SW-003

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
0-5	10YR 5/3	100	NONE				SCL	firm, sbk, mixed sand and fine gravel fill
5-7+	10YR 5/3	100	NONE				grav. SCL	Hard, gravelly compacted fill

[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: Compacted fill layer

Depth (inches): 5

Hydric Soil Present? **Yes** ___ **No** √

Remarks:

This is a compacted construction fill. This area was used to support a large crane during original plan construction. The amount of fine gravel increases from 5% in top 5 inches to 15-20% in deeper layers.

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): 1.75 in.

Water Table Present? Yes √ No ___ Depth (inches): > 7 in.

Saturation Present? (includes capillary fringe) Yes √ No ___ Depth (inches): > 7 in.

on Feb 21

Wetland Hydrology Present? **Yes** √ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Observe water boatmen and water fleas (Daphnia sp.). This shallow ponded area is located at the bottom of 2 overland flow pathways which had sparse vegetation. Amount of water is artificially increased by runoff from the adjacent SEC site. Data point collected from edge of inundated area on Jan. 18.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sutter Energy Center City/County: Sutter County Sampling Date: 1/18; 2/21; & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: SW-001A

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: S:24 T:14N R: 02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): concave Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 04.72" N Long: 121° 41' 49.69" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam 0 to 1 percent slopes NWI classification: NONE

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:

This shallow channel runs adjacent to the graded upland areas on the south and west sides of the site. At times, this channel floods from the adjacent drainage canals beyond the site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. Rubus armeniacus	30	Y	FACU
2.			
3.			
4.			
5.			
Total Cover:	30		
Herb Stratum (Plot size: entire channel)			
1. Cynodon dactylon	30	Y	FACU
2. Rumex crispus	35	Y	FAC
3. Juncus effusus	15	Y	FACW
4. Lythrum hyssopifolium	5	N	OBL
5. Cyperus eragrostis	2	N	FACW
6. Paspalum dilatatum	2	N	FAC
7. Schoenoplectus acutus	1	N	OBL
8.			
Total Cover:	90		
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	2	x 2 =	4
FAC species	2	x 3 =	6
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	8 (A)		20 (B)

Prevalence Index = B/A = 2.5

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** _____

Remarks:

Graded flat bottom drainage channel x-section views west

SEC Site

SOIL

Sampling Point: SW-001A

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
0-10+	10YR 3/1	65	10YR 3/3	35	Medium distinct	Ped Surf	CL	Soft, slightly sticky, slightly plastic

[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: Not encountered

Depth (inches): >10 in

Hydric Soil Present? **Yes** √ **No** ___

Remarks:

This is a graded shallow channel on the south and west edge of compacted construction fill.

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): 5 in

Water Table Present? Yes √ No ___ Depth (inches): >10 in.

Saturation Present? (includes capillary fringe) Yes √ No ___ Depth (inches): >10 in.

Wetland Hydrology Present? **Yes** √ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This shallow channel feature collects surface water runoff from south and west side of SEC property and connects hydrologically to the larger drainage ditches to south and west of the SEC property. This feature is flooded from these adjacent ditches near SW corner and along the west side of SEC site.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sutter Energy Center City/County: Sutter County Sampling Date: 1/18; 2/21; & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: SW-001B

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: S:24 T:14N R:02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): None Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 04.88" N Long: 121° 41' 49.76" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam , 0 – 1 percent slopes NWI classification: NONE

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:

This is a graded upland area adjacent to shallow drainage channel on the south side of the SEC site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 5 ft. rad)			
1. Erodium botrys	40	Y	FACU
2. Medicago polymorpha	30	Y	FACU
3. Bromus hordeaceus	15	Y	FACU
4. Brassica nigra	TR	N	NL
5.			
6.			
7.			
8.			
Total Cover:	85		
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover:	0		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust 0

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	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	4 (A)		17 (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** √

Remarks:

Area is frequently mowed.

SOIL

Sampling Point: SW-001B

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
0-10+	10YR 3/2	100	NONE				CL	Firm, sbk, roots 2%

[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: Not encountered

Depth (inches): >10 in

Hydric Soil Present? **Yes** ____ **No** √

Remarks:

This is a compacted construction fill and was used for temporary material and equipment storage during original plant construction.

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): > 10 in

Saturation Present? (includes capillary fringe) Yes ____ No √ Depth (inches): > 10 in

Wetland Hydrology Present? **Yes** ____ **No** √

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This is the upland area beside the graded drainage feature that collects surface water runoff from south and west side of SEC property.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sutter Energy Center City/County: Sutter County Sampling Date: 1/18; 2/21; & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: PA-002A

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: S:24 T:14N R:02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): concave Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 12.95" N Long: 121° 41' 41.68" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam, 0 – 1 percent slopes NWI classification: NONE

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:

This former material laydown area is characterized as a shallow basin confined by fill slopes for the SEC facility to west and roadway to the south.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: 0			
Herb Stratum (Plot size: 5 ft. rad)			
1. Cynodon dactylon	70	Y	FACU
2. Rumex crispus	5	N	FAC
3. Cyperus eragrostis	5	N	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover: 80			
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	1	x 3 =	3
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	3 (A)		9 (B)

Prevalence Index = B/A = 3.0

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:

Area is frequently mowed and is dominated by Bermudagrass (FACU).

SOIL

Sampling Point: PA-002A

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 - 7	10YR 3/2	97	10YR 2/2	3	Med faint	Ped Surf	SiCL	Firm, sbk, fine gravel throughout, fill
7-16+	10YR 3/2	100	NONE				SiCL	

[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: Not encountered

Depth (inches): > 16 in.

Hydric Soil Present? **Yes** _____ **No** √

Remarks:

This is compacted construction fill. This area was the former laydown are during the original plant construction.

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): 2 in. max

Water Table Present? Yes √ No _____ Depth (inches): > 16 in

Saturation Present? (includes capillary fringe) Yes √ No _____ Depth (inches): > 16 in

Wetland Hydrology Present? **Yes** √ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Algal matting, grass drift lines likely associated with ponding event due to heavy early season rainfall after mowing had occurred. For this reason, the drift deposit line was considered as a strong wetland hydrology indicator. This was a former material laydown area during early 2000's construction; however, local grading and adjacent fill slopes have resulted in creation of shallow basin.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sutter Energy Center City/County: Sutter County Sampling Date: 1/18; 2/21; & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: PA-002B

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: S:24 T:14N R:02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): convex Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 13.06" N Long: 121° 41' 40.75" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam, 0 to 1 percent slopes NWI classification: NONE

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:

Former material laydown area during SEC construction in the early 2000's.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: 0			
Herb Stratum (Plot size: 5 ft.)			
1. Bromus hordeaceus	70	Y	FACU
2. Cynodon dactylon	30	Y	FACU
3. Rumex crispus	<1%	N	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover: 100			
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

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	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	3 (A)		11 (B)

Prevalence Index = B/A = 3.7

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:

Area is frequently mowed.

SOIL

Sampling Point: PA-002B

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
0-14+	10YR 3/2	100	NONE				SiL	Firm, sbk, mixed fill, 10% fine roots fine gravel and single cobble at 5 in bgs

[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: Not encountered

Depth (inches): > 14 in.

Hydric Soil Present? Yes _____ No √

Remarks:

This is a compacted construction fill. This area was the former laydown area during the original plant construction.

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): > 14 in

Saturation Present? (includes capillary fringe) Yes _____ No √ Depth (inches): > 14 in

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: Sutter Energy Center City/County: Sutter County Sampling Date: 1/18; 2/21; & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: PA-001A

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: S:24 T:14N R:02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): convex Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 14.25" N Long: 121° 41' 27.17" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam, 0 to 1 percent slopes NWI classification: NONE

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:

This shallow channel runs adjacent to the graded upland areas on the south and west sides of the site. At times, this channel floods from the adjacent drainage canals beyond the site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: 0			
Herb Stratum (Plot size: 5 ft. rad)			
1. Bromus hordeaceus	80	Y	FACU
2. Rumex crispus	5	N	FAC
3. Sorghum halepense	2	N	FACU
4. Plantago lanceolata	1	N	FAC
5.			
6.			
7.			
8.			
Total Cover: 88			
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 12 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	4 (A)		14 (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** √

Remarks:

SOIL

Sampling Point: PA-001A

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
0-5	10YR 4/2	100	NONE			gravelly	SL	firm sbk, firm gravel 15% fill
5-16+	10YR 3/2	85	10YR 3/3	15	med faint	ped surface	SiL	firm, sbk, coarse sand & fine gravel fill

[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 encountered

Depth (inches): > 16 in.

Hydric Soil Present? Yes _____ No √

Remarks:

This is a compacted construction fill. This area was the former parking area during the original plant construction.

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): > 16 in

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): > 16 in

Wetland Hydrology Present? Yes _____ No √

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Algal matting noted. Connects through break in soil berm to drainage canal to north of SEC site. This is former parking area during construction in early 2000's.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sutter Energy Center City/County: Sutter County Sampling Date: 1/18; 2/21; & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: PA-001B

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: S:24, T:14N R:02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): Convex Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 14.25" N Long: 121° 41' 27.70" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam, 0 to 1 percent slopes NWI classification: NONE

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:

This shallow channel runs adjacent to the graded upland areas on the south and west sides of the site. At times, this channel floods from the adjacent drainage canals beyond the site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
3.			
4.			
5.			
Total Cover: 0			
Herb Stratum (Plot size: 5 ft.)			
1. Bromus hordeaceus	95	Y	FACU
2. Rumex crispus	<1%	N	FACU
3. Sorghum halepense	<1%	N	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover: 97			
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 3 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	3 (A)		11 (B)

Prevalence Index = B/A = 3.7

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: PA-001B

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	10 YR 5/3		NONE				SL	Friable, sbk, mixed coarse sand, worms, fill
7-16+	7.5YR 3/2	50	7.5YR 4/4	20	med distinct	gravelly ped surface	SiL	
			10YR 4/2	30	med distinct			

[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 Encountered

Depth (inches): >16 in.

Hydric Soil Present? Yes ____ No √

Remarks:

This is a former parking area during construction in early 2000's.

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): > 16 in

Saturation Present? (includes capillary fringe) Yes ____ No √ Depth (inches): > 16 in

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: Sutter Energy Center City/County: Sutter County Sampling Date: 2/21 & 6/28/13

Applicant/Owner: Calpine Construction Finance Company, L.P. State: CA Sampling Point: SPP-01

Investigator(s): Steve Long, Rick Crowe Section, Township, Range: S:24 T:14N R:02E

Landform (hillslope, terrace, etc.): Low terrace Local relief (concave, convex, none): convex Slope (%): 0 <1%

Subregion (LRR): C Lat: 39° 03' 03.06" N Long: 121° 41' 54.93" W Datum: WGS84

Soil Map Unit Name: 132 Gridley clay loam, 0 to 1 percent slopes NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes √ No _____ (If no, explain in Remarks.)

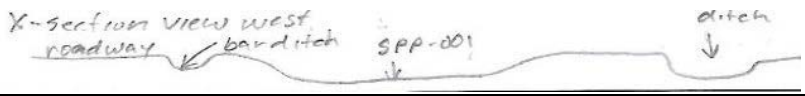
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes √ No _____

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 – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
Total Cover: 0			
Sapling/Shrub Stratum (Plot size: 30 ft. rad)			
1. Rubus armeniacus	20	Y	FACU
2.			
3.			
4.			
5.			
Total Cover: 20			
Herb Stratum (Plot size: 5 ft. rad)			
1. Lepidium latifolium	80	Y	FAC
2. Rumex crispus	15	Y	FAC
3. Verbena bonariensis	5	N	FACW
4. Centaurea soltitialis	3	N	NL
5.			
6.			
7.			
8.			
Total Cover: 103			
Woody Vine Stratum (Plot size: 30 ft. rad)			
1. NONE			
2.			
Total Cover: 0			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

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: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 1	x 2 = 2
FAC species 2	x 3 = 6
FACU species 1	x 4 = 4
UPL species 1	x 5 = 5
Column Totals: 5 (A)	17 (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 _____

Remarks:

Shallow basin is surrounded by Centaurea stoltitialis and Rubus armeniacus on roadway berms.

SOIL

Sampling Point: SPP-01

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
0-9	10YR 3/2	80	10YR 2/1	5	med distinct	om ped surf	SC	soft, slightly sticky, slightly plastic,
			10YR 4/1	5	coarse distinct	ped surface	SC	m-f roots 10%
9-20+	10YR 3/2	83	10YR 2/1	1	med distinct	ped surface	Clay	soft, slightly sticky, slightly plastic
				8	coarse distinct	ped surface	Clay	
				8	fine prom	ped surface	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 Encountered

Depth (inches): >20 in.

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): >20 in

Saturation Present? (includes capillary fringe) Yes ___ No √ Depth (inches): >20 in

Wetland Hydrology Present? Yes √ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Floods from adjacent ditches to west and to north when they are overtopped. Contained by berm along unpaved roadway to south.

Appendix G:
Representative Photographs

G-1. SEC Wetland Delineation: View east of Seasonal wetland (SW-001). January 18, 2013.

G-2. SEC Wetland Delineation: View west of Seasonal wetland (SW-001). January 18, 2013.

G-3. SEC Wetland Delineation: View north of Seasonal wetland (SW-001) along west side of SEC property. January 18, 2013.

G-4. SEC Wetland Delineation: View west of Seasonal wetland (SW-001). February 21, 2013.

G-5. SEC Wetland Delineation: View north of Seasonal Wetland (SW-002). January 18, 2013.

G-6. SEC Wetland Delineation: View north of Seasonal Wetland (SW-002). February 21, 2013.

G-7. SEC Wetland Delineation: View south of Seasonal Wetland (SW-002). June 28, 2013.

G-8. SEC Wetland Delineation: Seasonal Wetland (SW-002) soil pit with no saturation at depth. January 18, 2013.

G-9. SEC Wetland Delineation: View northwest of Seasonal Wetland (SW-003) showing inundation. January 18, 2013.

G-10. SEC Wetland Delineation: View west of Seasonal Wetland (SW-003) showing algal matting. February 21, 2013.

G-11. SEC Wetland Delineation: View east of Seasonal Wetland (SW-003). June 28, 2013.

G-12. SEC Wetland Delineation: View northwest of Ponding Area (PA-003). January 18, 2013.

G-13. SEC Wetland Delineation: View south of Ponding Area (PA-003). February 21, 2013.

G-14. SEC Wetland Delineation: View northeast of Ponding Area (PA-001). January 18, 2013**.**

G-15. SEC Wetland Delineation: View northeast of Ponding Area (PA-001). February 21, 2013**.**

G-16. SEC Wetland Delineation: View northeast of Ponding Area (PA-001). June 28, 2013**.**

G-17. SEC Wetland Delineation: View north of Ponding Area (PA-002) showing scattered ponding in shallow basin. January 18, 2013.

G-18. SEC Wetland Delineation: View west of Ponding Area (PA-002) showing algal matting. February 21, 2013.

G-19. SEC Wetland Delineation: View west of Ponding Area (PA-002) showing recent grading. June 28, 2013.

G-20. SEC Wetland Delineation: View northwest of Seasonal Wetland (SPP-01). February 21, 2013.

G-21. SEC Wetland Delineation: View north of Seasonal Wetland (SPP-01). June 28, 2013.

G-22. SEC Wetland Delineation: View west of ponding due to overflow from drainage ditch at DP Outfall B. January 18, 2013.

G-23. SEC Wetland Delineation: View west of remnant ponding at DP Outfall B. February 21, 2013.

G-24. SEC Wetland Delineation: View southwest of drainage ditch to south of SW-001 showing floating mosquitofern and cattails. January 18, 2013.