DOCKETED	
Docket Number:	26-OPT-01
Project Title:	Vaca Dixon Power Center Project
TN #:	268172-3
Document Title:	Appendix Y Biological Resources Technical Study_VDPC_Part 3 of 3
Description:	Includes a Biological Resources Technical Study which analyzes the potential impacts of the Project and evaluates short and long term impacts of the Project to biological resources. Y.A Regulatory Framework; Y.B Species Compendia; Y.C Representative Site Photographs; Y.D Burrowing Owl Survey Report; Y.E Dry Season Large Branchiopod Protocol Sampling Results (2024); Y.F Wet Season Large Branchiopod Protocol Sampling Results; Y.G Large Branchiopod Habitat Assessment Report; Y.H Dry Season Large Branchiopod Protocol Sampling Results (2025); Y.I Crotch's Bumble Bee Survey Report; Y.J Aquatic Resources Delineation Report; Y.K Special-Status Species Evaluation Table; Y.L California Natural Diversity Database (CNDDB) Figure (scale1:6,000) (Confidential - submitted separately); Y.M United States Fish and Wildlife Service Meeting Minutes
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Appendix Y, Part 3

Biological Resources Technical Study

Attachment 3

Site Photographs

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Appendix J

Aquatic Resources Delineation Report

Vaca Dixon Power Center Project

Aquatic Resources Delineation Report

prepared for

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RINCON CONSULTANTS

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Executive Summary

Rincon Consultants, Inc. performed an aquatic resources delineation (ARD) for the Vaca Dixon Power Center Project (Project), consisting of a Vaca Dixon Power Center battery energy storage system (BESS), generation interconnections (gen-ties), and supporting infrastructure. For the purposes of this ARD Report, the proposed Project area and a 250-foot buffer, collectively referred to as the Biological Study Area (BSA), was the area in which aquatic resources were assessed. The ARD assessment included a literature/database review and field delineation effort. The review included relevant documents and databases, including the National Wetlands Inventory, National Hydrography Dataset, historical aerial imagery, and Web Soil Survey. The field delineation included several site visits to identify, describe, and map aquatic resources. Following the literature/database review and field delineation, an evaluation of jurisdictional limits was completed for the aquatic resources identified in the BSA.

The results, further discussed in this Report, concluded that a minimum of fourteen jurisdictional aquatic features occur within the BSA, including nine seasonal wetlands (Seasonal Wetland 1 through 9), one swale (Swale), three agricultural ditches (Agricultural Ditch 1 through 3), and one man-made pond (Pond).

In summary, the delineation identified:

- Approximately 0.95 acre (2,800 linear feet) of non-wetland waters of the U.S. within the purview of the U.S. Army Corps of Engineers (USACE),
- Approximately 1.85 acres (4,613 linear feet) of non-wetland waters of the state and 0.68 acre (2,883 linear feet) of wetland waters of the state within the purview of the Central Valley Regional Water Quality Control Board (RWQCB); and,
- Approximately 1.94 acres (6,605 linear feet) of streambed resources within the purview of the California Department of Fish and Wildlife (CDFW).

1 Introduction

Rincon Consultants, Inc. (Rincon) conducted an aquatic resources delineation (ARD) for the Vaca Dixon Power Center Project (Project), located in Solano County, California. The delineation was performed to determine the location and extent of waters and wetlands within a defined Biological Study Area (BSA), inclusive of the proposed Project area and a 250-foot buffer, that are potentially subject to the jurisdiction of the United States Army Corps of Engineers (USACE), Central Valley Regional Water Quality Control Board (RWQCB), and/or California Department of Fish and Wildlife (CDFW).

Proposed development in areas identified as jurisdictional waters or wetlands may be subject to the permit requirements of USACE under Section 404 of the Clean Water Act (CWA), RWQCB under Section 401 of the CWA and Porter-Cologne Water Quality Control Act, and CDFW pursuant to Sections 1600 et seq of the California Fish and Game Code (CFGC). However, the authority of the California Energy Commission (CEC) pursuant to Government Code amendments enacted with the passage of Assembly Bill (AB) 205 in 2022 may preempt CDFW's authority over the Project. Final jurisdictional boundaries are confirmed by state and federal authorities at the time permits are requested.

This report was prepared in accordance with USACE's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017).

1.1 Project Location and Description

Vaca Dixon BESS LLC and Arges BESS LLC (Applicants), propose to construct, operate, and eventually repower or decommission the Vaca Dixon Power Center Project (Project). The battery energy storage system (BESS) facilities are proposed to be installed on an approximately 10-acre site in the City of Vacaville in Solano County, California. The proposed BESS facilities would be located on Assessor's Parcel Number (APN) 0133-060-060. The primary Project facility components at the approximately 10-acre combined BESS Project area include:

- Vaca Dixon BESS (57 megawatts [MW], 1-hour duration, 57 MW hour [MWh]), including electrical switchyard
- Arges BESS (100 MW, 4-hour duration, 400 MWh), including electrical substation

The Project also includes transmission intertie (gen-tie) lines across Interstate 80 (I-80) to the north to connect the BESS facilities to the existing Pacific Gas & Electric (PG&E) Vaca-Dixon Substation located on a PG&E-owned parcel (APN 0133-060-070) in unincorporated Solano County.

The Project would operate 7 days a week, 365 days a year, with an up to 35-year anticipated lifespan. Following the lifespan of the Project, the facilities would either be repowered or decommissioned. Following decommissioning, the Project area would be restored and reclaimed to the maximum extent practicable to preconstruction conditions consistent with site lease agreements.

This ARD Report assesses the aquatic resources within the approximate 55-acre BSA. Within this Report, the BSA is differentiated between the northern BSA and southern BSA. The northern BSA includes the Project gen-tie corridor and survey buffer occurring north of I-80; and the southern BSA includes the Project BESS sites and survey buffer occurring south of I-80. Please refer to Figure 2, Appendix A for illustrations of the proposed Project area and associated BSA.

2 Methodology

Rincon followed current federal and state methods and guidelines used to identify and delineate aquatic features and determine potential jurisdiction to develop a preliminary assessment of limits of jurisdictional areas in the BSA. Potential wetland features were evaluated for presence of wetland indicators, specifically including predominance of hydrophytic vegetation, hydric soils, and wetland hydrology. Potential non-wetland features were evaluated for presence of positive indicators for the Ordinary High Water Mark (OHWM) according to routine delineation procedures. Within the limits of the BSA, aquatic resources were preliminarily delineated in accordance with the following:

- Wetlands Delineation Manual (USACE 1987)
- Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification (USACE 2005)
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008)
- Rapid OHWM Field Identification Data Sheet (USACE 2021)
- National OHWM Field Delineation Manual for Rivers and Streams (USACE 2022)
- Code of Federal Regulations sections that pertain to factors constituting the OHWM for non-wetland waters ("other waters") (33 Code of Federal Regulations [CFR] 328.3 and 33 CFR 328.4)

Non-Wetland Waters of the United States

The lateral limits of USACE jurisdiction (i.e., width) for non-wetland waters were determined by the presence of physical characteristics indicative of the OHWM. The OHWM was identified in accordance with the applicable CFR sections (33 CFR 328.3 and 33 CFR 328.4) and Regulatory Guidance Letter 05-05 (USACE 2005), as well as in reference to various relevant technical publications, including, but not limited to: *Distribution of Ordinary High Water Mark (OHWM) Indicators and Their Reliability in Identifying the Limits of "Waters of the United States" in Arid Southwestern Channels (*USACE 2006*),* Rapid Ordinary High Water Mark (OHWM) Field Identification Data Sheet (USACE 2021), and *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (USACE 2022).

Rincon evaluated sources of water, potential connections and distances to Traditional Navigable Waters (TNW) and other factors that affect whether waters qualify as "waters of the U.S." under current USACE regulations (33 CFR 328.3), which incorporate the recent *Sackett v. USEPA* court ruling and the conforming *Revised Definition of Waters of the United States* (United States Environmental Protection Agency [USEPA] 2023). A more detailed regulatory definition of USACE jurisdiction can be found in Appendix C.

Wetland Waters of the United States

Potential wetland features were evaluated for presence of wetland indicators; specifically, hydrophytic vegetation, hydric soils, and wetland hydrology, according to routine delineation procedures within the *Wetlands Delineation Manual* (USACE 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). The USACE *Arid West 2022 Regional Wetland Plant List* was used to determine the wetland status of the examined vegetation by the following indicator status categories: Upland; Facultative Upland (FACU); Facultative (FAC); Facultative Wetland (FACW); and Obligate Wetland (OBL) (USACE 2022). Representative sample points were sited in areas most likely to exhibit wetland characteristics, such

as areas with a prevalence of hydrophytic vegetation and suitable landform and examined in the field for potential wetland indicators. Sample points were not conducted in areas where the landform would not support wetland features (i.e., concrete channels and sloped areas).

Potential wetland waters of the U.S. were evaluated in accordance with the recent *Sackett v. USEPA* court ruling and the conforming *Revised Definition of Waters of the United States* (USEPA 2023). The court ruling and conforming *Revised Definition of Waters of the United States* decided "adjacent wetlands" are waters of the U.S. only if there is a continuous surface connection between the wetland and a navigable or relatively permanent water body, such that it is difficult to determine the boundary between the wetland and the water body. The revised definition notes "temporary interruptions to surface connection may sometimes occur because of phenomena like low tides or dry spells." The Conforming Rule defines the term "adjacent" to mean "having a continuous surface connection." A more detailed regulatory definition of USACE jurisdiction can be found in Appendix C.

Rincon evaluated potential continuous surface water connections between wetlands and navigable or relatively permanent bodies of water, with and without a "temporary interruption to surface connection." These connections were used to determine whether such potential connections would meet the definition of an "adjacent wetland" according to the *Revised Definition of Waters of the United States* (USEPA 2023). A more detailed regulatory definition of USACE jurisdiction can be found in Appendix C. Completed wetland determination data forms are available in Appendix B.

Waters of the State

The limits of "waters of the state," as defined under the Porter-Cologne Water Quality Control Act, are any surface water or groundwater, including saline waters, within the boundaries of the state. In those areas where an OHWM was present, the OHWM was used to represent the limits of non-wetland waters of the state.

Wetland Waters of the State

Potential state wetland features were evaluated pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2021). Potential state wetlands were evaluated following the SWRCB's definition, which relies on the same three parameters as the USACE definition (hydrophytic vegetation, wetland hydrology, and hydric soils) but allows for naturally unvegetated areas meeting the other two parameters to be considered wetlands. A more detailed regulatory definition of SWRCB and Central Valley Regional Water Quality Control Board (RWQCB) jurisdiction can be found in Appendix C. Completed wetland determination data forms are available in Appendix B.

CDFW Streambeds

The extent of potential streambeds, streambanks, lakes, and riparian habitat are subject to CDFW jurisdiction under Sections 1600 et seq of the CFGC. These features were delineated by reviewing the topography and morphology of potentially jurisdictional features to determine the outer limit of riparian vegetation, where present, or the tops of banks for stream features. However, the CEC AB 205 Opt-in Certification Process preempts CDFW jurisdiction, and the CEC would be responsible for CFGC Section 1602 compliance for this Project. A more detailed regulatory definition of CDFW jurisdiction and the CEC AB-205 Opt-in Certification Process can be found in Appendix C.

Assembly Bill 205

The CEC has been authorized under Government Code amendments enacted through AB 205 (Chapter 61, 2022) to establish a new certification program for eligible non-fossil-fueled power plants and related facilities to optionally seek certification from the CEC, using emergency rulemaking authority provided by AB 205. Per the Notice of Approval of Emergency Regulatory Action for Opt-in Regulations Section 1877, Opt-In applications are required to include all the information specified by California Code of Regulations Title 20 Division 2 Section 1704(a) Appendix B that is relevant to the Project. As mentioned in the CDFW Streambeds section above, the CEC will be responsible for compliance with CFGC Sections 1600 et seq for CDFW jurisdictional streambeds within the BSA. More detailed regulatory information on the AB-205 Opt-in Certification Process can be found in Appendix C.

2.1 Literature and Database Review

The literature and database review included the review of the National Wetlands Inventory (NWI) (United States Fish and Wildlife Service [USFWS] 2025) and National Hydrography Dataset (United States Geological Survey [USGS] 2025) to determine if any wetlands and/or other waters had been previously documented and mapped on or in the vicinity of the BSA. The Web Soil Survey (United States Department of Agriculture [USDA], Natural Resources Conservation Service [NRCS] 2025) and other available background information were also reviewed to better characterize the nature and extent of aquatic resources and riparian habitats potentially occurring in the BSA. Furthermore, the National Hydric Soils List by State: California (USDA NRCS 2025b) was reviewed to determine if any soil map unit types mapped on or in the vicinity of the BSA were classified as hydric.

2.2 Field Surveys

Field surveys for the BSA were split into two delineation efforts. Field surveys within the northern extent of the BSA, north of I-80, were completed on April 24, 2023, and May 14, 17, and July 24, 2024. A field survey within the southern extent of the BSA, south of I-80, was completed on July 14, 2025. Field surveys were completed within different portions of the BSA within different dates due to access restrictions. Some areas of the BSA were not surveyed in the field due to site access restrictions (i.e., private property) but were assessed during the literature and database review. Field surveys are summarized in Table 1 below.

Table 1 Field Survey Summary

Survey Type	Date	Survey Area	Weather Conditions		Personnel	Qualifications
Aquatic Resources Delineation	04/24/23	Northern BSA	Temperature: Skies: Wind: mph	75 °F Clear 2–4	K. Asmus	MS, Biologist, 23 years of experience
					C. Rice	BS, Biologist, 7 years of experience
Aquatic Resources Delineation	05/14/24	Northern BSA	Temperature: Skies: Wind: mph	65 °F Clear 0–5	A. Ennis	MS, Biologist, 15 years of experience
					G. Myers	BS, Biologist, 6 years of experience
Aquatic Resources Delineation	05/17/24	Northern BSA	Temperature: Skies: Wind: mph	57 °F Clear 0–5	A. Ennis	MS, Biologist, 15 years of experience
					G. Myers	BS, Biologist, 6 years of experience
Aquatic Resources Delineation	07/24/24	Northern BSA	Temperature: Skies: Wind: mph	78 °F Clear 0–5	B. Elenzweig	BS, Botanist, 4 years of experience
					G. Myers	BS, Biologist, 6 years of experience
Aquatic Resources Delineation	07/14/25	Southern BSA	Temperature: Skies: Wind: mph	90 °F Clear 0–1	O. Routt	BS, Biologist, 10 years of experience
					G. Myers	BS, Biologist, 6 years of experience

°F = degrees Fahrenheit; mph = miles per hour

BSA = Biological Study Area, which includes the Project area and 250-foot buffer

During the field surveys, general site characteristics were noted, and vegetation present on-site was documented. Data collection was focused on potential jurisdictional features and representative sample points were chosen in areas that served as a best representation of the conditions of that feature. Sample points were not conducted in areas with an obvious prevalence of upland vegetation or in areas where the landform would not support wetland features, unless the sample point was part of paired sample points that aided in confirming the outer limits of a wetland. Furthermore, sample points were not conducted in areas where the following is true: the wetland feature(s) had a clear change in vegetation between wetland and upland areas; contained similar or mostly similar species of hydrophytic vegetation relative to a confirmed wetland in the nearby area; and was in close proximity to another wetland that contained hydric soils and exhibited wetland hydrology. As such, a total of eight sample points within the northern and southern portions of the BSA will be discussed further and are illustrated in Figure 7a (Appendix A). At each sample point, USACE Wetland Datasheets were used to document site conditions. Specifically, soil pits were dug approximately 12 to 18 inches below ground to analyze soil conditions and determine if hydric soils were present; vegetation cover and plant species were documented and evaluated for presence of hydrophytic vegetation; and hydrology indicators were noted. Soils data were collected and identified using a shovel and Munsell® Color (2009) soil color chart. In the event wetland indicators were present at the representative sample point, additional sample points were used to collect data to determine the extent of wetland feature. In areas where drainage features were present, *Datasheets for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United State*s (USACE 2021) were used to document indicators of an OHWM, if present. Completed datasheets are provided as Appendix B.

The extent of potential jurisdictional features, culverts, wetland and OHWM sample points, and vegetation community boundaries were collected in the field using a Juniper Systems® Geode Global Positioning System unit with submeter accuracy and were subsequently transferred to Rincon's Geographic Information System (GIS) software program (i.e., ArcGIS Pro) to produce figures provided in this document. Photographs of potential jurisdictional features and the surrounding areas were captured and provided as Appendix D.

3 Existing Conditions

3.1 Topography, Land Use and Climate

The BSA consists of open space within private property, agricultural land, and commercial, industrial, and residential areas. The BSA is intersected by I-80. The BSA is comprised of a mostly flat landscape, with minor elevation changes throughout. Elevations range from approximately 79 to 84 feet above mean sea level. The Vaca Mountains lie to the west of the BSA, with the City center of Vacaville due south.

According to the National Oceanic Atmospheric Administration's (NOAA) National Weather Service (NWS), average annual temperatures in the Vacaville area between 1991 and 2025 ranged between 60.1- and 65.7-degrees Fahrenheit, typically varying between 39 (in December and January) and 92 degrees Fahrenheit (in July and August), with temperatures rarely reaching below 30 degrees Fahrenheit or above 101 degrees Fahrenheit (NOAA NWS 2025, Cedar Lake Ventures, Inc. 2025). Vacaville receives an average rainfall of approximately 24 inches, with the most rain occurring between December and January (NOAA NWS 2025).

3.2 Vegetation Communities and Land Cover Types

Vegetation communities and land cover types identified in the approximately 55-acre BSA include non-native annual grassland, developed, agricultural fields, orchard, barren/ruderal, landscaped, open water, perennial rye grass fields, and fresh emergent wetland. Vegetation communities are described below, where applicable, and locations and extents for vegetation communities and land cover types within the BSA are shown on Figure 4a through Figure 4c. Plant species observed during the field surveys are listed in Appendix E. Vegetation communities were defined based on the classification systems provided in *A Manual of California Vegetation, Second Edition* (MCV2; Sawyer et al. 2009) and *A Manual of California Vegetation Online* (California Native Plant Society 2024) but have been modified to reflect the existing site conditions, as necessary. Plant species nomenclature and taxonomy follow the treatments within the second edition of *The Jepson Manual* (Baldwin et al. 2012).

Non-native Annual Grassland

Non-native annual grassland covers approximately 17 acres of the BSA. This vegetation community most closely resembles the wild oats and annual brome grasslands (*Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance) described in MCV2 (Sawyer et al. 2009). Wild oats and annual brome grassland are generally found in open areas in valleys and foothills throughout coastal and interior California. They typically occur on soils consisting of fine-textured loams or clays that are somewhat poorly drained. Non-native annual grasses and weedy annual and perennial forbs, primarily of Mediterranean origin, dominate this vegetation type. Scattered native grass and wildflower species, representing remnants of the original vegetation may also be common (Sawyer et al. 2009).

In the BSA, characteristic non-native annual grass species observed include wild oats (*Avena fatua*), Italian ryegrass (*Festuca perennis* or *Lolium perenne*), and soft chess (*Bromus hordeaceus*). Native herbaceous species observed include autumn willowherb (*Epilobium brachycarpum*), California

plantain (*Plantago erecta*), and sprangletop (*Leptochloa* sp). Non-native herbs present include yellow star thistle (*Centaurea solstitialis*), black mustard (*Brassica nigra*), rose clover (*Trifolium hirtum*), and narrow-leaved vetch (*Vicia sativa* ssp. *nigra*). Agricultural Ditches 2 and 3 are included within this community, as they contained a variety of non-native annual grasses mentioned above (i.e., beard grass, sprangletop, and wild oats).

Developed

The developed land cover type consists of approximately 17 acres of the BSA. This land cover type is not naturally occurring and is not described in either the Holland (1986) or Sawyer et al. (2009) classification systems. Despite being sparsely vegetated, the Urban classification in the CWHR (CDFW 2025) classification system would still most closely resemble this land cover type. This land cover type consists of areas that have been modified and are built up such that most or all vegetation has been removed and/or minimal ornamental trees and shrubs are present. Within the BSA, this land cover type consists of paved roads, I-80, Solano County Irrigation District dirt roads, structures, and other infrastructure associated with the PG&E Vaca-Dixon Substation.

Orchard

The BSA contains approximately 12 acres of active orchard, including the 10-acre BESS site area. The orchard, located north of Kilkenny Road, is dominated by plum trees (*Prunus* sp.) with non-native annual grasses (e.g., *Bromus* spp., *Hordeum* spp., *Festuca* spp., *Vulpia myuros*, *Poa annua,* etc.) interspersed between rows. The orchard is organized in neat rows, with exposed soil and understory throughout, and minimal overhead canopy coverage, as plum trees lack a substantial canopy. The agricultural fields south of Kilkenny Road are rotational crops (currently grasses) that are routinely mowed.

The orchard is routinely mowed and maintained by workers walking and driving utility terrain vehicles. This human presence may make it harder for wildlife to hide from predators and escape human disturbance despite the understory making it easier for wildlife to travel freely throughout.

Agricultural Fields

The BSA contains approximately 4 acres of agricultural fields. The agricultural fields are located south of Kilkenny Road and are rotational crops (currently grasses) that are routinely mowed. Similar to the orchard land cover type, these fields are regularly maintained by workers and include a level of human disturbance that may dissuade wildlife from using the area.

Barren/Ruderal

The barren/ruderal land cover consists of areas that are unpaved and/or devoid or mostly devoid of vegetation and are routinely disturbed by human intervention. Barren/ruderal land within BSA can be found between the orchards north of Kilkenny Road in the southern portion of the BSA, totaling approximately 4 acres. This area includes transmission towers and lines with minimal California ground squirrel (*Otospermophilus beecheyi*) burrows underneath the transmission towers. The area does not appear to be used for agricultural activities (e.g., routine orchard maintenance), though the lack of vegetation growing in the area suggests the presence of pesticides and/or herbicides. These areas are not classified in the MCV2 classification system (Sawyer et al. 2009) or the Holland (1986) classification system.

Landscaped

Landscaped areas cover approximately 1 acre of the BSA. This land cover type is not naturally occurring and is not described in the MCV2 (Sawyer et al. 2009) classification system but is considered "Urban" in the California Wildlife Habitat Relationships (CDFW 2024s) classification system. This land cover type consists of areas that have been modified and are built up such that most or all vegetation has been removed and/or non-native ornamental trees and shrubs are present. Within the BSA, this land cover type consists of landscaped areas associated with the Vaca Dixon Power Plant in the northwestern portion of the BSA and the PG&E Vaca Dixon Substation to the east of the BSA. Species observed include valley oak (*Quercus lobata*), and rosemary (*Rosmarinus officinalis*), with scattered ruderal herbs and grasses.

Open Water

Open water occurring within the BSA includes the man-made pond and Agricultural Ditch 1 (totaling approximately 1 acre). The pond is located in the northern BSA, within the 250-foot survey buffer. Agricultural Ditch 1 is in the southern BSA, within the 250-foot survey buffer. Agricultural Ditch 1 holds water year-round and flows are controlled by agricultural runoff. It is anticipated that the pond holds water year-round, based on aerial imagery, and possibly contains hydrophytic vegetation. Both Agricultural Ditch 1 and the pond are surrounded by developed areas.

Perennial Rye Grass Field

The BSA contains approximately 1 acre of perennial rye grass fields (*Lolium perenne* [*Festuca perennis*] Herbaceous Semi-Natural Alliance) described by Sawyer et al. (2009). This vegetation community occurs in association with depressional aquatic features (Seasonal Wetlands 1 through 8 and Swale) throughout the northern portion of the BSA. The compilation of plant species occurring between each feature varies; however, perennial ryegrass (*Lolium perenne* [*Festuca perennis*]) appears as a dominant species throughout the majority of the aquatic features in the northern portion of the BSA and therefore this vegetation community is characterized as such. Species observed in this community included native perennial ryegrass (*Lolium perenne*), Italian ryegrass (*Festuca perennis*), autumn willowherb (*Epilobium brachycarpum*), Mediterranean barley (*Hordeum marinum*), purslane speedwell (*Veronica peregrina* ssp. *xalapensis*), and dwarf sack clover (*Trifolium depauperatum* var. *truncatum*).

Fresh Emergent Wetland

The BSA contains approximately 0.02 acre of fresh emergent wetland, consisting of Seasonal Wetland 9, found in the southwestern portion of the southern BSA on the BESS site. Though there is variation between the eastern and western portions of Seasonal Wetland 9, as cattails (*Typha* sp.) are a dominant species in the eastern portion whereas flat sedge (*Cyperus* sp.) are a dominant species in the western portion; this vegetation community most closely resembles the *Typha* (*angustifolia*, *domingensis*, *latifolia*) Herbaceous Alliance described by Sawyer et al. (2009) as these species are co-dominant in the herbaceous layer. Furthermore, this community may include emergent trees present at low cover, which are reflected in this feature as a single willow tree (*Salix* sp.). A standpipe is present at the western end of the wetland. Seasonal Wetland 9 contained water during the final burrowing owl protocol survey (July 14, 2025).

3.3 Hydrology

The BSA is located entirely in the Ulatis Creek Watershed (Hydrologic Unit Code [HUC]-10 1802016305). The northern portion of the BSA occurs in the Gibson Canyon Creek-Sweany Creek Subwatershed (HUC-12 180201630502) and the southern portion of the BSA occurs within the Upper Ulatis Creek Subwatershed (HUC-12 180201630503). Gibson Canyon Creek occurs to the north of the BSA and flows from north to south until it meets with Sweany Creek and eventually to the Sacramento River, a TNW. Illustrations of the watersheds and mapped hydrological units of the region and BSA are included in to Figure 5a and Figure 5b (Appendix A).

According to the USGS's NHD (2005) and USFWS's NWI, three hydrological features are mapped within the BSA. Two features occur within the southern portion of the BSA and can be described as well-developed agricultural ditches occurring to the north and south of the plum orchard. The NWI describes these features as man-made perennial riverine features. The southern ditch is identified herein as Agricultural Ditch 1 and the northern ditch is identified herein as Agricultural Ditch 2. Water within Agricultural Ditch 1 drains from west to east where flows eventually meet with Gibson Canyon Creek, to the east of the BSA. The third feature occurs in the northern portion of the BSA and is a man-made pond described by the NWI as permanently flooded with some riparian vegetation. This pond is potentially used for agricultural or stormwater purposes.

Drainage ditches and culverts that were not documented in the NWI or NHD were mapped during the 2024 and 2025 delineation surveys. The mapping presented in the NHD and NWI provides useful context but is not a completely accurate depiction of current conditions or extent of aquatic features in the BSA. Additional aquatic resources documented within the BSA during the field survey effort are further discussed in Section 4, *Delineation Results and Jurisdictional Assessment*.

3.4 Soils

According to the USDA NRCS Web Soil Survey, three soil map units occur within the BSA and are summarized in Table 2 and illustrated in Figure 6 (Appendix A). The soil series present within the BSA, Clear Lake and San Ysidro, are described below. Parent rock material for this site can be described as older quaternary alluvium and marine deposits, dating back to the Pleistocene era (USGS 2005).

Table 2 Soils in the Biological Study Area

Soil Map Units	Hydric Soil[1] (Yes/No)	Acres[2]
Clear Lake clay, 0 to 2 percent slopes, MLRA 17	Yes	11
San Ysidro sandy loam, 0 to 2 percent slopes	No	27
San Ysidro sandy loam, thick surface, 0 to 2 percent slopes	No	18

[1] Soils listed on the National Hydric Soils List (USDA NRCS 2025b).

[2] Acreages are rounded to the nearest whole number.

Clear Lake Series

The Clear Lake series is a soil series composed of very deep, poorly drained soils on flood basin floors and valleys. This soil type is derived from basin alluvium derived from igneous, metamorphic and sedimentary rock. The mean annual precipitation is approximately 20 inches. This soil series has negligible to high runoff with slow to very slow permeability and is considered hydric.

San Ysidro Series

The San Ysidro series consists of very deep, moderately well-drained soils on terraces. This soil type is derived from alluvium derived from sedimentary rocks. The mean annual precipitation is approximately 20 inches. This soil series has slow to medium runoff with very slow permeability and is not considered hydric.

4 Delineation Results and Jurisdictional Assessment

The delineation resulted in the identification of several aquatic features, including seasonal wetlands, a swale, man-made ditches, and a pond. Further discussion on these features and the jurisdiction assessment of the resources is provided below.

4.1 Wetland Waters

4.1.1 Wetland Waters of the U.S.

No wetlands that meet the current USACE definition for wetland waters of the U.S. were determined to occur within the BSA. Areas of inundation that did support three defining characteristics of federal wetlands (hydric soils, hydrophytic vegetation, and hydrology) were identified in the BSA; however, these wetlands were not determined to be under the purview of the USACE under the Clean Water Act because there was no evidence to support that the wetlands were hydrologically connected to adjacent streams that may be considered TNWs. In the event there was evidence to support a continuous surface water flow from the wetland feature to an adjacent TNW, the wetlands may be considered wetland waters of the U.S. under the current "Revised Definition of 'Waters of the United States'; Conforming" rule (33 CFR 328.3[a]).

No wetland waters of the U.S., under the purview of the USACE, were determined to occur within the BSA.

4.1.2 Wetland Waters of the State

Wetland waters of the state were observed within the BSA that meet the current RWQCB definition (SWRCB 2019). Specifically, a total of ten wetland features were identified within the BSA that exhibited wetland parameters (hydric soils, hydrophytic vegetation, and hydrology) and each were considered isolated with no direct surface water connection between each wetland or other aquatic features inside or outside the BSA, including Gibson Canyon Creek. An illustration of the mapped wetland resources documented within the BSA is included in Figure 7 (Appendix A).

The wetland features within the BSA were further identified as one swale feature and nine seasonal wetland features, further discussed below.

Swale

One unnamed vegetated swale was documented within the northern extent of the BSA, identified as Swale in Figure 7a – Figure 7c (Appendix A). The width of the swale ranges from 20 feet to 35 feet wide, with the wider sections located at the north and south ends, as well as areas where the swale branches. The southern terminus of the swale meets at a culvert connecting to a ditch running parallel to I-80. The northern extent of the swale terminates north of the BSA boundary; however, a culvert was observed to the north, at Gibson Canyon Creek. The culvert is situated within 2 feet to 3 feet below the 100-year floodplain elevation of the creek, so there is potential for inundation and connection from the swale to the creek during a 100-year flood event when water may move from the creek into the swale; however, flows from the creek do not typically inundate the swale feature

within the Project area. In addition, it is assumed that the swale feature receives water from rainfall and from stormwater runoff from the south. Ultimately it was determined that the swale feature was an isolated wetland with no continuous surface water connection to Gibson Canyon Creek.

Sample Points (SP2, SP3, and SP4) collected data within the swale feature. Hydric soil indicators documented at the soil points included: depleted below dark surface, depleted matrix, redox dark surface, and redox depressions. Vegetation within the swale was inconsistent with the surrounding non-native annual grassland vegetation and consisted of species such as Italian ryegrass (*Festuca perennis*; FACU), fiddle dock (*Rumex pulcher*; FAC), Mediterranean barley (*Hordeum marinum* ssp. *Gussoneanu*; FAC), and tall annual willowherb (*Epilobium brachycarpum*; FAC), among others, indicating presence of hydrophytic vegetation. Hydrology indicators including sediment deposits, drift deposits, surface soil cracks, and biotic crust were documented. No surface water was observed in the sample points, or in the remainder of the swale, during the field surveys.

No indicators of an OHWM were observed in the swale during the field surveys. Although there was a defined change in vegetation present within the swale, review of this feature in the field confirmed a lack of a defined bed and bank.

Seasonal Wetlands

Nine seasonal wetland features occur throughout the BSA. Seasonal Wetlands 1 through 5 occur within the northern portion of the BSA, to the east of the swale. Seasonal Wetlands 6 through 8 occur in the northern portion of the BSA, to the west of the swale, and Seasonal Wetland 9 occurs in the southern portion of the BSA.

Each of the seasonal wetlands is considered isolated as there is no direct surface water connection between any of the wetlands, the swale, the pond, Gibson Canyon Creek or other hydrological sources that may occur inside or outside the BSA. Though Gibson Canyon Creek, a relatively permanent water, is connected to the northern BSA via a culvert north of the Project area, flow into the site would only occur during 100-year flood events, which would not be considered a continuous surface connection.

Data was collected from SP18 within Seasonal Wetland 4 (0.08 acre). The soil sample taken from the wetland area revealed hydric soils (i.e., Depleted Matrix; “F3”). Although Seasonal Wetland 4 was assumed to be a wetland during the 2023 ARD survey by the obvious change in vegetation and topography relative to the surrounding area, and how this wetland was observed to be occurring within a slight depression in the ground, vegetation had been mowed prior to the 2024 ARD survey and therefore could not be evaluated for presence or absence of positive indicators of hydrophytic vegetation. Despite the lack of vegetation, primary hydrology indicators were present in the wetland (e.g., biotic crust). Based on the similarity of the wetlands to each other and their similar sitting within the landscape, the presence of hydrophytic vegetation was assumed in Seasonal Wetland 3 (0.01 acre).

Although no sample points were taken, Seasonal Wetland 1 (0.06 acre) and Seasonal Wetland 2 (0.01 acre) were noted during field surveys to occur in depressions with lower elevation relative to the surrounding areas and exhibited a change in vegetation relative to surrounding areas, similar to confirmed Seasonal Wetland 4 mentioned above, where a soil pit had verified the presence of hydric soil (i.e., SP 18: Depleted Matrix; “F3”). Vegetation occurring within these wetlands closely resembles that of the surrounding non-native grassland area, although additional species such as mousetail (*Myosurus minimus*) and common spikerush (*Eleocharis macrostachya*) were noted within the wetland areas, both classified as OBL species. OBL species are considered to almost always occur in wetlands. These wetlands are also distinguished from the surrounding grassland with the use of

historical aerial imagery, showing darker (i.e., wetter) areas in these locations. Based on observations recorded in the field and noted above, and the similarity of these wetlands to Seasonal Wetlands 3 and 4, hydrophytic vegetation and wetland hydrology indicators were assumed in Seasonal Wetlands 1 and 2.

Based on the similarity of the wetlands to each other, as mentioned above, their clear changes in vegetation between wetland and upland areas, and their close proximity to one another on the landscape, the presence of all three wetland indicators was assumed in Seasonal Wetland 5. Vegetation present within Seasonal Wetland 5 included Great Valley button celery (*Eryngium castrense*; OBL), hyssop loosestrife (*Lythrum hyssopifolium*; OBL), Italian ryegrass (*Festuca perennis*; FACU), and Mediterranean barley (*Hordeum marinum* ssp. *Gussoneanu*; FAC), which was observed as an obvious change in vegetation relative to the surrounding area.

Seasonal Wetlands 6 through 8 (0.02 acre, 0.01 acre, and 0.01 acre, respectively) occur within the northern portion of the BSA, north of the Vaca Dixon Peaker Plant and west of the PG&E Vaca-Dixon Substation. These features were identified in the field as wetlands due to both a visible change in vegetation similar to other wetlands in the BSA and by a visible change in ground level in relation to the surrounding areas. The BSA had been mowed prior to the July 2024 survey, hindering the ability to conduct a thorough analysis of these potential wetland features. Additionally, a soil pit was attempted for Seasonal Wetland 8, yet a restrictive layer prevented field staff from completing a successful soil pit. These soils can be described as problematic but are assumed hydric.

Paired wetland sample points were taken at Seasonal Wetland 9 (SP20 and SP21[1]) on the BESS site area in the southern BSA. Hydrophytic vegetation, hydric soils, and hydrology indicators were present in SP20. Hydrophytic vegetation and hydrology indicators were absent from the soil sample taken to the north in SP21. Vegetation present within the wetland included a black willow tree (*Salix nigra*; OBL) and flatsedge (*Cyperus eragrostis*; FACW), California plantain (*Polypogon monspeliensis*; FACW), California loosestrife (*Lythrum californicum*; OBL), cattails (*Typha* sp.; OBL), and California plantain (*Plantago erecta*; no indicator), which was observed as an obvious change in vegetation relative to the surrounding area. Water was present in the western portion of the wetland, near a stand pipe that is also present in the wetland.

4.2 Non-Wetland Waters

4.2.1 Non-Wetland Waters of the U.S.

Three agricultural ditches are located in the southern extent of the BSA, identified in Figure 7 (Appendix A) as Agricultural Ditch 1, 2, and 3. Agricultural Ditch 1 occurs in the southern extent of the BSA and consists of agricultural and storm water flows from east to west. The ditch supports a relatively permanent flow of water into downstream Gibson Canyon Creek which is hydrologically connected to a TNW (i.e., Sacramento River) and therefore was determined to be a non-wetland water of the U.S. and subject to the jurisdiction of the USACE. Agricultural Ditch 2 is a channel that is connected to Agricultural Ditch 1 via an underground culvert.

Agricultural Ditch 3 did not meet the most current definition of non-wetland waters of the U.S. This ditch was not concrete lined and supported vegetation and an OHWM; however, upon further

[1] Multiple aquatic resource delineation surveys have been conducted throughout the current BSA boundary and other variations of the BSA boundary between the years of 2023 and 2025. Wetland features have been renumbered for the current BSA, however, the sample points referenced in this report reflect their original numbering to reduce the number of edits made to this Project's datasheets.

assessment, this ditch does not support a relatively permanent water flow to downstream TNWs. In addition to Agricultural Ditch 3, the Drainage Ditch and man-made pond occurring in the northern portion of the BSA are man-made features developed in uplands, and under the current "Revised Definition of 'Waters of the United States'; Conforming" rule, (33 CFR 328.3[a]) (EPA 2023), ditches excavated wholly in, and draining only dry land, and that do not carry a relatively permanent flow of water, regardless if the drainage supports a defined OWHM, are not considered waters of the U.S. and are not currently under the purview of the USACE.

4.2.2 Non-Wetland Waters of the State

Agricultural Ditch 1, 2, and 3, within the southern portion of the BSA, all met the criteria for waters of the state due to the relatively permanent water flows and/or presence of an OHWM. The man-made pond feature occurring within the northern portion of the BSA is isolated, inundated with water either seasonally or permanently, and either contains or may contain riparian vegetation. Because the Agricultural Ditches 1 and 2 are hydrologically connected to Gibson Canyon Creek, which is a water of the State, are not a relocated water of the state or excavated in a water of the state, and are not artificially constructed lakes or ponds, they are not excluded from the definition of Waters of the State per II.3.d.iii of the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2021). These non-wetland water resources are subject to the Porter-Cologne Water Quality Act and under the purview of the RWQCB.

4.2.3 Streambeds

The swale identified in the northern portion of the BSA, and the ditches and Seasonal Wetland 9 in the southern BSA were determined to be jurisdictional streambeds under Section 1600 et seq. of the California Fish and Game Code (CFGC 2006). These aquatic features illustrated evidence of a bed and bank during the field survey efforts, and the full extent of top of bank of the features were mapped as CDFW jurisdiction. Riparian vegetation was present along Seasonal Wetland 9.

4.3 Non-Jurisdictional Features

During the field survey effort, features identified within the BSA may have illustrated evidence of previous surface water flows, such as eroded soils, but were not determined to be wetland or non-wetland waters of the state because the feature lacked evidence of an OHWM, defined bed and bank, and other key wetland indicators (i.e., hydrophytic vegetation, hydric soils). One man-made ditch identified in the BSA was determined to be non-jurisdictional, as it lacked vegetation, changing substrate, hydrology indicators, or a defined bed, bank, and OHWM. Although culverts are present at the northern end of the ditch, the ditch did not provide a relatively permanent source of water, or a continuous surface water connection to TNWs. Drainage features lacking identifiable jurisdictional indicators were identified as non-jurisdictional and not mapped in this report.

5 Summary of Jurisdictional Resources

The delineation concluded that several aquatic features occur in the BSA that are subject to USACE, RWQCB, and/or CDFW jurisdictions. A summary of jurisdictional aquatic features identified within the BSA is provided below in Table 3 and illustrated in Figure 7a through Figure 7c.

Table 3 Summary of Potential Jurisdictional Aquatic Resources in the BSA

	USACE Jurisdiction		RWQCB Jurisdiction		CDFW Jurisdiction
Aquatic Feature (acres)	Non-Wetland Waters of the U.S.[1] (acres/lin. ft.)	Wetland Waters of the U.S. (acres/lin. ft.)	Non-wetland Waters of the State[1] (acres/lin. ft.)	Wetland Waters of the State (acres/lin. ft.)	Streambed[2] (acres/lin. ft.)
Northern BSA					
Seasonal Wetland 1	–/–	–/–	–/–	0.06/80	–/–
Seasonal Wetland 2	–/–	–/–	–/–	0.01/20	–/–
Seasonal Wetland 3	–/–	–/–	–/–	0.01/26	–/–
Seasonal Wetland 4	–/–	–/–	–/–	0.08/112	–/–
Seasonal Wetland 5	–/–	–/–	–/–	0.01/17	–/–
Seasonal Wetland 6	–/–	–/–	–/–	0.01/53	–/–
Seasonal Wetland 7	–/–	–/–	–/–	0.01/62	–/–
Seasonal Wetland 8	–/–	–/–	–/–	0.02/150	–/–
Swale	–/–		–/–	0.47/2,252	0.47/2,252
Pond	–/–		0.40/372	–/–	–/–
Southern BSA				–/–	–/–
Agricultural Ditch 1	0.50/1,347	–/–	0.50/1,347	–/–	0.50/1,347
Agricultural Ditch 2	0.45/1,452	–/–	0.45/1,452	–/–	0.45/1,452
Agricultural Ditch 3	–/–	–/–	0.50/1,441	–/–	0.50/1,441
Seasonal Wetland 9				0.02/111	0.02/111
Total	**0.95/2,800**	**–**	**1.85/4,613**	**0.68/2,883**	**1.94/6,605**

[1] Calculated from Ordinary High Water Mark (OHWM)

[2] Calculated from top of bank or outer extent of associated wetland feature

5.1 USACE Jurisdiction

Agricultural Ditch 1 and 2, located in the southern extent of the BSA, are considered waters of the U.S. under jurisdiction of the USACE. Approximately 0.95 acre (2,800 linear feet) of waters of the U.S. are subject to USACE regulation (Figure 7).

The seasonal wetland features, the pond, and the swale feature occurring within the northern extent of the BSA, and Agricultural Ditch 3, and Seasonal Wetland 9 in the southern extent of the BSA, were determined to not be under the purview of the USACE, as they do not connect hydrologically to downstream TNWs. The seasonal wetland features (Seasonal Wetlands 1 through 9), the pond, and the swale feature occurring within the BSA also did not support an OHWM.

5.2 RWQCB Jurisdiction

Nine seasonal wetland features (Seasonal Wetlands 1 through 9), one swale (Swale), one man-made pond (Pond), and three agricultural ditches (Agricultural Ditch 1 through 3) within the BSA were determined to be under the purview of the Central Valley RWQCB. Approximately 0.68 acre (2,883 linear feet) of wetland waters of the State and 1.85 acres (4,613 linear feet) of non-wetland waters of the State are present within the BSA (Attachment 1: Figure 7).

Due to the presence of hydrophytic vegetation, hydric soils, and hydrology indicators, the swale and seasonal wetland features were defined as wetland waters of the State and subject to the jurisdiction of RWQCB. Because the pond is isolated, inundated with water either seasonally or permanently, and either contains or may contain riparian vegetation, it is likely that the pond is considered non-wetland waters of the State pursuant to RWQCB jurisdiction.

5.3 CDFW Jurisdiction

One swale feature (Swale) located in the northern extent of the BSA, one seasonal wetland (Seasonal Wetland 9) and three agricultural ditches (Agricultural Ditch 1 through 3) located in the southern extent of the BSA were determined to be under the purview of the CDFW pursuant to Section 1600 et seq of the CFGC. It is anticipated that CDFW would normally assert jurisdiction pursuant to the CFGC Section 1602; however, the CEC AB 205 Opt-in Certification Process preempts CDFW jurisdiction, and therefore the CEC would be responsible for CFGC Section 1602 compliance for this Project. Approximately 1.94 acres (6,605 linear feet) of CDFW-jurisdictional streambed were determined present within the BSA (Figure 7).

The seasonal wetland features 1 through 8 and man-made pond feature occurring within the BSA were determined to not be jurisdictional under CFGC Section 1602 and under the purview of the CDFW, as they do not meet the definitions of a lake, stream, or river, primarily due to a lack of directional flow. Furthermore, due to the location of the pond within an area developed for business, it is not anticipated that the pond provides adequate habitat for fish or wildlife species.

6 Discussion and Recommendations

The results of the ARD concluded that a minimum of fourteen jurisdictional features occur within the BSA, including nine seasonal wetlands (Seasonal Wetland 1 through 9), one swale, and one man-made pond. Due to site limitations such as the removal of hydrophytic vegetation indicators (i.e., regular mowing of the non-native grassland in the northern BSA area on the PG&E parcel) and shovel refusal due to soil compaction in some locations, it was not possible to assess all three wetland parameters for Seasonal Wetlands 6 through 8, however, due to the hydrophytic vegetation, hydrology, and presence of a restrictive layer, these features were assumed to be jurisdictional.

In summary, a total of 0.95 acre (2,800 linear feet) of non-wetland waters of the U.S. within USACE jurisdiction, 1.85 acres (4,613 linear feet) of non-wetland waters of the state within RWQCB jurisdiction, 0.68 acre (2,883 linear feet) of wetland waters of the state within RWQCB jurisdiction, and 1.94 acres (6,605 linear feet) of streambed resources within CDFW-jurisdiction were documented within the BSA.

Based on the current Project design, none of the fourteen jurisdictional features identified within the BSA would be directly impacted by the Project.

6.1 Recommendations

Where feasible, jurisdictional waters should be considered and avoided during Project design. In the event that not all jurisdictional waters can be avoided, authorizations from USACE, RWQCB, and/or CDFW (via the AB 205 Opt-in pathway) would be required. If ground disturbance is proposed at those locations, it may result in temporary impacts (i.e., temporary excavation or soil disturbance) or permanent impacts (i.e., permanent fill) to waters of the U.S., waters of the State, and/or CDFW-jurisdictional streambeds/lakes.

Should the Project design require impacts to jurisdictional waters, the following permits may be required: CWA Section 404 Permit from USACE for impacts to waters of the U.S.; CWA Section 401 Water Quality Certification or Waste Discharge Requirements from the Central Valley RWQCB for impacts to waters of the State; and a CDFW Notification of Lake or Streambed Alteration.

7 Limitations, Assumptions, and User Reliance

This jurisdictional delineation has been performed in accordance with professionally accepted jurisdictional investigation practices conducted at this time and in this geographic area. The jurisdictional investigation is limited by the scope of work performed. The jurisdictional survey is limited also by the environmental conditions present at the time of the survey. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional delineation, and specified historical and literature sources. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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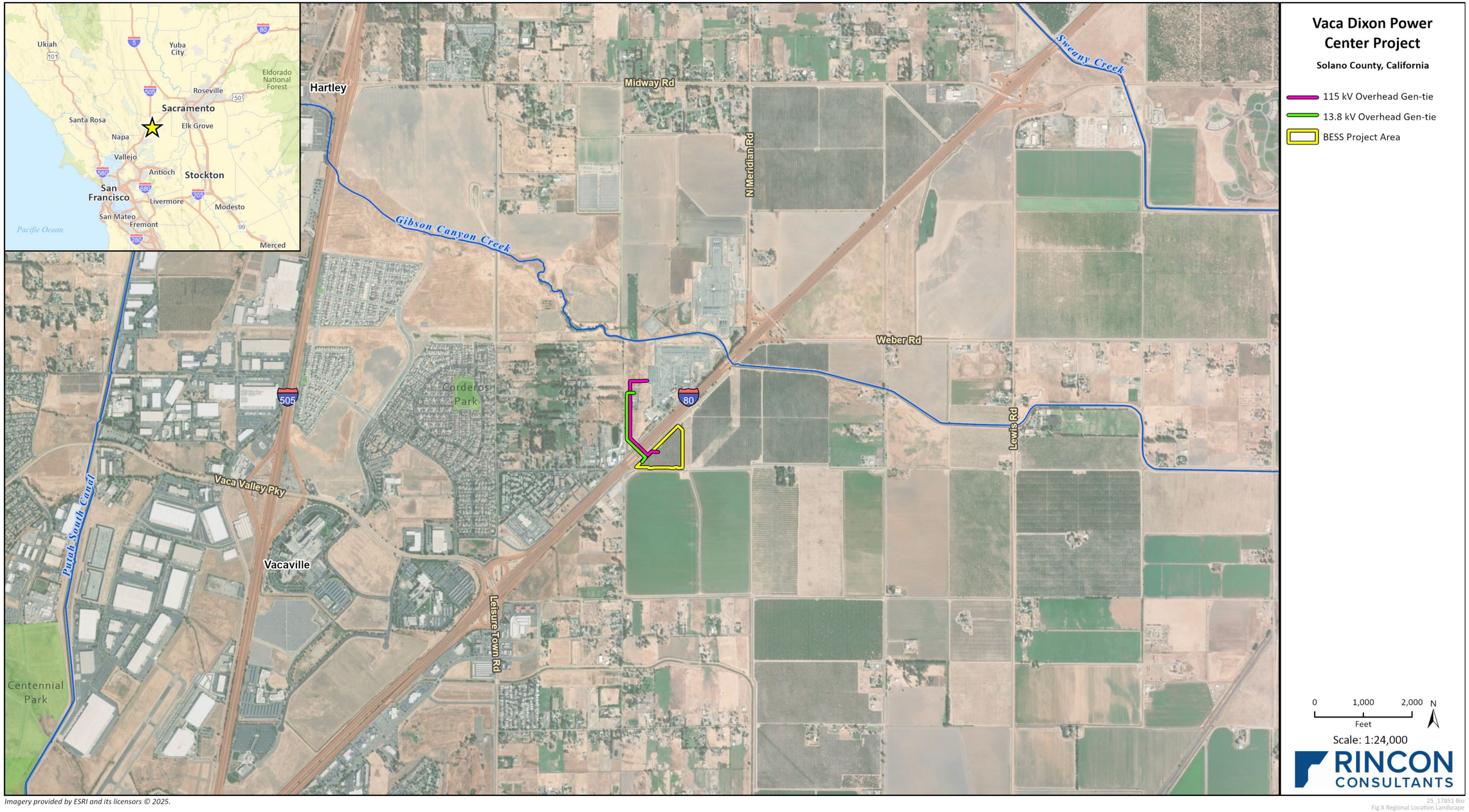
Appendix A

Figures

Figure 1 Regional Project Location



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25_17851 Bio
Fig X Regional Location Landscape

Figure 2 Project Components

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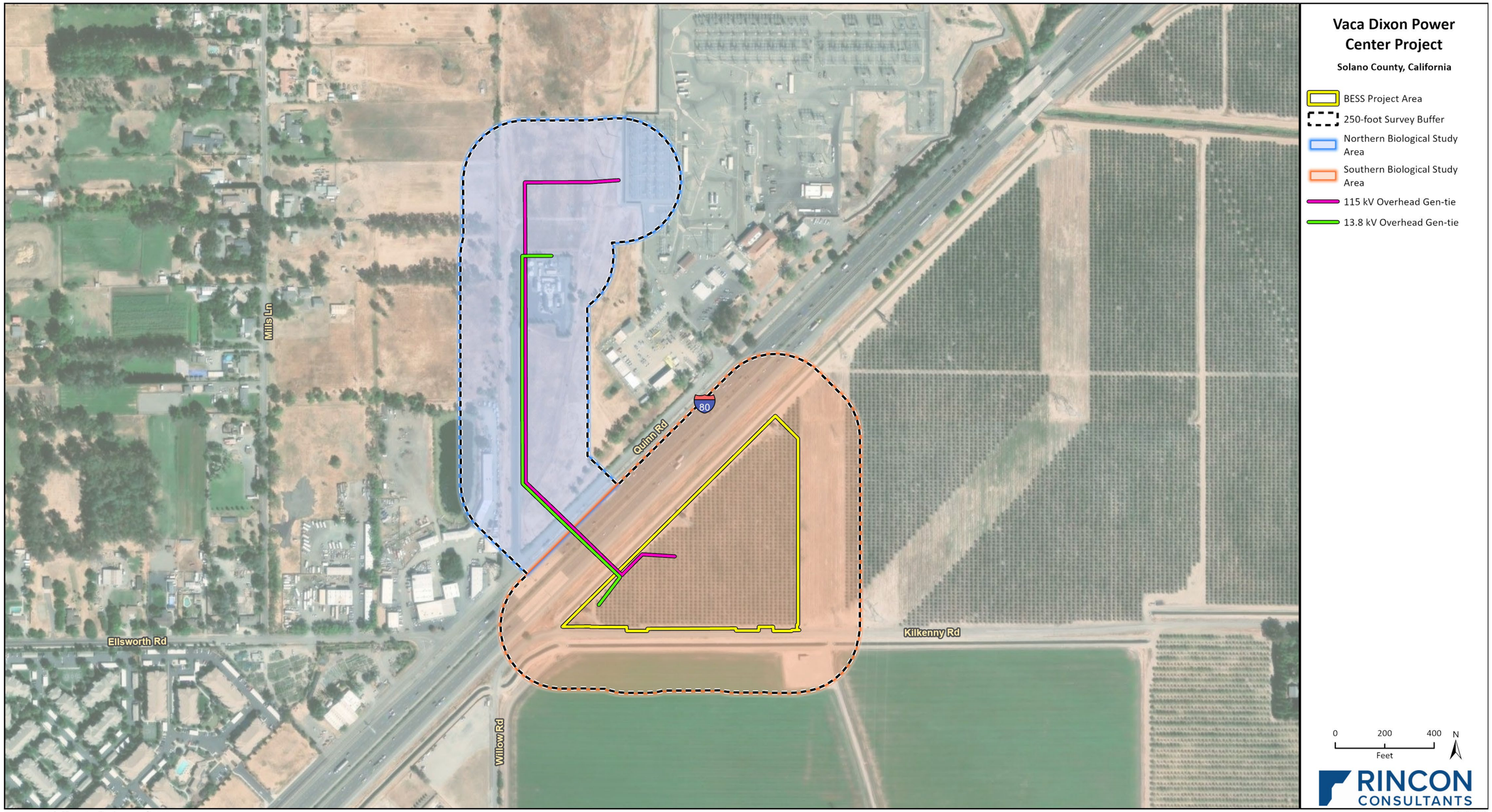
Figure 3 Biological Study Area



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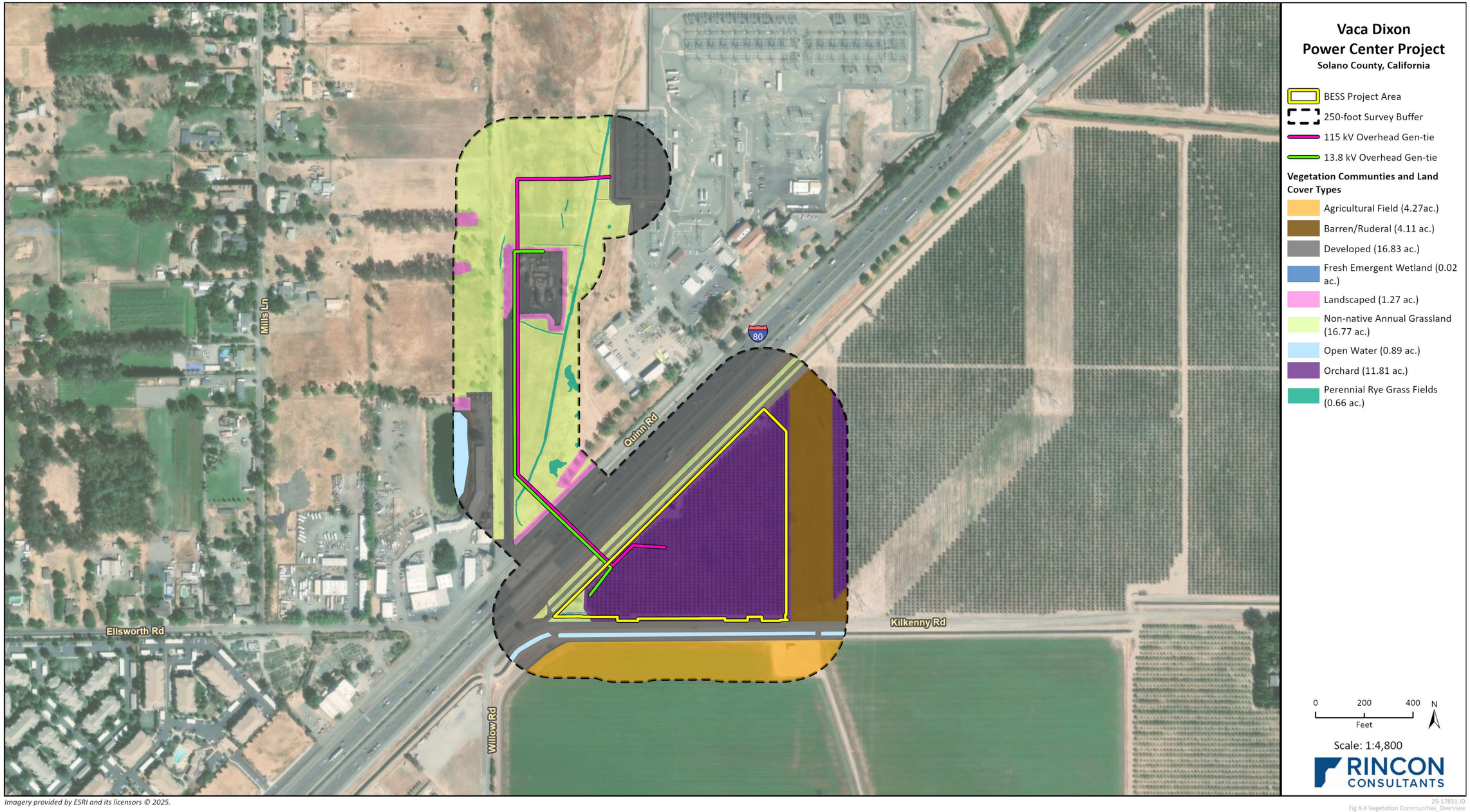
25-17851 JD
Fig X Project Site - BSA

Figure 4a Overview of Vegetation and Land Cover Types within the Biological Study Area (Figure 1 of 3)



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25-17851 JD
Fig X-X Vegetation Communities_Overview

Figure 4b Vegetation and Land Cover Types Within the Biological Study Area (Figure 2 of 3)

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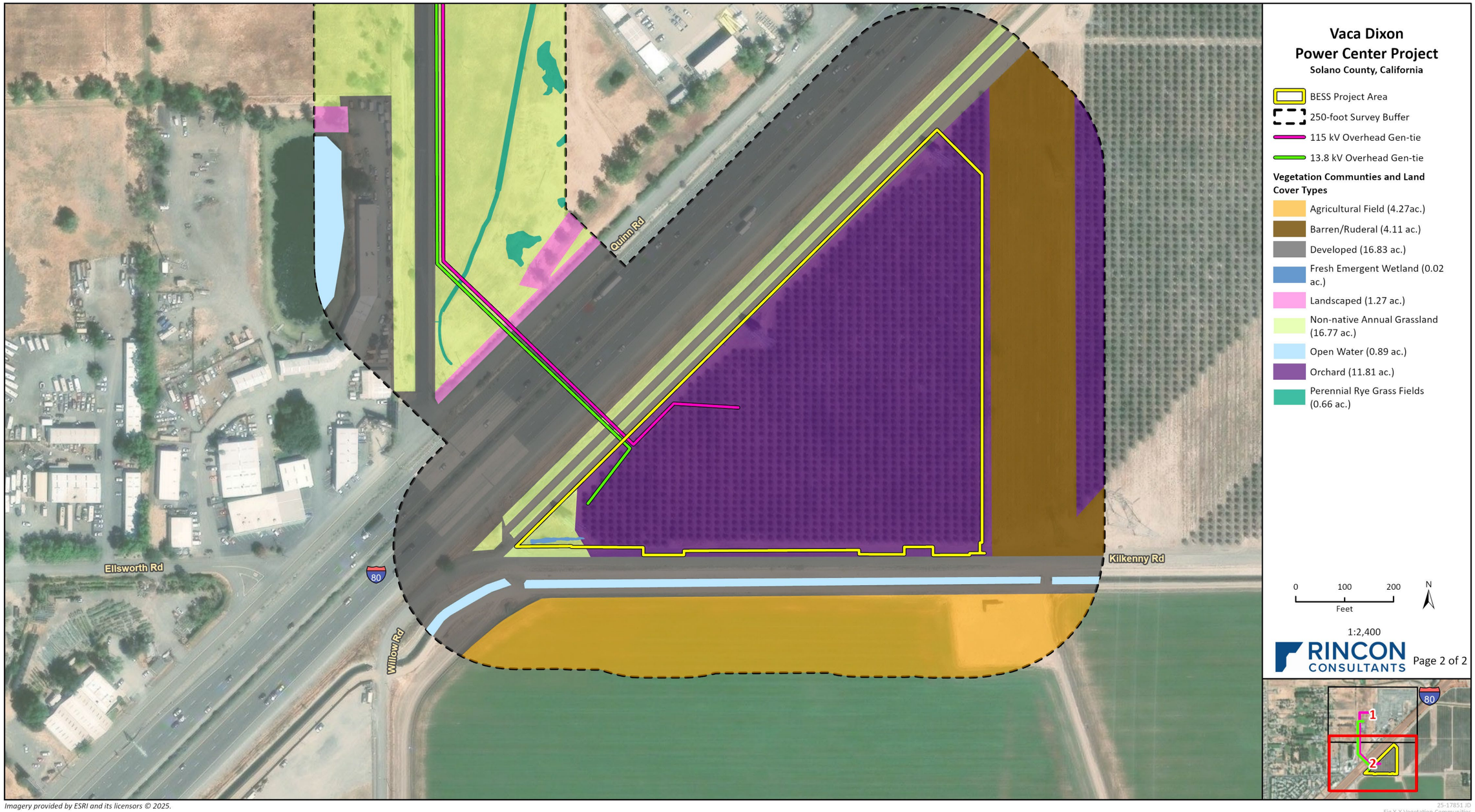
Fig X-X Vegetation Communities

Figure 4c Vegetation and Land Cover Types Within the Biological Study Area (Figure 3 of 3)



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25-17851 JD
Fig X-X Vegetation Communities

Figure 5a Wetland Hydrology for the Biological Study Area and Surrounding Area (Figure 1 of 2)

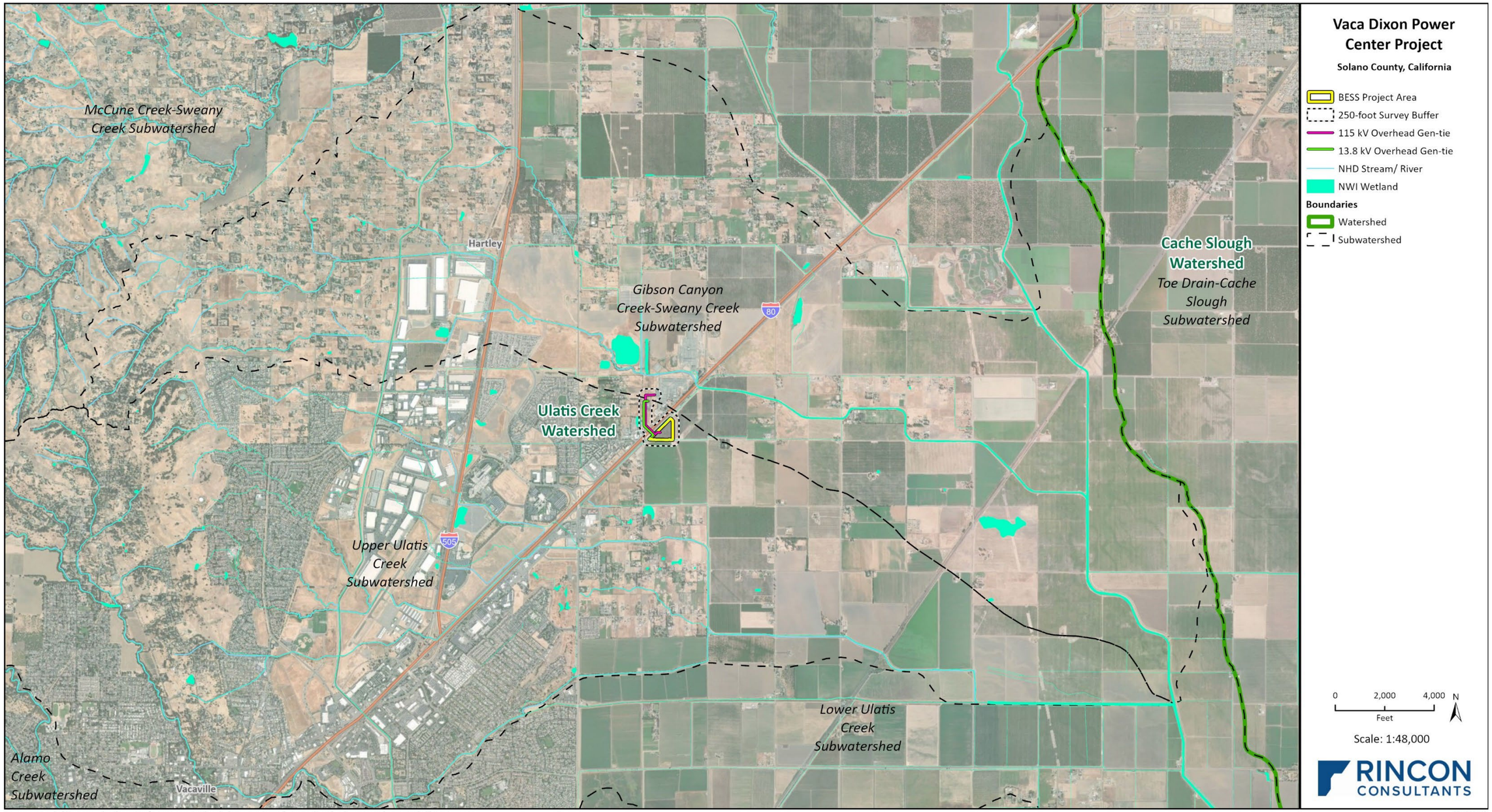

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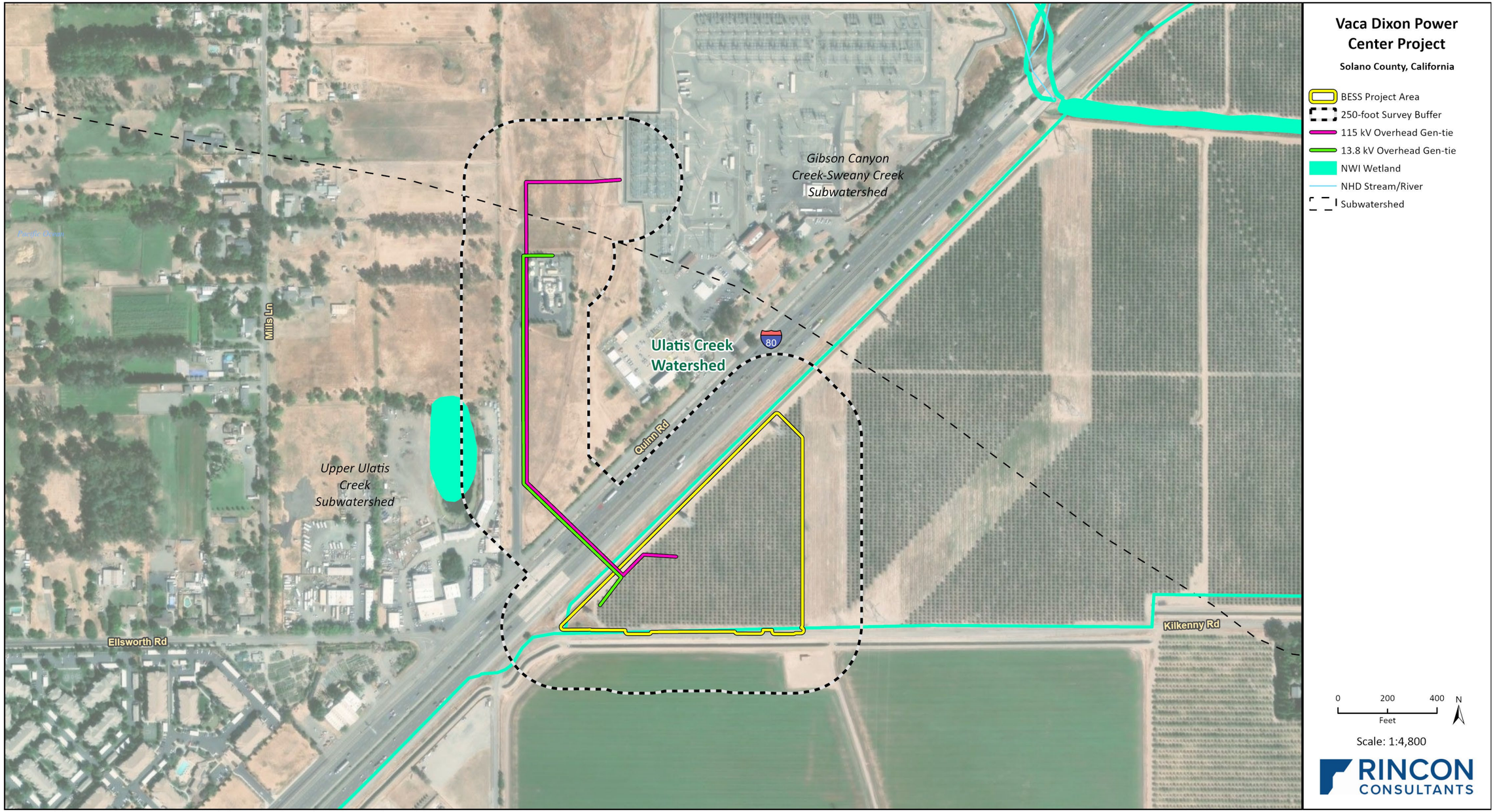
Figure 5b Wetland Hydrology of the Biological Study Area (Figure 2 of 2)



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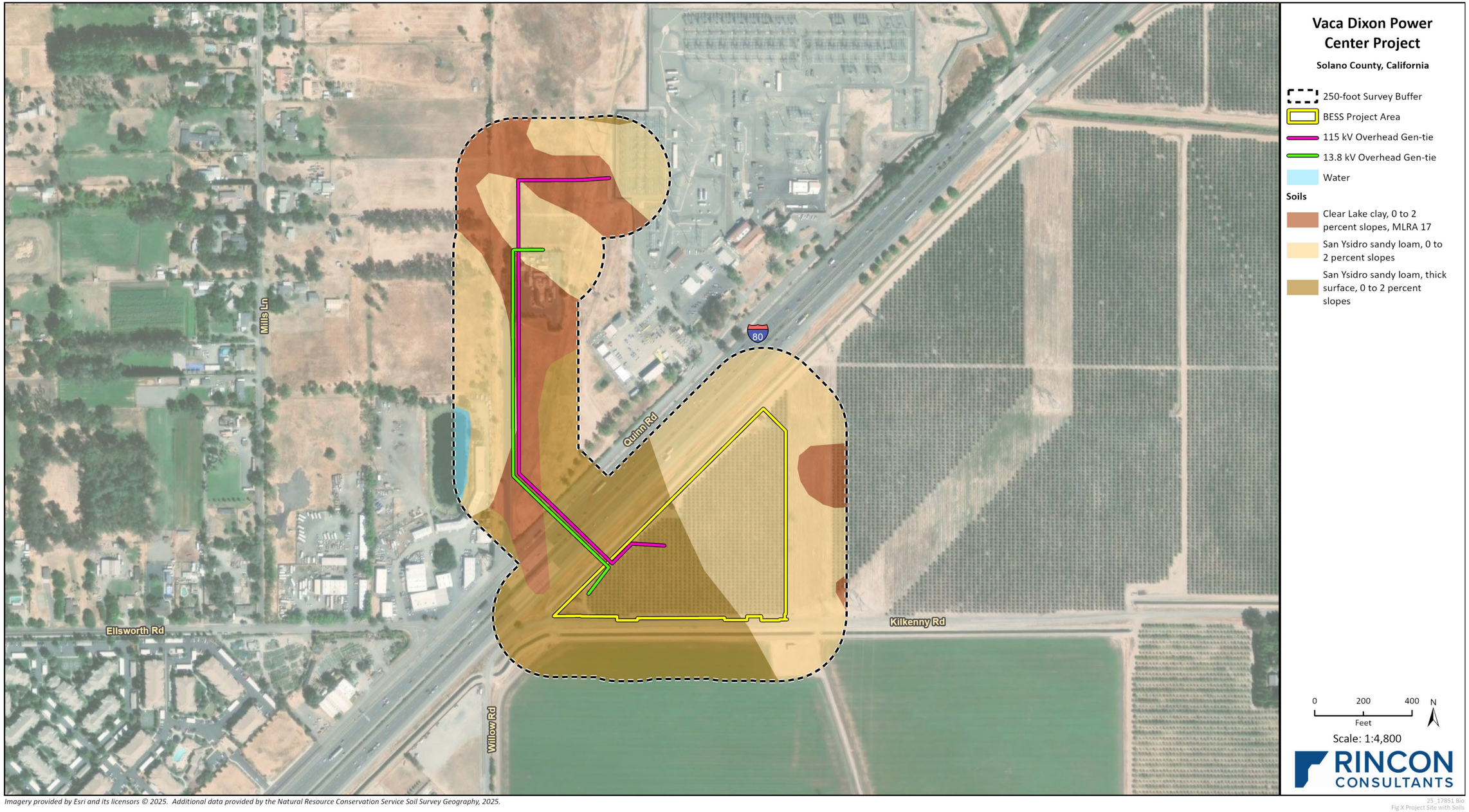
25-17851 JD
Fig X-X Hydrology - Project Site

Figure 6 Soil Types Within the Biological Study Area



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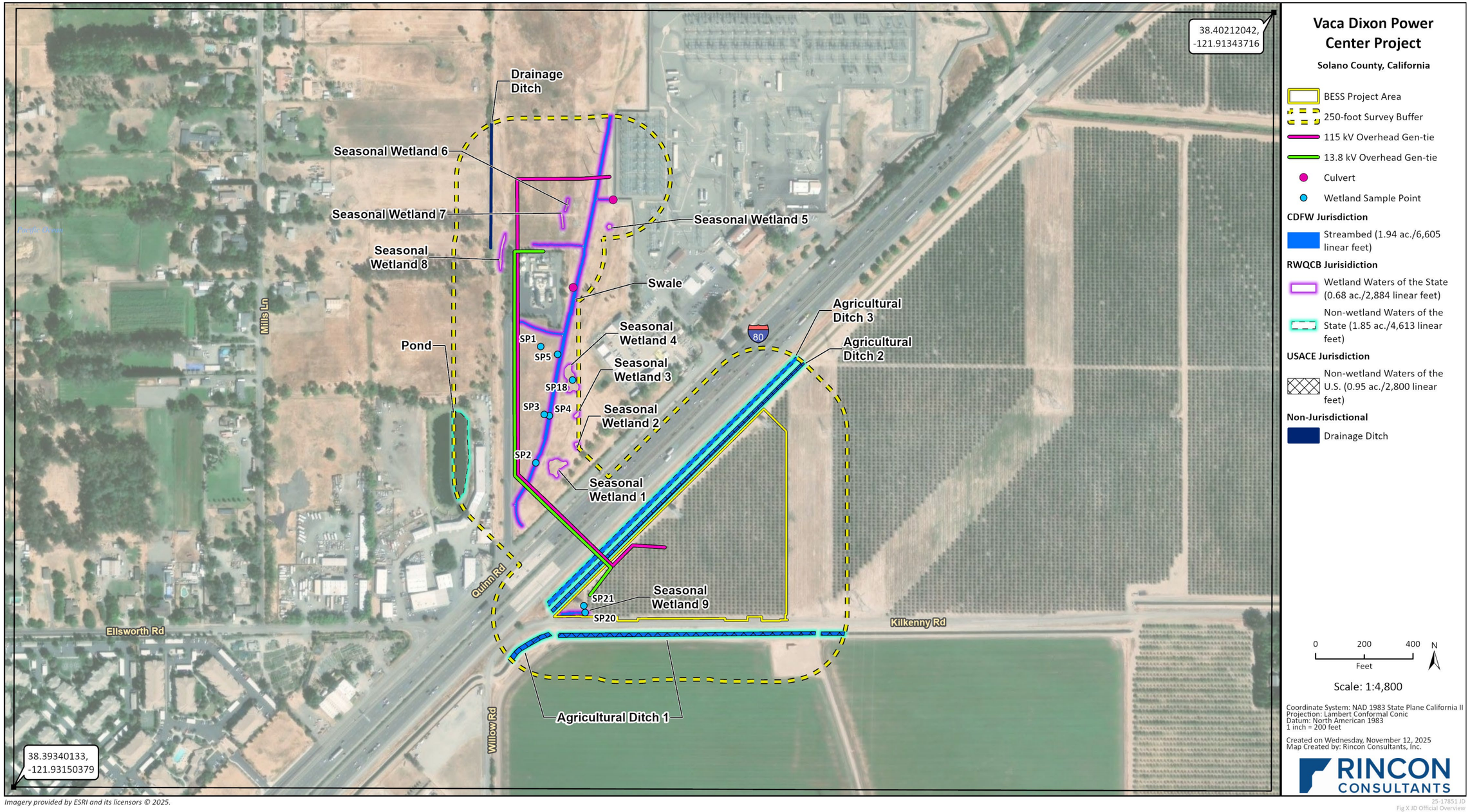
25_17851 Bio
Fig X Project Site with Soils

Figure 7a Overview of Jurisdictional Features Mapped within the Biological Study Area (Figure 1 of 3)



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25-17851 JD
Fig X JD Official Overview

Figure 7b Jurisdictional Features Mapped within the Biological Study Area (Figure 2 of 3)

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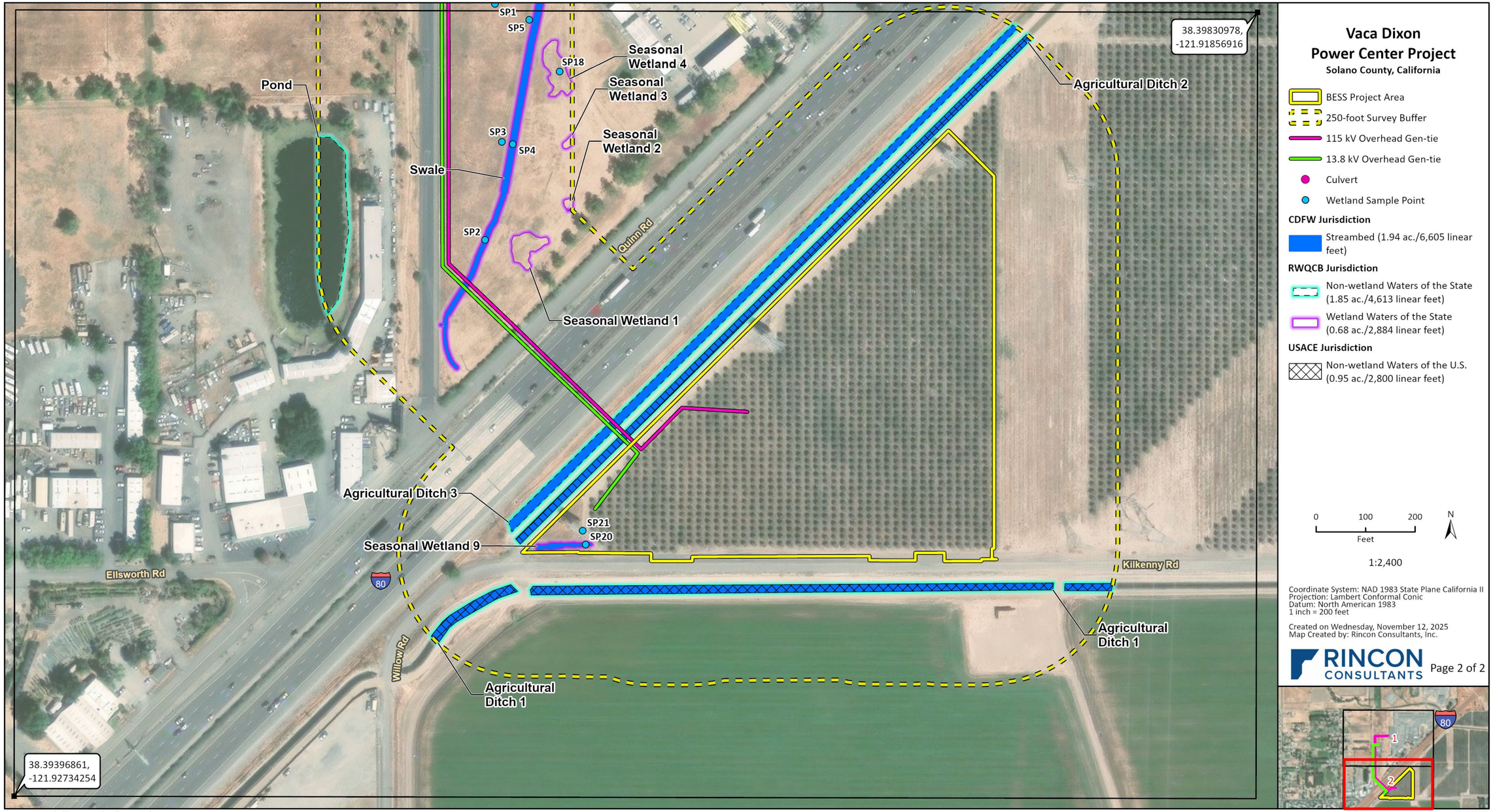
25-17851 JD
Fig X JD Official

Figure 7c Jurisdictional Features Mapped within the Biological Study Area (Figure 3 of 3)



Appendix B

Wetland Determination Forms and Ordinary High Water Mark Datasheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca-Dixon Substation BESS Project City/County: Solano County Sampling Date: 4/24/2023

Applicant/Owner: Patch Services State: CA Sampling Point: SP1

Investigator(s): Kristin Asmus and Cristy Rice Section, Township, Range: Section 1, Township 6N, Range 1W

Landform (hillslope, terrace, etc.): Valley floor Local relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR): LRR-C Lat: 38.39836 Long: -121.923946 Datum: NAD 83

Soil Map Unit Name: Clear Lake Clay, 0-2 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:

Heavy rainfall year, over 100%. Site is maintained with mowing for fire control.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1m x 1m)			
1. Bromus hordeaceus	30	Y	FACU
2. Triteleia hyacinthina	25	Y	FAC
3. Avena fatua	15	N	NL/UPL
4. Lupinus bicolor	1	N	NL/UPL
5. Vicia sativa	5	N	FACU
6. Hordeum marinum ssp. gussoneanum	10	N	FAC
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	86 = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 35	x 3 =	105
FACU species 35	x 4 =	140
UPL species 16	x 5 =	80
Column Totals: 86 (A)		355 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Very flat site

SOIL

Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					clay	no redoximorphic features

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ 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)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca-Dixon Substation BESS Project City/County: Solano County Sampling Date: 4/24/2023

Applicant/Owner: Patch Services State: CA Sampling Point: SP2

Investigator(s): Kristin Asmus and Cristy Rice Section, Township, Range: Section 1, Township 6N, Range 1W

Landform (hillslope, terrace, etc.): Valley floor Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): LRR-C Lat: 38.397052 Long: -121.924018 Datum: NAD 83

Soil Map Unit Name: Clear Lake Clay, 0-2 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:

Heavy rainfall year, over 100%. Site is maintained with mowing for fire control.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1m x 1m)			
1. Festuca perennis	30	FAC	Y
2. Rumex pulcher	5	FAC	N
3. Hordeum marinum ssp. gussoneanum	1	FAC	N
4. Epilobium brachycarpum	1	FAC	N
5.			
6.			
7.			
8.			
	37 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Point is in very shallow, wide swale, more natural in appearance, at the end of the straight-line channel on site.

SOIL

Sampling Point: SP2

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
0-12	10YR 4/2	98	2.5YR 4/3	2	C	M/PL	Clay	very faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ 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)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Swale in this location has a more natural appearance though still may have been shallowly dug at some point. This area both ponds direct precipitation and some surface runoff from adjacent area and would also conduct storm flow to the south toward the culvert and system adjacent to I-80.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca-Dixon Substation BESS Project City/County: Solano County Sampling Date: 4/24/2023

Applicant/Owner: Patch Services State: CA Sampling Point: SP3

Investigator(s): Kristin Asmus and Cristy Rice Section, Township, Range: Section 1, Township 6N, Range 1W

Landform (hillslope, terrace, etc.): Valley floor Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): LRR-C Lat: 38.397596 Long: -121.923898 Datum: NAD 83

Soil Map Unit Name: San Ysidro sandy loam, thick surface, 0-2 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:

Heavy rainfall year, over 100%. Site is maintained with mowing for fire control.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1m x 1m)			
1. Avena fatua	15	Y	NL/UPL
2. Festuca perennis	15	Y	FAC
3. Epilobioum brachycarpum	3	N	FAC
4. Vicia sativa	2	N	FACU
5. Triteleia hyacinthina	1	N	FAC
6. Erodium cicutarium	1	N	UPL
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	37 = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	____	x 2 =	____
FAC species	19	x 3 =	57
FACU species	2	x 4 =	8
UPL species	16	x 5 =	80
Column Totals:	37 (A)		145 (B)

Prevalence Index = B/A = 3.92

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Point is on flat slightly elevated above SP4 (and SP2 to the south)

SOIL

Sampling Point: SP3

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
0-6	10YR 4/2	98	7.5YR 5/6	2	C	M	clay	a few large concentrations but mc

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Soil is mapped as sandy loam but is close to border of Clear Lake clay, which appears a better match for texture. No visible concentrations in pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ 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)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca-Dixon Substation BESS Project City/County: Solano County Sampling Date: 4/24/2023

Applicant/Owner: Patch Services State: CA Sampling Point: SP4

Investigator(s): Kristin Asmus and Cristy Rice Section, Township, Range: Section 1, Township 6N, Range 1W

Landform (hillslope, terrace, etc.): Valley floor Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): LRR-C Lat: 38.397581 Long: -121.923822 Datum: NAD 83

Soil Map Unit Name: San Ysidro sandy loam, thick surface, 0-2 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:

Heavy rainfall year, over 100%. Site is maintained with mowing for fire control.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1m x 1m)			
1. Eleocharis macrostachya	45	Y	OBL
2. Veronica peregrina ssp. xalapensis	5	N	FAC
3. Myosurus minimus	10	N	OBL
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Point is in wide, straight swale

SOIL

Sampling Point: SP4

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
0-1	10YR 2/2	100					loam	organic layer
1-10	2.5YR 4/3	70	7.5YR 5/8	30	C	M	sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ 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)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca-Dixon Substation BESS Project City/County: Solano County Sampling Date: 4/24/2023

Applicant/Owner: Patch Services State: CA Sampling Point: SP5

Investigator(s): Kristin Asmus and Cristy Rice Section, Township, Range: Section 1, Township 6N, Range 1W

Landform (hillslope, terrace, etc.): Valley floor Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): LRR-C Lat: 38.398273 Long: -121.923705 Datum: NAD 83

Soil Map Unit Name: Clear Lake clay, 0-2 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:

Heavy rainfall year, over 100%. Site is maintained with mowing for fire control.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1m x 1m)			
1. Avena fatua	15	Y	NL/UPL
2. Bromus diandrus	10	N	UPL
3. Epilobium brachycarpum	15	Y	FAC
4. Carduus pycnocephalus	5	N	UPL
5. Bromus hordeaceus	3	N	UPL
6. Vicia sativa	6	N	FACU
7. Erodium botrys	1	N	FACU
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 45 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	____	x 2 =	____
FAC species	15	x 3 =	45
FACU species	7	x 4 =	28
UPL species	33	x 5 =	165
Column Totals:	55 (A)		238 (B)

Prevalence Index = B/A = 4.33

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

SOIL

Sampling Point: SP5

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
0-8	7.5YR 3/3	80	5YR 4/6	20	C	M	silty clay lo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Point is on a flat above swale

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ 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)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca Dixon Power Center Project City/County: Solano County Sampling Date: 07/24/24

Applicant/Owner: Patch Services State: CA Sampling Point: SP18

Investigator(s): Bayley E., Grace M. Section, Township, Range: Section 1, Township 6N, Range 1W

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

Subregion (LRR): LRR-C Lat: 38.397987 Long: 121.923517 Datum: _____

Soil Map Unit Name: San Ysidro sandy loam, thick surface, 0 to 2 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:

Grass mowed prior to survey, however, veg was previously noted as similar to other wetlands in area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks:

SOIL

Sampling Point: SP18

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
0-6	5yr 4/2	98	7.5 yr 5/6	10	c	m	clay	pore linings

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ 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)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

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

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

Remarks:

Though no veg was present, biotic crust was apparent on the ground.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca Dixon Power Center Project City/County: Solano County Sampling Date: 07/24/24

Applicant/Owner: Patch Services State: CA Sampling Point: SW8 - no SP

Investigator(s): Bayley E., Grace M. Section, Township, Range: Section 1, Township 6N, Range 1W

Landform (hillslope, terrace, etc.): Valley floor Local relief (concave, convex, none): None Slope (%): 0-1%

Subregion (LRR): LRR-C Lat: 38.399426 Long: 121.924527 Datum: _____

Soil Map Unit Name: Clear Lake clay, 0 to 2 percent slopes, MLRA 17 NWI classification: _____

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:

Grass mowed prior to survey

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. psylocarpus brevissimus	45	yes	FACW
2. Digitaria sp.	15	No	FACU
3. lolium perenne	10	No	
4. centromatia fitchii	35	Yes	FACU
5. unidentified annual	20	No	UPL
6.			
7.			
8.			
	107 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	45	x 2 =	90
FAC species	10	x 3 =	30
FACU species	50	x 4 =	200
UPL species	20	x 5 =	100
Column Totals:	125 (A)		420 (B)

Prevalence Index = B/A = 3.36

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Most of the vegetation was mowed, however, we were able to ID some of the vegetation.

SOIL

Sampling Point: SW8 - no SP

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock/gravel

Depth (inches): 2

Hydric Soil Present? Yes _____ No _____

Remarks:

Ground was too hard to dig (restrictive rock layer)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ 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)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

Slight change in vegetation.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca Dixon Power Center City/County: Solano County Sampling Date: 7/14/25

Applicant/Owner: Patch Services State: CA Sampling Point: SP20

Investigator(s): Owen Routt and Grace Myers Section, Township, Range: Section 1, Township 6N, Range 1W

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C- Mediterranean California Lat: 38.39541 Long: -121.923275 Datum: WGS84

Soil Map Unit Name: San Ysidro sandy loam, thich surface, 0 to 2 percent slopes NWI classification: N/A

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: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ✔** **No _____**

Remarks:

SOIL

Sampling Point: SP20

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	2.5 Y 3/1	85	7.5 YR 4/3	15	RM	M	Sandy clay	
5-14	10YR 3/2	80	2.5 YR 3/3	20	RM	M	Sandy loan	Some redox in pore linings

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ 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 Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ 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)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 18

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

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

Remarks:

Ponding to the west of sample point. Water table present at 12 in.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vaca Dixon Power Center Project City/County: Solano County Sampling Date: 7/14/25

Applicant/Owner: Patch Services State: CA Sampling Point: SP-21

Investigator(s): Owen Routt and Grace Myers Section, Township, Range: Section 1, Township 6N, Range 1W

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

Subregion (LRR): C - Medeterranean California Lat: 38.395243 Long: -121.923346 Datum: WGS84

Soil Map Unit Name: San Ysidro sandy loam, thick surface, 0 to 2 percent slopes NWI classification: N/A

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: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Centaurea solstitalis	60	Yes	N/A
2. Avena fatua	20	Yes	N/A
3. Vicia sativa	10	No	FACU
4. Raphanus sativus	10	No	UPL
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (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	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	10 (A)		40 (B)

Prevalence Index = B/A = 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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

All upland species

SOIL

Sampling Point: SP-21

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	2.5Y 3/3	100	N/A	N/A	N/A	N/A	Sandy loan	
5-10	5Y 3/3	95	2.5YR 3/4	5	C	M	Sandy loan	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

N/A

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ 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 Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ 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)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

N/A

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U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

OMB Control No. 0710-XXXX

Approval Expires:

Project ID #: 25-17851	Site Name: Vaca Dixon Power Center	Date and Time: 7/14/25
Location (lat/long): 38.395896, -121.923744	Investigator(s): Owen Routt and Grace Myers	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [x] satellite imagery
- [ ] land use maps
- [ ] aerial photos
- [x] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

Irrigated farming, normal conditions

Step 2 Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Constructed irrigation ditch. Earthen bed and bank (Agricultural Ditch 2); concrete bed and bank (Agricultural Ditch 1).

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:**
  - [x] *on the bank:*
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [x] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [x] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., poofs, riffles, steps, etc.):*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [ ] **Changes in particle-sized distribution:**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [ ] **Change in vegetation type and/or density:**

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - [x] *vegetation absent to:* absent
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators?

Describe:

Water present in Irrigation Ditch 1, Irrigation Ditch 2 is dry.

Step 4 Is additional information needed to support this determination?

- [ ] Yes
- [x] No

If yes, describe and attach information to datasheet:

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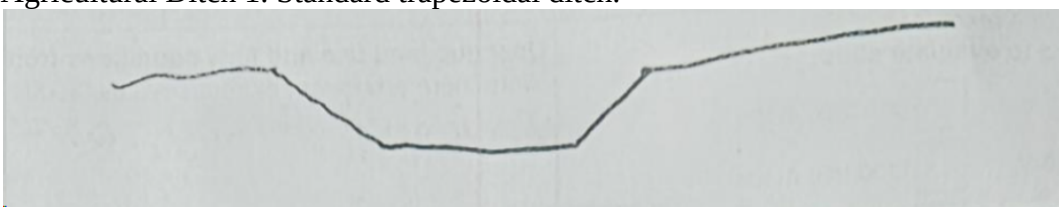
Project ID #: 25-17851

Step 5 Describe rationale for location of OHWM

Break in bank slope, sediment deposits, water currently absent for irrigation in Agricultural Ditch 2, water is present in Agricultural Ditch 1. Standard trapezoidal ditch.



Additional observations or notes

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☐ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description

Print Form | Save As | E-mail

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

OMB Control No. 0710-XXXX

Approval Expires:

Project ID #: 25-17851	Site Name: Vaca Dixon Power Center	Date and Time: 7/14/25
Location (lat/long): 38.395672, -121.924047	Investigator(s): Owen Routt and Grace Myers	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [ ] aerial photos
- [x] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Step 2 Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Agricultural Ditch 3: Normal, manmade constructed road side ditch along I-5. Collects street flow from roadway. Generally trapezoidal with some areas of bank collapse.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [ ] **Break in slope:**
  - [ ] *on the bank:*
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [x] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., poofs, riffles, steps, etc.):*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [x] **Mudcracks:**
- [ ] **Changes in particle-sized distribution:**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:**

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:*
- [ ] *moss to:*
- [x] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators?

Describe:

Sporadic cover of tall flatsedge and cattail at west end. Vegetation break with transition to Italian rye and other upland grasses.

Step 4 Is additional information needed to support this determination?

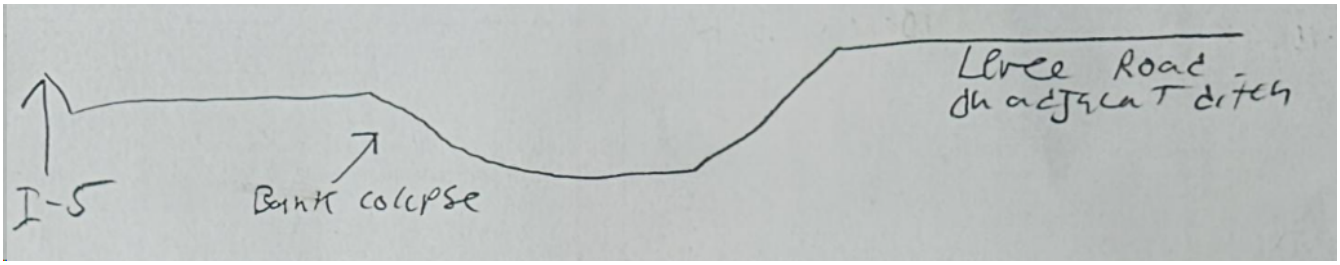
- [ ] Yes
- [x] No

If yes, describe and attach information to datasheet:

Print Form | Save As | E-mail

Project ID #: 25-17851

Step 5 Describe rationale for location of OHWM



Additional observations or notes

Drains to the east

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☐ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description

Appendix C

Regulatory Framework

Regulatory Framework

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, State, and local levels. A number of federal and State statutes provide a regulatory structure which guide the protection of jurisdictional features. Agencies with responsibility for protection of jurisdictional features within the Biological Study Area include:

- California Energy Commission
- Regional Water Quality Control Board (waters of the State)
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes)
- United States Army Corps of Engineering (USACE; wetlands and other waters of the U.S.)

California Energy Commission

The California Energy Commission (CEC) has been authorized under Assembly Bill 205 (Chapter 61, 2022) to establish a new certification program for eligible non-fossil-fueled power plants and related facilities to optionally seek certification from the CEC, using emergency rulemaking authority provided by AB 205. Per the Notice of Approval of Emergency Regulatory Action for Opt-in Regulations Section 1877, Opt-In applications are required to include all the information specified by California Code of Regulations (CCR) Title 20 Division 2 Section 1704(a) Appendix B that is relevant to the Project. As per Appendix B (g) (2) of Title 20 CCR Division 2, this assessment must include:

(A) A regional overview and discussion of terrestrial and aquatic biological resources, with particular attention to sensitive biological resources within ten (10) miles of the project. In the discussion include a list of the USGS topographic quadrangle(s) utilized to search records from the California Natural Diversity Database (CNDDB), and a citation which includes the date the CNDDB was accessed. Include a map at a scale of 1:6,000 (under confidential cover) and at 1:350,000 (for public) showing sensitive biological resource location(s) in relation to the project site and related facilities and any boundaries of a local Habitat Conservation Plan or similar open space land use plan or designation. Label the biological resources and survey areas as well as the project facilities. Sensitive biological resources include the following:

i. species listed under state or federal Endangered Species Acts;

ii. species receiving consideration during environmental review under CEQA Guidelines 14 CCR Section 15380;

iii. species identified as state Fully Protected;

iv. species covered by Migratory Bird Treaty Act (MBTA);

v. species and habitats identified by local, state, and federal agencies as needing protection, including but not limited to those identified by the CNDDB, or where applicable, in Local Coastal Programs or in relevant decisions of the California Coastal Commission or other responsible agency;

vi. locally significant species that are rare or uncommon in a local context such as county or region or is so designated in local or regional plans, policies, or ordinances;

vii. plant species listed as rare under the California Native Plant Protection Act; and

viii. established native resident or migratory wildlife corridors or wildlife nursery sites.

(B) Include a list of the species and habitat(s) actually observed and those with a potential to occur within 1 mile of the project site and 1,000 feet from the outer edge of linear facility corridors.

Maps or aerial photographs shall include the following:

i. Detailed maps at a scale of 1:6,000 or color aerial photographs taken at a recommended scale of 1-inch equals 500 feet (1:6,000) with a 30 percent overlap (provided under confidential cover) and 1:350,000 (for public viewing) that show the proposed project site and related facilities, biological resources including, but not limited to, those found during project-related field surveys and in records from the CNDDB, and the associated areas where biological surveys were conducted. Label the biological resources and survey areas as well as the project facilities.

ii. Provide an aerial map of the isopleth graphic depicting modeled nitrogen deposition rates. The geographical extent of the nitrogen deposition map(s) should include the entire plume and a radius of 6 (six) miles from the source, specifically identifying acres of sensitive habitat(s) within each isopleth. Modeling parameters and files shall be provided.

iii. An aerial photo depicting state and federal jurisdictional features including state waters and wetlands delineated on maps at a scale of (1:2,400) showing any potential jurisdictional features delineated out to 250 feet from the edge of disturbance if jurisdictional features occur within 250 feet of the project site and/or related facilities that would be included with a US Army Corps of Engineers Section 404 Permit application, Regional Water Quality Control Board (RWQCB) application, or California Department of Fish and Wildlife Section 1600 et seq permit requirements. For projects proposed to be located within the coastal zone, also provide aerial photographs or maps as described above that identify wetlands as defined by the Coastal Act and under the jurisdiction of the California Coastal Commission.

iv. Provide Geographic Information System (GIS) data (shape and/or geodatabase files) for all data mapped for biological resources.

(C) A discussion of the biological resources at the proposed project site and related facilities. Related facilities include, but are not limited to, laydown and parking areas, gas and water supply pipelines, transmission lines, and roads. The discussion shall address the distribution of vegetation community types, denning or nesting sites, population concentrations, migration corridors, breeding habitats, and other appropriate biological resources including the following:

i. A list of sensitive species and habitats with a potential to occur (as defined in (A) above) and include status (state, federal, California Native Plant Society, global rank, state rank).

ii. Perform nitrogen deposition modeling including the complete citation for references used in determining deposition rates and location. Specify the amount of total annual nitrogen deposition in kilograms of nitrogen per hectare per year (kg N/ha/yr) in special status species habitats and vegetation types for wet and dry deposition. Describe habitat and species potentially affected.

(D) A description and results of all field studies and specialized surveys (e.g., focused and protocol) used to provide biological baseline information about the project site and associated facilities. Include copies of the CNDDB records and field survey forms completed by the applicant's biologist(s). Identify the date(s) the surveys were completed, methods used to complete the surveys, and the name(s) and qualifications of the biologists conducting the surveys. Include:

i. Current biological resources surveys conducted using appropriate field survey protocols (include references) during the appropriate season(s). State and federal agencies with jurisdiction shall be consulted for field survey protocol guidance prior to surveys if a protocol exists.

ii. If the project or any related facilities could impact federal or state jurisdictional wetland, provide completed Army Corps of Engineers wetland delineation forms and/or determination of wetland status pursuant to Coastal Act or CDFW requirements, as applicable to the location, name(s) and qualifications of biologist(s) completing the delineation, the results of the delineation and a table showing jurisdictional features including state waters and wetland acreage amounts to be impacted.

(E) Impacts discussion of all impacts (direct, indirect, and cumulative) to biological resources from project site preparation, construction activities, plant operation, maintenance, closure, and decommissioning. Discussion shall also address sensitive species habitat impacts from air emissions (i.e. nitrogen deposition).

(F) A discussion of all feasible mitigation measures and an evaluation of their anticipated efficacy in reducing the level of impacts, including, but not limited to the following:

i. All measures proposed to avoid and/or reduce adverse impacts to biological resources.

ii. All off-site habitat mitigation such as habitat improvement or compensation including management, and an identification of appropriate agency contacts for coordination and verification of proposed habitat mitigation measures.

iii. Educational programs to enhance employee awareness during construction and operation to protect biological resources.

(G) A discussion of compliance and monitoring programs to ensure the effectiveness of impact avoidance and mitigation measures incorporated into the project.

(H) Submit copies of any preliminary correspondence between the project applicant and state and federal resource agencies regarding whether federal or state permits from other agencies such as the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Army Corps of Engineers, the CDFW, and the RWQCB will be required for the proposed project.

Regional Water Quality Control Board Jurisdiction

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over “waters of the State,” which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code Section 13050[e]). These agencies also have responsibilities for administering portions of the Clean Water Act (CWA).

Clean Water Act Section 401

Section 401 of the CWA requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide state certification that the proposed activity will not violate state and federal water quality standards. In California, CWA Section 401 Water Quality Certification (Section 401 Certification) is issued by the RWQCBs and by the SWRCB for multi-region projects. The process begins when an applicant submits an application to the RWQCB and informs the USACE (or the applicable agency from which a license or permit was requested) that an application has been submitted. The USACE will then determine a "reasonable period of time" for the RWQCB to act on the application; this is typically 60 days for routine projects and longer for complex projects but may not exceed one year. When the period has elapsed, if the RWQCB has not either issued or denied the application for Section 401 Certification, the USACE may determine that Certification has been waived and issue the requested permit. If a Section 401 Certification is issued it may include binding conditions, imposed either through the Certification itself or through the requested federal license or permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCBs (based on watershed boundaries) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Section 13260 of the Porter-Cologne Act requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB. The RWQCB may then authorize the discharge, subject to conditions, by issuing Waste Discharge Requirements (WDR). While this requirement was historically applied primarily to outfalls and similar point source discharges, the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, effective May 2020, make it clear that the agency will apply the Porter-Cologne Act's requirements to discharges of dredge and fill material as well. The *Procedures* state that they are to be used in issuing CWA Section 401 Certifications and WDRs, and largely mirror the existing review requirements for CWA Section 404 Permits and Section

401 Certifications, incorporating most elements of the USEPA's *Section 404(b)(1) Guidelines*. Following issuance of the *Procedures*, the SWRCB produced a consolidated application form for dredge/fill discharges that can be used to obtain a CWA Section 401 Water Quality Certification, WDRs, or both.

Non-Wetland Waters of the State

The SWRCB and RWQCBs have not currently established regulations for field determinations of waters of the State except for wetlands. In many cases, the RWQCBs interpret the limits of waters of the State to be bounded by the OHWM unless isolated conditions or ephemeral waters are present. However, in the absence of statewide guidance, each RWQCB may interpret jurisdictional boundaries within their region, and the SWRCB has encouraged applicants to confirm jurisdictional limits with their RWQCB before submitting applications. As determined by the RWQCB, waters of the State may include riparian areas or other locations outside the OHWM, leading to a larger jurisdictional area over a given water body compared to USACE.

Wetland Waters of the State

Procedures for defining wetland waters of the State pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB defines an area as wetland if, under normal circumstances:

(i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

(ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

(iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

California Department of Fish and Wildlife Jurisdiction

California Fish and Game Code section 1602 states that it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying the California Department of Fish and Wildlife (CDFW) of that activity. Thereafter, if CDFW determines and informs the entity that the activity will not substantially adversely affect any existing fish or wildlife resources, the entity may commence the activity. If, however, CDFW determines that the activity may substantially adversely affect an existing fish or wildlife resource, the entity may be required to obtain from CDFW a Streambed Alteration Agreement (SAA), which will include reasonable measures necessary to protect the affected resource(s), before the entity may conduct the activity described in the notification. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the entity with a Draft SAA. Upon review of the Draft SAA by the applicant, any problematic terms are negotiated with CDFW and a final SAA is executed.

The CDFW has not defined the term "stream" for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:
  - References "river," "stream," and "lake"
  - References "natural flow"
  - References "bed," "bank," and "channel"
- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. The Court indicated that a "stream" is commonly understood to:
  - Have a source and a terminus
  - Have banks and a channel
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
  - Represent the depression between the banks worn by the regular and usual flow of the water
  - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
  - Include the land that is covered by the water in its ordinary low stage
  - Include lands below the OHWM
- **CDFW regulations** defining "stream" for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
  - Flows at least periodically or intermittently
  - Flows through a bed or channel having banks
  - Supports fish or aquatic life
  - Can be dry for a period of time
  - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation
- **Guidance documents**, including A Field Guide to Lake and Streambed Alteration Agreements (CDFG 1994) and Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants (Brady and Vyverberg 2013), which suggest the following:
  - A stream may flow perennially or episodically
  - A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
  - Width of a stream course can reasonably be identified by physical or biological indicators
  - A stream may have one or more channels (single thread vs. compound form)

- Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
- Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
- Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
- The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. Importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is responsible for administering several federal programs related to ensuring the quality and navigability of the nation's waters.

Clean Water Act Section 404

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 404 of the CWA authorizes the Secretary of the Army, acting through the USACE, to issue permits regulating the discharge of dredged or fill materials into the "navigable waters at specified disposal sites."

Section 502 of the CWA further defines "navigable waters" as "waters of the United States, including the territorial seas." "Waters of the United States" are broadly defined at 33 CFR Part 328.3 to include navigable waters, perennial and intermittent streams, lakes, rivers, ponds, as well as wetlands, marshes, and wet meadows. In recent years, the USACE and US Environmental Protection Agency (USEPA) have undertaken several efforts to modernize their regulations defining "waters of the United States" (e.g., the 2015 Clean Water Rule and 2020 Navigable Waters Protection Rule), but these efforts have been frustrated by legal challenges which have invalidated the updated regulations. Thus, the agencies' longstanding definition of "waters of the United States," which dates from 1986, remains in effect albeit with supplemental guidance interpreting applicable court decisions as described below.

Waters of the U.S.

In summary, USACE and USEPA regulations define "waters of the United States" as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    iii. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States;
5. Tributaries of waters identified in paragraphs (a)(1)-(4) of this section;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in items 1-6 above.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the USEPA.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA are not waters of the United States.

The lateral limits of USACE jurisdiction in non-tidal waters is defined by the "ordinary high-water mark" (OHWM) unless adjacent wetlands are present. The OHWM is a line on the shore or edge of a channel established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed upon the bank, shelving, changes in the character of soil, destruction of vegetation, or the presence of debris (33 CFR 328.3(e)). As such, waters are recognized in the field by the presence of a defined watercourse with appropriate physical and topographic features. If wetlands occur within, or adjacent to, waters of the United States, the lateral limits of USACE jurisdiction extend beyond the OHWM to the outer edge of the wetlands (33 CFR 328.4 (c)). The upstream limit of jurisdiction in the absence of adjacent wetlands is the point beyond which the OHWM is no longer perceptible (33 CFR 328.4; see also 51 FR 41217).

Wetlands

The USACE defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3). The USACE's delineation procedures identify wetlands in the field based on indicators of three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. The following is a discussion of each of these parameters.

Hydrophytic Vegetation

Hydrophytic vegetation dominates areas where frequency and duration of inundation or soil saturation exerts a controlling influence on the plant species present. Plant species are assigned wetland indicator status according to the probability of their occurring in wetlands. More than fifty

percent of the dominant plant species must have a wetland indicator status to meet the hydrophytic vegetation criterion. The USACE published the National Wetland Plant List (USACE 2018), which separates vascular plants into the following four basic categories based on plant species frequency of occurrence in wetlands:

- **Obligate Wetland (OBL).** Almost always occur in wetlands
- **Facultative Wetland (FACW).** Usually occur in wetlands, but occasionally found in non-wetlands
- **Facultative (FAC).** Occur in wetlands or non-wetlands
- **Facultative Upland (FACU).** Usually occur in non-wetlands, but may occur in wetlands
- **Obligate Upland.** Almost never occur in wetlands

The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these categories. Any species not appearing on the United States Fish and Wildlife Service's list is assumed to be an upland species, almost never occurring in wetlands. In addition, an area needs to contain at least 5% vegetative cover to be considered as a vegetated wetland.

Hydric Soils

Hydric soils are saturated or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of wetland soils include observations of ponding, inundation, saturation, dark (low chroma) soil colors, bright mottles (concentrations of oxidized minerals such as iron), gleying (indicates reducing conditions by a blue-grey color), or accumulation of organic material. Additional supporting information includes documentation of soil as hydric or reference to wet conditions in the local soils survey, both of which must be verified in the field.

Wetland Hydrology

Wetland hydrology is inundation or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands), or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by field indicators, such as water marks, drift lines, sediment deposits, or drainage patterns in wetlands.

Limitations on Jurisdiction based on Sackett v. USEPA Supreme Court Decision

On May 25, 2023, the Supreme Court issued its decision on the petition from the Sacketts, a family in Idaho that was subject to a compliance order from the USEPA for backfilling their lot near Priest Lake, which the USEPA claimed contained federally regulated wetlands. The wetlands in question were adjacent to a ditch that fed a creek that ultimately drained into Priest Lake, a navigable water body. The USEPA asserted that the Sacketts had violated the law by filling the wetlands on their property without a permit. The Court's decision addressed controversy over whether, and under what conditions, the CWA reaches navigable waters' tributaries or adjacent wetlands. The Supreme Court's decision in *Sackett* provides definitive guidance to the agencies in determining the limits of their Clean Water Act authority. Major tenets of the decision have been incorporated into the agencies' current regulations through the September 2023 Conforming Rule.

The Court decided:

- "Adjacent wetlands" are WOTUS only if there is a continuous surface connection between the wetland and a navigable or relatively permanent water body, such that it is difficult to determine the boundary between the wetland and the water body. The opinion notes that "temporary interruptions to surface connection may sometimes occur because of phenomena like low tides or dry spells." The agencies addressed this element by defining the term "adjacent" to mean "having a continuous surface connection" in the Conforming Rule.
- The Significant Nexus Standard, introduced by the Court in prior decisions, is not mentioned in the Clean Water Act and should not be used. The Court determined that the standard applies ecological factors whose use in determining jurisdiction is not supported by the statute. The Conforming Rule removed significant nexus considerations from the definition.
- Although jurisdiction over tributaries was not addressed by the Court, the decision stated that "…the [Clean Water Act's] use of "waters" encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes." The Conforming Rule makes clear that only relatively permanent tributaries qualify as "waters of the United States."

Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable water of the United States and applies to all structures and work. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. It is important to note that Section 10 applies only to navigable waters and thus does not apply to work in non-navigable wetlands or tributaries. In some cases, Section 10 authorization is issued by the USACE concurrently with CWA Section 404 authorization, such as when certain Nationwide Permits are used.

Appendix D

Representative Site Photographs

Note to Reader

- Photographs #1 – # 9 are on the northern BSA (PG&E parcel)
- Photographs #10 – #16 are on the southern BSA (BESS parcel)

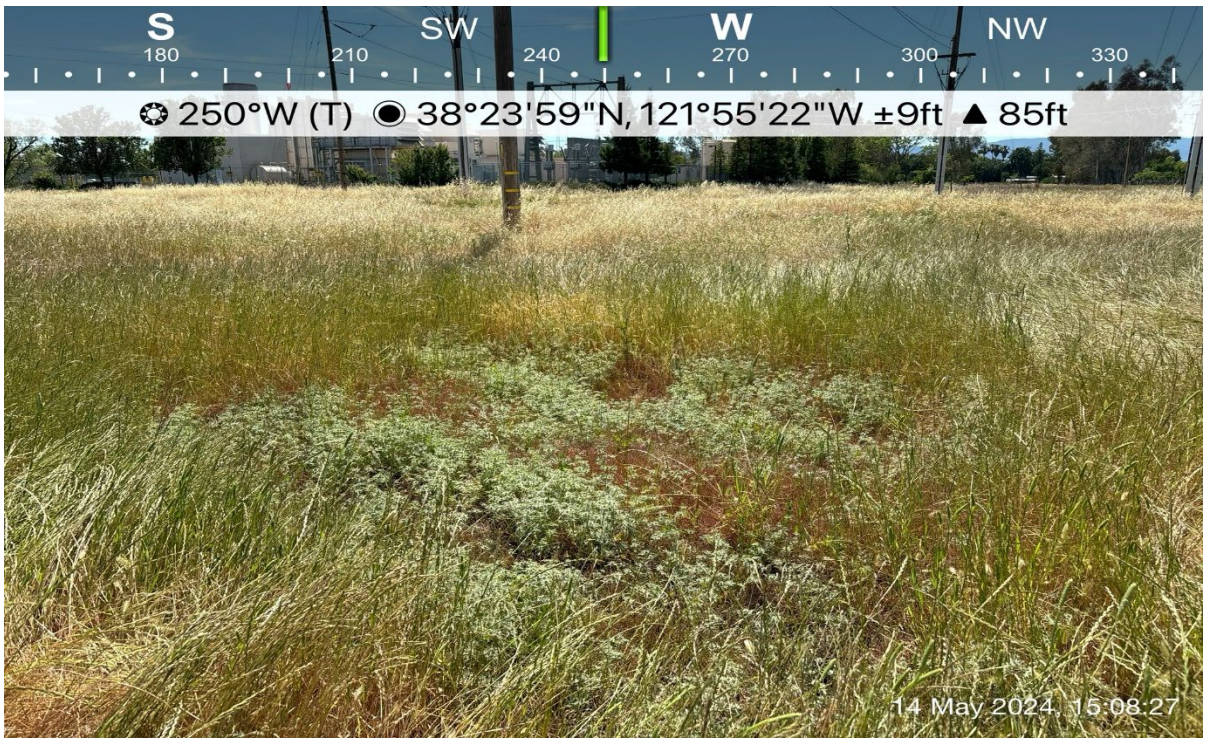
Photograph 1. View of the swale from the northern portion of the Biological Study Area, facing southwest. April 25, 2023.

Photograph 2. View of the swale and non-native grassland within the Biological Study Area, facing northeast. PG&E Vaca-Dixon Substation shown on righthand side of photo. May 14, 2024.

Photograph 3. View facing north of a portion of Seasonal Wetlands 1 and 2 (center and eastern portions of the photo). April 24, 2023.

Photograph 4. View of Seasonal Wetland 3 after the grass had been mowed, facing west. July 24, 2024.

Photograph 5. View of Seasonal Wetland 4, facing north. April 24, 2023.



Photograph 6. View of Seasonal Wetland 5's hydrophytic vegetation, facing southwest. May 14, 2024.

Photograph 7. View of the blow wives (*Achyrachaena mollis*) in Seasonal Wetland 6, facing east. May 14, 2024.

Photograph 8. View of Seasonal Wetland 8 prior to the grass being mowed, facing north. May 14, 2024.

Photograph 9. View of culvert in the swale on the northern BSA, facing south. July 24, 2024.

Photograph 10. View of Seasonal Wetland 9 on the southern BSA, facing west. July 14, 2025.

Photograph 11. View of SP20, taken from Seasonal Wetland 9. July 14, 2025.

Photograph 12. View of Agricultural Ditch 1, south of the BSA, facing west. July 14, 2025.

Photograph 13. View of Agricultural Ditch 2, northeast of the southern portion of the BSA, facing northeast. July 14, 2025.

Photograph 14. View of Agricultural Ditch 3, northeast of the southern portion of the BSA and east of I-80, facing northeast. July 14, 2025.

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Appendix E

Plant Species Observed within the Biological Study Area

Plant Species Observed within the Biological Study Area

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Platanus racemosa	western sycamore	None	Native
Prunus sp.	plum	None	Introduced
Quercus lobata	valley oak	None	Native
Salix nigra	black willow	None	Native
Sequoia sempervirens	coast redwood	None	Native
Shrubs			
Rosmarinus officinalis	rosemary	None	Introduced
Herbs			
Achyrachaena mollis	blow wives	None	Native
Agapanthus sp.	unknown agapantha	None	Introduced
Amsinckia intermedia	common fiddleneck	None	Native
Brodiaea elegans ssp. *elegans*	harvest brodiaea	None	Native
Bromus hordaceous	soft chess	None	Introduced; Cal-IPC Limited
Callitriche marginata	California water starwort	None	Native
Carduus pycnocephalus	Italian thistle	None	Introduced; Cal-IPC Moderate
Centaurea solstitialis	yellow star thistle	None	Introduced; Cal-IPC High
Centromatia fitchii	spikeweed	None	Native
Chenopodium album	lamb's quarters	None	Introduced
Convolvulus arvensis	field bindweed	None	Introduced; CDFA, Weeds of CA
Cyperus sp.	flatsedge	None	Introduced
Downingia ornatissima var. *ornatissima*	horned downingia	None	Native
Epilobium brachycarpum	autumn willowherb	None	Native
Erodium botrys	broad-leaf filaree	None	Introduced
Erodium cicutarium	red-stem filaree	None	Introduced; Cal-IPC Limited
Eryngium castrense	Great Valley coyote thistle	None	Native
Gallium aparine	goosegrass	None	Native
Geranium dissectum	cranesbill	None	Introduced; Cal-IPC Limited
Gnaphalium palustre	western marsh cudweed	None	Native
Hordeum marinum	Mediterranean barley	None	Introduced; Cal-IPC Moderate
Hypochaeris glabra	smooth cat's-ear	None	Introduced; Cal-IPC Limited
Lactuca seriola	prickly lettuce	None	Introduced
Lupinus bicolor	miniature lupine	None	Native
Myosurus minimus	Mousetail	None	Native
Plantago communis	English plantain	None	Introduced; Cal-IPC Limited
Psylocarpus brevissimus	woolly heads	None	Native
Poa annua	annual meadowgrass	None	Introduced
Polygonum aviculare	prostrate knotweed	None	Introduced
Raphanis sativa	wild radish	None	Introduced; Cal-IPC Limited

Scientific Name	Common Name	Status	Native or Introduced
Rumex pulcher	fiddle dock	None	Introduced
Tragopogon porrifolius	salsify	None	Introduced
Trifolium depauperatum var. *truncatum*	dwarf sack clover	None	Native
Trifolium hirtum	rose clover	None	Introduced; Cal-IPC Limited
Triteleia hyacinthina	white brodiaea	None	Native
Typha spp.	cattails	None	Native
Veronica peregrina ssp. *xalapensis*	purslane speedwell	None	Native
Vicia sativa ssp. *nigra*	narrow-leaved vetch	None	Introduced; Weeds of CA
Vulpia myuros	rat-tail fescue	None	Native
Graminoids			
Alopecurus saccatus	foxtail	None	Native
Avena fatua	wild oats	None	Introduced; Cal-IPC Moderate
Bromus diandrus	ripgut brome	None	Introduced; Cal-IPC Moderate
Bromus hordeaceus	soft chess	None	Introduced; Cal-IPC Limited
Cynodon dactylon	Bermuda grass	None	Introduced; Cal-IPC Moderate
Digitaria sp.	crabgrass	None	Native
Eleocharis macrostachya	common/pale spike-rush	None	Native
Festuca perennis	Italian ryegrass	None	Introduced; Cal-IPC Moderate
Festuca myuros	rattail sixweeks grass	None	Introduced; Cal-IPC Moderate
Lythrum hyssopifolia	hyssop loosestrife	None	Introduced; Cal-IPC Moderate
Lolium perenne	perennial ryegrass	None	Introduced; Cal-IPC Moderate
Hordeum brachyantherum	meadow barley	None	Native
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	None	Introduced; Cal-IPC Moderate
Juncus balticus ssp. *Ater*	Baltic rush	None	Native
Juncus bufonius	toad rush	None	Native

Cal-IPC = California Invasive Plant Council

Appendix K

Special-Status Species Evaluation Table

Special-Status Species Evaluation Table

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Biological Study Area	Habitat Suitability/Observations
Plants and Lichens				
Arctostaphylos manzanita ssp. *laevigata* Contra Costa manzanita	None/None G5T2/S2 1B.2	Perennial evergreen shrub. Chaparral. Rocky slopes. Elevations: 1410-3610 feet (430-1100 meters). Blooms Jan-Mar.	Not Expected	The BSA is outside the elevation range for the species. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Astragalus tener var. *ferrisiae* Ferris' milk-vetch	None/None G2T1/S1 1B.1	Annual herb. Meadows and seeps, valley and foothill grassland. Subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil. Elevations: 5-245 feet (2-75 meters). Blooms Apr-May.	Not Expected	While grassland habitat is present, dry adobe soil, and meadows and seeps are not present within the BSA. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). Jepson records approximately 6.4 miles northeast of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Astragalus tener var. *tener* alkali milk-vetch	None/None G2T1/S1 1B.2	Annual herb. Playas, valley and foothill grassland, vernal pools. Alkaline. Elevations: 5-195 feet (1-60 meters). Blooms Mar-Jun.	Not Expected	No suitable playas, vernal pools or alkaline habitat is present within BSA. Eighteen CNDDB occurrences within 10 miles of the BSA. The closest CNDDB occurrence is approximately 4.6 miles southwest of the site, though this occurrence is historical (1896; CDFW 2025). This species was not observed during the 2023 rare plant survey.
Atriplex cordulata var. *cordulata* heartscale	None/None G3T2/S2 1B.2	Annual herb. Chenopod scrub, meadows and seeps, valley and foothill grassland, wetlands. Alkaline (sometimes). Elevations: 0-1835 feet (0-560 meters). Blooms Apr-Oct.	Not Expected	No suitable chenopod scrub, or meadows and seeps present within the BSA. Marginally grassland habitat and seasonal wetlands are present. Three CNDDB occurrences have been recorded within 10 miles of the BSA with the closest occurrence approximately 4.6 miles southwest of the site. All CNDDB occurrences are historical (1892, 1994, and 2003; CDFW 2025). No iNaturalist occurrences were recorded within 10 miles of the BSA (iNaturalist 2025). This species was not observed during the 2023 rare plant survey.
Atriplex depressa brittlescale	None/None G2/S2 1B.2	Annual herb. Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools, wetlands. Alkaline, clay soils. Elevations: 5-1050 feet (1-320 meters). Blooms Apr-Oct.	Not Expected	No suitable chenopod scrub, or meadows and seeps present on site. Marginally suitable grassland habitat and seasonal wetlands are present within the BSA. Two CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 7.8 miles south. Both CNDDB occurrences are historical (2002 and 1986; CDFW 2025). Jepson records approximately 8.3 miles southwest of site (Jepson eFlora 2025). No iNaturalist occurrences were recorded within 10 miles of the BSA (iNaturalist 2025). This species was not observed during the 2023 rare plant survey.
Atriplex persistens vernal pool smallscale	None/None G2/S2 1B.2	Annual herb. Vernal pools, wetlands. Alkaline vernal pools, clay loam soils. Elevations: 35-375 feet (10-115 meters). Blooms Jun-Oct.	Not Expected	No suitable alkaline vernal pool habitat is present; however, seasonal wetlands and clay loam soils are present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). Jepson records approximately 9.8 miles southeast of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Centromadia parryi ssp. *parryi* pappose tarplant	None/None G3T2/S2 1B.2	Annual herb. Chaparral, coastal prairie, marshes and swamps, meadows and seeps, seasonal wetlands, valley and foothill grassland. Alkaline (often). Elevations: 0-1380 feet (0-420 meters). Blooms May-Nov.	Not Expected	Marginally suitable grassland habitat and seasonal wetlands are present. There are four CNDDB occurrences within 10 miles of the BSA with the closest occurrence is approximately 6.3 miles southeast (CDFW 2025). Jepson records approximately 6.6 miles south of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Chloropyron molle ssp. *hispidum* hispid salty bird's-beak	None/None G2T1/S1 1B.1	Annual herb (hemi-parasitic). Meadows and seeps, playas, vernal pools, valley and foothill grassland. Alkaline. Elevations: 5-510 feet (1-155 meters). Blooms Jun-Sep.	Not Expected	While grassland habitat is present, suitable meadows and seeps, playas, vernal pools, and alkaline habitats are not present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Cicuta maculata var. *bolanderi* Bolander's water-hemlock	None/None G5T4T5/S2? 2B.1	Perennial herb. Marshes and swamps. In fresh or brackish water. Elevations: 0-655 feet (0-200 meters). Blooms Jul-Sep.	Not Expected	No suitable marsh or swamp habitat is present within the site. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Delphinium recurvatum recurved larkspur	None/None G2?/S2 1B.2	Perennial herb. Chenopod scrub, cismontane woodland, valley and foothill grassland. Alkaline. Elevations: 10-2590 feet (3-790 meters). Blooms Mar-Jun.	Not Expected	While grassland habitat is present in the BSA, chenopod scrub, cismontane woodland habitats, and alkaline conditions are not present. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 2.3 miles west (CDFW 2025). Three Jepson records exist within 3 miles of the BSA (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Downingia pusilla dwarf downingia	None/None GU/S2 2B.2	Annual herb. Valley and foothill grassland, vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. Elevations: 5-1460 feet (1-445 meters). Blooms Mar-May.	Not Expected	While grassland habitat is present in the BSA, vernal pools or vernal lakes are not present. Fourteen CNDDB occurrences have been recorded within 10 miles of the BSA with the closest occurrence approximately 1.3 miles west of the site. This record is historical (1998; CDFW 2025). This species was not observed during the 2023 rare plant survey.
Extriplex joaquinana San Joaquin spearscale	None/None G2/S2 1B.2	Annual herb. Chenopod scrub, meadows and seeps, playas, valley and foothill grassland. In seasonal alkali wetlands or alkali sink scrub with Distichlis spicata, Frankenia, etc. Elevations: 5-2740 feet (1-835 meters). Blooms Apr-Oct.	Not Expected	While grassland habitat is present, chenopod scrub, meadows and seeps, playas and alkaline habitat is not present. Three CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 4.6 miles southwest of the site. This occurrence is historical (1891; CDFW 2025). This species was not observed during the 2023 rare plant survey.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Biological Study Area	Habitat Suitability/Observations
Fritillaria liliacea fragrant fritillary	None/None G2/S2 1B.2	Perennial bulbiferous herb. Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Often on serpentine; various soils reported though usually on clay, in grassland. Elevations: 10-1345 feet (3-410 meters). Blooms Feb-Apr.	Not Expected	While grassland habitat is present, serpentine soils, cismontane woodland, coastal prairie, and coastal prairie habitats are not present. There are no CNDDB occurrences within 10 miles of the BSA (CDFW 2025). Jepson records approximately 10 miles southeast (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Fritillaria pluriflora adobe-lily	None/None G2G3/S2S3 1B.2	Perennial bulbiferous herb. Chaparral, cismontane woodland, valley and foothill grassland. Usually on clay soils; sometimes serpentine. Elevations: 195-2315 feet (60-705 meters). Blooms Feb-Apr.	Not Expected	The BSA is outside the elevation range of the species. There are no CNDDB occurrences within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Gratiola heterosepala Boggs Lake hedge-hyssop	None/SE G2/S2 1B.2	Annual herb. Marshes and swamps, vernal pools. Clay soils; usually in vernal pools, sometimes on lake margins. 4-. Elevations: 35-7790 feet (10-2375 meters). Blooms Apr-Aug.	Not Expected	Marshes, swamps, and vernal pool habitat is not present. There are two CNDDB occurrences within 10 miles of the BSA, with the closest occurrence recorded approximately 8.4 miles southwest. This record is historical (1991; CDFW 2025). Jepson records approximately 10 miles southeast of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Hesperolinon breweri Brewer's western flax	None/None G2/S2 1B.2	Annual herb. Chaparral, cismontane woodland, valley and foothill grassland. Often in rocky serpentine soil in serpentine chaparral and serpentine grassland. Elevations: 100-3100 feet (30-945 meters). Blooms May-Jul.	Not Expected	No chapparal or cismontane woodlands are present. Serpentine soil and habitat is not present. Two CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 6.75 miles west (CDFW 2025). This record is historical (1892). Jepson records approximately 5.4 miles southwest of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Hibiscus lasiocarpos var. *occidentalis* woolly rose-mallow	None/None G5T3/S3 1B.2	Perennial rhizomatous herb (emergent). Marshes and swamps. Moist, freshwater-soaked river banks and low peat islands in sloughs; can also occur on riprap and levees. In California, known from the delta watershed. Elevations: 0-395 feet (0-120 meters). Blooms Jun-Sep.	Not Expected	No freshwater marsh or swamp habitat is present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Isocoma arguta Carquinez goldenbush	None/None G1/S1 1B.1	Perennial shrub. Valley and foothill grassland. Alkaline soils, flats, lower hills. On low benches near drainages and on tops and sides of mounds in swale habitat. Elevations: 5-65 feet (1-20 meters). Blooms Aug-Dec.	Not Expected	While grassland habitat is present, no suitable alkaline habitat is present. Three CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 6.9 miles southeast. This occurrence is historical (1959; CDFW 2025). Jepson records approximately 5.5 miles east of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Lasthenia chrysantha alkali-sink goldfields	None/None G2/S2 1B.1	Annual herb. Vernal pools. Alkaline. Elevations: 0-655 feet (0-200 meters). Blooms Feb-Apr.	Not Expected	No vernal pool or alkaline habitat is present. One CNDDB occurrence is recorded within 10 miles of the BSA, approximately 9.6 miles southeast. This occurrence date is unknown (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Lasthenia conjugens Contra Costa goldfields	FE/None G1/S1 1B.1	Annual herb. Cismontane woodland, playas, valley and foothill grassland, vernal pools. Vernal pools, swales, low depressions, in open grassy areas. Elevations: 0-1540 feet (0-470 meters). Blooms Mar-Jun.	Not Expected	Grassland habitat and seasonal wetland depressions occur in the BSA and may provide suitable habitat. Fifty CNDDB occurrences are recorded within 10 miles of the BSA, with the closest occurrence approximately 4.6 miles southwest. This record is historical (1918). Additionally, there is designated critical habitat for the species 5.2 miles south of the site (CDFW 2025). This species, however, was not observed during the 2023 rare plant survey.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	None/None G4T2/S2 1B.1	Annual herb. Marshes and swamps, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-. Elevations: 5-4005 feet (1-1220 meters). Blooms Feb-Jun.	Not Expected	No suitable marsh or swamp habitat or alkaline soils are present. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 9.6 miles south (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Lathyrus jepsonii var. *jepsonii* Delta tule pea	None/None G5T2/S2 1B.2	Perennial herb. Marshes and swamps. In freshwater and brackish marshes. Often found with *Typha*, *Aster lentus*, *Rosa californica*, *Juncus* spp., *Scirpus*, etc. Usually on marsh and slough edges. Elevations: 0-15 feet (0-5 meters). Blooms May-Jul (Aug-Sep).	Not Expected	No suitable marsh habitat is present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Layia septentrionalis Colusa layia	None/None G2/S2 1B.2	Annual herb. Chaparral, cismontane woodland, valley and foothill grassland. Scattered colonies in fields and grassy slopes in sandy or serpentine soil. Elevations: 330-3595 feet (100-1095 meters). Blooms Apr-May.	Not Expected	The BSA is outside the elevation range of the species. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Legenere limosa legenere	None/None G2/S2 1B.1	Annual herb. Vernal pools. In beds of vernal pools. 1-. Elevations: 5-2885 feet (1-880 meters). Blooms Apr-Jun.	Not Expected	No suitable vernal pool habitat present. Three CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 2.4 miles southeast. This occurrence is historical (1909; CDFW 2025). This species was not observed during the 2023 rare plant survey.
Lepidium latipes var. *heckardii* Heckard's pepper-grass	None/None G4T1/S1 1B.2	Annual herb. Valley and foothill grassland. Grassland, and sometimes vernal pool edges. Alkaline soils. Elevations: 5-655 feet (2-200 meters). Blooms Mar-May.	Not Expected	While grassland habitat is present, vernal pools and alkaline soil are not present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Biological Study Area	Habitat Suitability/Observations
Leptosiphon jepsonii Jepson's leptosiphon	None/None G2G3/S2S3 1B.2	Annual herb. Chaparral, cismontane woodland, valley and foothill grassland. Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. Elevations: 330-1640 feet (100-500 meters). Blooms Mar-May.	Not Expected	The BSA is outside the elevation range of the species and volcanic and serpentine substrates are absent. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 9.9 miles southeast. This occurrence is historical (1991, CDFW 2025). This species was not observed during the 2023 rare plant survey.
Lilaeopsis masonii Mason's lilaeopsis	None/SR G2/S2 1B.1	Perennial rhizomatous herb. Marshes and swamps, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. In brackish or freshwater. Elevations: 0-35 feet (0-10 meters). Blooms Apr-Nov.	Not Expected	No suitable marsh and swamp habitat within the tidal zone or exhibiting silty soils is present on site. No CNDDB occurrences recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Limosella australis Delta mudwort	None/None G4G5/S2 2B.1	Perennial stoloniferous herb. Marshes and swamps, riparian scrub. Usually on mud banks of the Delta in marshy or scrubby riparian associations; often with *Lilaeopsis masonii*. Elevations: 0-10 feet (0-3 meters). Blooms May-Aug.	Not Expected	No suitable marsh, swamp, or riparian scrub habitat is present within the site. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). Jepson records approximately 10 miles southeast of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	None/None G4T2/S2 1B.1	Annual herb. Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Vernal pools and swales; adobe or alkaline soils. Elevations: 15-5710 feet (5-1740 meters). Blooms Apr-Jul.	Low Potential	Grassland habitat is present within the BSA; however, alkaline or adobe soils, cismontane woodland, lower montane coniferous forest, meadows and seeps and vernal pools are not present. Eleven CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 0.75 mile southwest (CDFW 2025). iNaturalist has multiple recorded occurrences within 10 miles of the BSA, with the closest occurrence along Quinn Road just south of the Vaca-Dixon substation, though this record has not been confirmed (2018; iNaturalist 2025). This species was not observed within the northern BSA during the 2023 rare plant survey. Due to the proximity of the previously documented occurrence, it was determined that this species has a low potential for occurrence.
Neostapfia colusana Colusa grass	FT/SE G1/S1 1B.1	Annual herb. Vernal pools. Usually in the bottoms of large, or deep vernal pools; adobe soils. Elevations: 15-655 feet (5-200 meters). Blooms May-Aug.	Not Expected	No vernal pool habitat or adobe soils are present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). Jepson records approximately 10 miles southeast of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Orcuttia inaequalis San Joaquin Valley Orcutt grass	FT/SE G1/S1 1B.1	Annual herb. Vernal pools. Elevations: 35-2475 feet (10-755 meters). Blooms Apr-Sep.	Not Expected	No suitable vernal pool habitat present. Species is primarily documented in the San Joaquin region which is outside this Project Area region. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 9.1 miles south (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Plagiobothrys hystriculus bearded popcornflower	None/None G2/S2 1B.1	Annual herb. Valley and foothill grassland, vernal pools. Wet sites. Elevations: 0-900 feet (0-274 meters). Blooms Apr-May.	Low Potential	Grassland habitat is present within the northern BSA. Ten CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 1.5 miles northwest (CDFW 2025). This species was not observed during the 2023 rare plant survey. However, due to the proximity of the previously documented occurrence, the species may have a low potential for occurrence in the BSA.
Puccinellia simplex California alkali grass	None/None G2/S2 1B.2	Annual herb. Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools. Alkaline, vernally mesic. Sinks, flats, and lake margins. Elevations: 5-3050 feet (2-930 meters). Blooms Mar-May.	Not Expected	While grassland habitat is present, no suitable alkaline habitat is present within the site. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 9.4 miles southeast. This occurrence is historical (1963; CDFW 2025). This species was not observed during the 2023 rare plant survey.
Sidalcea keckii Keck's checkerbloom	FE/None G2/S2 1B.1	Annual herb. Cismontane woodland, valley and foothill grassland. Grassy slopes in blue oak woodland. On serpentine-derived, clay soils, at least sometimes. Elevations: 245-2135 feet (75-650 meters). Blooms Apr-May.	Not Expected	The BSA is outside the elevation range of the species. Four CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 2.8 miles north (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Spergularia macrotheca var. *longistyla* long-styled sand-spurrey	None/None G5T2/S2 1B.2	Perennial herb. Marshes and swamps, meadows and seeps. Alkaline. Elevations: 0-835 feet (0-255 meters). Blooms Feb-May.	Not Expected	No marshes, swamps, meadows, or seeps occur in the BSA. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Stuckenia filiformis ssp. *alpina* northern slender pondweed	None/None G5T5/S2S3 2B.2	Perennial rhizomatous herb (aquatic). Marshes and swamps. Shallow, clear water of lakes and drainage channels. Elevations: 985-7055 feet (300-2150 meters). Blooms May-Jul.	Not Expected	No suitable marsh and swamp habitat present within the site and the BSA is outside the elevation range of the species. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). Jepson records approximately 10 miles southeast of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Symphyotrichum lentum Suisun Marsh aster	None/None G2/S2 1B.2	Perennial rhizomatous herb. Marshes, swamps and wetlands. Most often seen along sloughs with *Phragmites*, *Scirpus*, blackberry, *Typha*, etc. Elevations: 0-10 feet (0-3 meters). Blooms May-Nov.	Not Expected	No marshes, swamps, meadows, or seeps occur in the BSA. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 8.5 miles south. This occurrence is historical (1920; CDFW 2025). This species was not observed during the 2023 rare plant survey.
Trifolium amoenum two-fork clover	FE/None G1/S1 1B.1	Annual herb. Coastal bluff scrub, valley and foothill grassland. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. Elevations: 15-1360 feet (5-415 meters). Blooms Apr-Jun.	Not Expected	While grassland habitat is present, serpentine soil and coastal bluff scrub are not present. Three CNDDB occurrences have been recorded within 10 miles, with the closest occurrence approximately 3.3 miles southeast of the BSA. This occurrence is historical (1909; CDFW 2025). This species was not observed during the 2023 rare plant survey.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Biological Study Area	Habitat Suitability/Observations
Trifolium hydrophilum saline clover	None/None G2/S2 1B.2	Annual herb. Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. Elevations: 0-985 feet (0-300 meters). Blooms Apr-Jun.	Not Expected	No suitable marsh, swamp, vernal pool, or alkaline habitat are present. Eight CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 6.6 miles southwest. This record is historical (1960; CDFW 2025). Jepson records approximately 8 miles southeast of site (Jepson eFlora 2025). This species was not observed during the 2023 rare plant survey.
Tuctoria mucronata Crampton's tuctoria or Solano grass	FE/SE G1/S1 1B.1	Annual herb. Valley and foothill grassland, vernal pools. Clay bottoms of drying vernal pools and lakes in valley grassland. Elevations: 15-35 feet (5-10 meters). Blooms Apr-Aug.	Not Expected	While grassland habitat is present, vernal pools are present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). Jepson records approximately 10 miles southeast of site (Jepson eFlora 2024). This species was not observed during the 2023 rare plant survey.
Viburnum ellipticum oval-leaved viburnum	None/None G4G5/S3 2B.3	Perennial deciduous shrub. Chaparral, cismontane woodland, lower montane coniferous forest. Elevations: 705-4595 feet (215-1400 meters). Blooms May-Jun.	Not Expected	The BSA is outside the elevation range of the species. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 9.1 miles southwest (CDFW 2025). This species was not observed during the 2023 rare plant survey.
Animals				
Invertebrates				
Andrena blennospermatis Blennosperma vernal pool andrenid bee	None/None G2/S1	This bee is oligolectic on vernal pool Blennosperma. Bees nest in the uplands around vernal pools.	Not Expected	No suitable vernal pool habitat present. Two CNDDB occurrences have been recorded within 10-miles of the BSA, with the closest occurrence approximately 7.5 miles southeast. This occurrence is historical (1900s [exact year unknown], CDFW 2025).
Bombus crotchii Crotch's bumble bee	None/SCE G2/S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Habitats include open grassland, shrublands, chaparral, desert margins, including Joshua tree and creosote scrub, and semi-urban settings. Food plant genera include *Antirrhinum*, *Amsinckia, Phacelia, Clarkia, Carduus, Dendromecon*, *Eschscholzia*, *Eriogonum,* and *Vicia*.	Low Potential (Northern BSA); Not Expected (Southern BSA)	Grassland habitat, small mammal burrows, and food genera associated with this species are present within the BSA. Two CNDDB occurrences were recorded within 10 miles of the BSA, approximately 6.2 miles southwest (CDFW 2025). Additionally, the California Bumble Bee Atlas database documents three observations approximately 9 miles south of the BSA, with the most recent occurrence in 2023 (Xerces Society 2025). This species was not observed during the 2025 focused surveys in the southern BSA.
Bombus occidentalis western bumble bee	None/SCE G3/S1	Once common and widespread, this species has declined precipitously from central CA to southern B.C., perhaps from disease. Limited information regarding habitat requirements is known or available on this species; however, it is a known pollinator of a variety of blooming plants.	Not Expected	Two CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest approximately 3.5 miles southwest. This occurrence is historical (1913; CDFW 2025). Additionally, the California Bumble Bee Atlas database documents no active bumble bee occurrences within 80 miles of the BSA (Xerces Society 2025).
Bombus pensylvanicus American bumble bee	None/None G3G4/S2	Long-tongued; forages on a wide variety of flowers including vetches (Vicia), clovers (Trifolium), thistles (Cirsium), sunflowers (Helianthus), etc. Nests above ground under long grass or underground. Queens overwinter in rotten wood or underground.	Not Expected	Five CNDDB occurrences have been recorded within 10-miles of the BSA, with the closest occurrence approximately 5-miles southwest. This occurrence is historical (1992, CDFW 2025). The California Bumble Bee Atlas database documents no active American bumble bee occurrences outside of the Los Angeles area (Xerces Society 2025).
Branchinecta conservatio Conservancy fairy shrimp	FE/None G2/S2	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	Not Expected	Suitable habitat of astatic pools is not present. Several CNDDB occurrences have been recorded within 10 miles of the BSA and there is critical habitat for the species 9.4 miles south of the site (CDFW 2025). Jepson prairie population of Conservancy fairy shrimp is fragmented from the Project area by development and agricultural cultivation.
Branchinecta lynchi vernal pool fairy shrimp	FT/None G3/S3	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	High Potential (northern BSA); Not Expected (southern BSA)	Grasslands with seasonal wetland depressions are present within the northern BSA. Several CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence in the immediate vicinity of the site. Additionally, there is designated critical habitat for the species 6 miles south of the site (CDFW 2025). Wet and dry-season sampling protocols yielded cysts belonging to the *Branchinecta* genus within the northern BSA. None of the cysts could be identified at the species level (Helm Biological Consulting 2024a and 2024b). Low quality suitable habitat was identified in the southern BSA in 2025 during a habitat assessment conducted by Helm Biological Consulting (Helm Biological Consulting 2025), though dry-season sampling efforts completed in September 2025 yielded negative results. Due to the proximity of previously documented occurrences, potentially suitable habitat occurring within the northern BSA, and communications with the USFWS, this species was determined to have a high potential to occur in the northern BSA and is not expected to occur within the southern BSA.
Branchinecta mesovallensis midvalley fairy shrimp	None/None G2/S2S3	Vernal pools in the Central Valley.	Not Expected	No suitable vernal pool habitat present. Ten CNDDB occurrences have been recorded within 10-miles of the BSA, with the closest occurrence approximately 5.5-miles southeast. This occurrence is historical (1994, CDFW 2025). This species was not observed during the wet- and dry-season large branchiopod surveys that were conducted within the BSA.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Biological Study Area	Habitat Suitability/Observations
Danaus plexippus monarch	FPT/None G4T1T2Q/S2	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	Low Potential	A small patch of milkweed was observed in the western central portion of the site. No roost habitat present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). The species may be present temporarily for foraging; however, due to the lack of overwintering roost habitat within the BSA, and lack of reported occurrences in the vicinity, this species was determined to have a low potential to occur for foraging only.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/None G3T3/S3	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	Not Expected	Blue elderberry is not present on site. Seven CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence 5.3 miles southwest (CDFW 2025).
Elaphrus viridis Delta green ground beetle	FT/None G1/S1	Restricted to the margins of vernal pools in the grassland area between Jepson Prairie and Travis AFB. Prefers the sandy mud substrate where it slopes gently into the water, with low-growing vegetation, 25-100% cover.	Not Expected	No suitable vernal pool habitat present. Several CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 8 miles southeast. Additionally, there is designated critical habitat for the species 8.6 miles southeast of the site (CDFW 2025).
Gonidea angulata western ridged mussel	None/None G3/S2	Primarily creeks and rivers and less often lakes. Originally in most of state, now extirpated from Central and Southern California.	Not Expected	One CNDDB occurrence has been recorded within 10-miles of the BSA, approximately 9 miles northwest (2009, CDFW 2025).
*Hydrochara ricksecker*i Ricksecker's water scavenger beetle	None/None G2?/S2?	Aquatic. Other habitat requirements unknown.	Not Expected	Three CNDDB occurrences have been recorded within 10-miles of the BSA, with the closest occurrence approximately 8.5 miles southeast. This occurrence is historical (2005, CDFW 2025).
Lepidurus packardi vernal pool tadpole shrimp	FE/None G3/S3	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Not Expected	Suitable grassland and seasonal wetlands are present within the BSA; however, vernal pools are not present. Several CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest approximately 2.6 miles southwest. This record is historical (1995). A more recent occurrence (2017) was recorded with iNaturalist as occurring approximately 1.0 mile from the BSA . Additionally, there is designated critical habitat for the species 6 miles south of the BSA (CDFW 2025). Wet-season protocol-level large branchiopod surveys were completed in 2023/2024 in which no *Lepidurus* species were identified. Dry-season sampling yielded cysts belonging to the *Branchinecta* genus, and no *Lepidurus* species (Helm Biological Consulting 2024a and 2024b). Due to the negative findings of the species during protocol wet and dry-season sampling the species is not expected to occur.
Linderiella occidentalis California linderiella	None/None G2G3/S2S3	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and total dissolved solids.	Not Expected	Suitable undisturbed seasonal pools are not present. Ten CNDDB occurrences have been recorded within 10-miles of the BSA, with the most recent occurrence approximately 6.4 miles east (2003, CDFW 2025). All occurrences are historical.
Saldula usingeri Wilbur Springs shorebug	None/None G2/S2	Requires springs/creeks with high concentrations of Na, Cl, and Li. Found only on wet substrate of spring outflows.	Not Expected	Suitable springs and creeks are not present. One CNDDB occurrence has been recorded within 10-miles of the BSA, approximately 9.5 miles southwest ([year unknown], CDFW 2025).
Amphibians				
Ambystoma californiense pop. 1 California tiger salamander - Central California DPS	FT/ST G2G3T3/S3 WL	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Not Expected	Suitable seasonal wetlands that maintain a 12-week hydroperiod are not present within the northern BSA. The southern BSA is highly disturbed by human activity as it is predominantly active agriculture. Additionally, significant movement barriers are present within and around the BSA. Several CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 6.2 miles south, south of Interstate 80. This occurrence is historical (1991). Additionally, there is designated critical habitat for the species 8.6 miles southeast of the site (CDFW 2025).
Rana boylii pop. 1 foothill yellow-legged frog - north coast DPS	None/None G3T4/S4 SSC	Northern Coast Ranges north of San Francisco Bay Estuary, Klamath Mountains, and Cascade Range, including watershed subbasins (HU 8) Lower Pit, Battle Creek, Thomes Creek, and Big Chico Creek in Lassen, Shasta, Tehama, and Butte Counties. Partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.	Not Expected	No suitable rocky-substrate stream habitat is present and the seasonal wetlands on site do not hold water long enough to support this species. Six CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 3.4 miles south. This occurrence is historical (1912; CDFW 2025).
Spea hammondii western spadefoot	FPT/None G2G3/S3S4 SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not Expected	Marginally suitable grassland habitat present, though no vernal pool habitat is present. Though seasonal wetlands are present, these features do not hold water long enough to support this species. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025).

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Biological Study Area	Habitat Suitability/Observations
Reptiles				
Actinemys marmorata northwestern pond turtle	FPT/None G2/SNR SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying. Occurs in northern California, south along the Sierra Nevada Mountains and the Coast Range down to Monterey and Kern Counties.	Not Expected	Suitable aquatic and nesting habitat is not present within the Project area. Though there are irrigation ditches within the BSA, only Agricultural Ditch 1 holds water regularly but does not contain any aquatic vegetation for basking. Additionally, nearby grassy open fields within and in the vicinity of the BSA are heavily disturbed by agricultural activities, and would likely deter this species from laying eggs in the BSA. Twenty CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest approximately 1.1 miles southwest (CDFW 2025).
Thamnophis gigas giant gartersnake	FT/ST G2/S2	Prefers freshwater marsh and low gradient streams. Adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	Not Expected	No freshwater marshes or low gradient stream habitat are present within the Project area. Though irrigation ditches are present outside of the Project area, only Agricultural Ditch 1 would provide the aquatic habitat needed for this species. No CNDDB occurrence have been recorded within 10 miles of the BSA (CDFW 2025). The closest iNaturalist occurrence was recorded approximately 9 miles northeast of the BSA in 2004 (iNaturalist 2025).
Birds				
Agelaius tricolor tricolored blackbird	None/ST G1G2/S2 SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Low Potential (foraging); Not Expected (nesting)	Open water and foraging habitat present, though no nesting substrate is present within the BSA. Nine CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 5.5 miles southeast (CDFW 2025). The species was determined to have a low potential to occur in the BSA for foraging; however, nesting habitat for the species is absent.
Ammodramus savannarum grasshopper sparrow	None/None G5/S3 SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Not Expected	Marginally suitable grassland habitat is present, yet the grassland on site is mostly non-native and is highly disturbed. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 6.4 miles southeast (CDFW 2025). Additionally, the species has not been documented in eBird (2025) within 10 miles of the BSA since 2018.
Athene cunicularia burrowing owl	None/None G4/S2 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low Potential (foraging, nesting)	Suitable dry perennial grasslands are present, yet there are few suitable small mammal burrows present. Several CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest approximately 1.4 miles southwest (CDFW 2025). This site does contain marginally suitable habitat for burrowing owls after mowing events when the grass is much shorter (i.e., 2-3 inches tall). Some small mammal burrows were observed on site, but are not of sufficient size for burrowing owl and no sign was observed. Therefore, this species was determined to have a low potential to occur within the BSA. This species was not observed during the 2025 focused surveys.
Ardea alba great egret	None/None G5/S4	Colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	Not Expected	Irrigated pastures are present within the agricultural fields south of the BSA, though no suitable foraging habitat or nesting trees are present within the BSA. This species may transient the area, but is not expected to forage or nest within the BSA. One CNDDB occurrence has been recorded within 10-miles of the BSA, approximately 9.1 miles southeast. This occurrence is historical (1990, CDFW 2025). Several iNaturalist occurrences have been recorded 1.5 miles southwest of the BSA, primarily along a marsh south of Vaca Valley Parkway (iNaturalist 2025).
Buteo swainsoni Swainson's hawk	None/ST G5/S4	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Present (foraging); Low Potential (nesting)	Suitable scattered trees within the survey buffer are present. Foraging habitat is present within the northern BSA, is minimal in the eastern portion of the southern BSA outside the limits of disturbance, and in the immediate vicinity of the site. Several CNDDB nest occurrences have been recorded within 10 miles of the BSA, with the closest occurrence approximately 0.25 mile west of the site (CDFW 2025). This species was observed flying overhead during multiple field surveys.
Charadrius montanus mountain plover	None/None G3/S2 SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Not Expected	Grassland habitat occurs in the BSA; however, the site does not provide optimal foraging or nesting habitat. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025). Additionally, no documented occurrences of the species were documented with eBird (2025) within 10 miles of the BSA.
Circus hudsonius northern harrier	None/None G5/S3 SSC	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on the ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Moderate Potential (Foraging); Not Expected (Nesting)	No salt and freshwater marsh habitat present; however, grassland habitat is present. Two CNDDB occurrences were recorded within 10 miles of the BSA, with the closest occurrence approximately 4.8 miles south (CDFW 2025). The species was not observed during field visits to the BSA. However, several occurrences of the species were documented in eBird (2025) within the nearby vicinity of the BSA. It was determined that the species has a moderate potential for foraging in the norther BSA and no potential for nesting.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Biological Study Area	Habitat Suitability/Observations
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Not Expected	No riparian forest habitat is present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025).
Elanus leucurus white-tailed kite	None/None G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Moderate Potential (Foraging); Not Expected (Nesting)	Open grassland habitat is present for foraging with suitable nesting trees within 0.5 mile of site. Five CNDDB occurrences have been recorded within 10 miles of the BSA, with the closest approximately 0.85 mile south. This occurrence is historical (2001; CDFW 2025). The species was not observed during field visits to the BSA. However, several occurrences of the species were documented in eBird (2025) within the nearby vicinity of the BSA. It was determined that the species has a moderate potential for foraging in the BSA and no potential for nesting.
Falco peregrinus anatum American peregrine falcon	FD/SD G4T4/S3S4	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Not Expected	Though marginally suitable man-made structures and some aquatic habitat is present within the BSA, this species is only likely to transient the area if at all. One CNDDB occurrence has been recorded within 10 miles of the BSA, approximately 8 miles northwest. This occurrence is historical (1999; CDFW 2025). Few occurrences of the species were documented in eBird (2025) within the nearby vicinity of the BSA in 2023 or earlier. Suitable foraging and nesting habitat are absent in the BSA and therefore determined as not expected to occur.
Haliaeetus leucocephalus bald eagle	FD/SE G5/S3 FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Not Expected	No suitable large, old-growth, or dominant live trees with open branches present. Gibson Canyon Creek is present within the site; however, the creek is concrete-lined and does not provide suitable aquatic habitat for this species. One CNDDB occurrence has been recorded within 10 miles of the BSA, approximately 9.4 miles south (CDFW 2025).
Icteria virens yellow-breasted chat	None/None G5/S4 SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Not Expected	No riparian thickets habitat present. One CNDDB occurrence has been recorded within 10 miles of the BSA, approximately 8.4 miles northwest. This occurrence is historical (1987, CDFW 2025).
Laterallus jamaicensis coturniculus California black rail	None/ST G3T1/S2 FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not Expected	No freshwater marsh, wet meadow, or saltwater marsh habitat present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025).
Mammals				
Antrozous pallidus pallid bat	None/None G4/S3 SSC	Found in a variety of habitats, including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not Expected	No suitable deserts, shrublands, woodlands, forests or roosting habitat is present. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025).
Corynorhinus townsendii Townsend's big-eared bat	None/None G4/S2 SSC	Occurs throughout California in a wide variety of habitats. Most common in mesic sites, typically coniferous or deciduous forests. Roosts in the open, hanging from walls, ceilings in caves, lava tubes, bridges, and buildings. This species is extremely sensitive to human disturbance.	Not Expected	No suitable roosting habitat present in the BSA. No CNDDB occurrences have been recorded within 10 miles of the BSA (CDFW 2025).
Lasiurus frantzii western red bat	None/None G4/S3 SSC	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Not Expected	No suitable roosting habitat present in the BSA. One CNDDB occurrence was recorded within 10 miles of the BSA, approximately 8.4 miles north (CDFW 2025).
Myotis yumanensis Yuma myotis	None/None G5/S4	Occurs in a variety of lowland and upland habitats including desert scrub, riparian, and woodlands and forests. Distribution is closely tied to bodies of water. Roosts in a variety of areas including caves, cliffs, mines, crevices in live trees, and buildings and other man-made structures.	Not Expected	No suitable desert scrub, riparian, or woodland forest habitat are present. Roosting habitat is also not present. One CNDDB occurrence has been recorded within 10-miles of the BSA, approximately XX miles X. This occurrence is historical (CDFW 2025). No iNaturalist occurrences have been recorded within 10-miles of the BSA (iNaturalist 2025).
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not Expected	Grassland habitat and burrows of small rodents are present within the BSA; however, no large burrows or evidence of badger was observed in the BSA. Two CNDDB occurrences were recorded within 10 miles of the BSA, with the closest occurrence approximately 2.8 miles southwest (CDFW 2025). Due to the significant Interstate 80 barrier to the south of the BSA, this reduces the likelihood for potential occurrence of the species in the BSA. Additionally, due to the lack of evidence of badger during site visits, such as excavated burrows, claw marks, scat or tracks, the species is not expected to occur on site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Biological Study Area	Habitat Suitability/Observations
Sorex ornatus sinuosus Suisun shrew	None/None G5T1T2Q/S1S2 SSC	Tidal marshes of the northern shores of San Pablo and Suisun bays. Require dense low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging.	Not Expected	No suitable tidal marsh habitat is present. No CNDDB occurrences were recorded within 10 miles of the BSA (CDFW 2025).

Regional Vicinity refers to within a 9 quad search radius of proposed Project area.

Status (Federal/State)

FE = Federal Endangered
FT = Federal Threatened
FPE =Federal Proposed Endangered
FPT =Federal Proposed Threatened
FD =Federal Delisted
FC =Federal Candidate
SE =State Endangered
ST =State Threatened
SCE =State Candidate Endangered
SCT =State Candidate Threatened
SSC =CDFW Species of Special Concern
FP =CDFW Fully Protected

CRPR (CNPS California Rare Plant Rank)

1A =Presumed extirpated in California, and rare or extinct elsewhere
1B =Rare, Threatened, or Endangered in California and elsewhere
2A =Presumed extirpated in California, but common elsewhere
2B =Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

.1 =Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 =Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)
.3 =Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

Other Statuses

G1 or S1Critically Imperiled Globally or Subnationally (state)
G2 or S2Imperiled Globally or Subnationally (state)
G3 or S3Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5Apparently secure, common and abundant
BSA = Biological Study Area
amsl = above mean sea level

Sources

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Appendix L

California Natural Diversity Database (CNDDB) Figure (scale 1:6,000; Confidential)

This appendix is being submitted under an application for confidentiality.

Appendix M

United States Fish and Wildlife Service Meeting Minutes

Meeting Minutes

Name of Meeting: United States Fish and Wildlife Service Pre-Coordination Meeting

Date of Meeting: September 17, 2024

Time: 2:00pm—3:00pm

Location: Virtual

Subject: Vernal Pool Fairy Shrimp on the Vaca Dixon Power Center Project

Attendees

Name	Company/Agency	Title
Megan Cook	United States Fish and Wildlife Service	Sacramento Division Supervisor
Brent Helm	Tansley	VPFS permitted biologist/subject matter expert
Jon Boyer	Middle River Power	Director, Environmental Health & Safety
Robert Ray	Patch Services	Senior Environmental Consultant
Christopher Julian	Rincon Consultants	Regulatory Specialist
Katherine Green	Rincon Consultants	Project Manager
Anastasia Ennis	Rincon Consultants	Biological Resources Lead

Agenda:

- Introductions
- Project Description Overview
- Summary of Surveys Conducted to Date
- Discussion of Permitting Pathways and USFWS Requirements
- Permitting Timeline

Key Notes

A. Surveys to Date

- Jurisdictional determination identified seasonal wetlands on the site, but no Waters of the U.S. and no USACE/federal nexus
- Wet season VPFS surveys negative but dry season surveys positive for fairy shrimp in several pools; low density cysts in soil samples but unsuccessful in hatching and identification to species
- Further surveys and hydrologic analysis could be performed in an attempt to further assess extent of fairy shrimp and project impacts including consideration of site hydrology and individual wetland resource characteristics; may not be fruitful and may be best to just assume presence

B. USFWS Input

- Despite failure to ID as VPFS, need to assume VPFS unless further data is gathered to conclusively indicate otherwise
- Need to assume that wetlands outside project footprint but within 250 feet are impacted and need to be mitigated for
- Mitigation ratio needs to be 3:1 since no USACE involvement (i.e., no 2:1 permanent and 1:1 temporary)
- Applicant may propose 2:1 preservation and 1:1 creation to cover potential need to mitigate State wetlands possibly requiring "creation" as well
- Likely will need ITP and Section 10 HCP; will need to evaluate further to determine level of HCP – i.e., whether or not a "low effect" HCP would apply (note: preliminary cultural evaluation indicates no significant impacts contributing to HCP level of analysis)
- HCP evaluation would need to include analysis of No Action at a minimum
- HCP preparation would be a collaborative effort with the USFWS
- HCP can include State listed species as well (e.g., Swainson's hawk)
- HCP timing: simultaneous with CEC process; HCP process could be as quick as 6-12 months
- Mitigation options can be identified and assessed via RIBIT system – conservation/mitigation bank credits

C. Overall Permitting Timeframe Estimate

- CEC AB 205 Application Process and follow on permitting ~17 months after filing; HCP/USFWS approvals within same overall timeframe possible

D. Action Items/Follow Up

- Megan Cook will send recommended HCP format