Appendix C6

Aquatic Resources Delineation Report - Tuolumne Facility

DRAFT

Aquatic Resources Delineation Report

Forest Resiliency Program – Tuolumne Facility

Tuolumne County, California

SEPTEMBER 2023

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	antecedent runoff condition
CDFW	California Department of Fish and Wildlife
NWW	non-wetland water
OHWM	ordinary high-water mark
PDSI	Palmer Drought Severity Index
project	Forest Resiliency Project
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers

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1 Executive Summary

The Forest Resiliency Program – Tuolumne Facility (project site), a component of the Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project), will consist of a wood pellet production facility located at the abandoned Sierra Pacific Industries (SPI) Keystone Mill, approximately 9 miles southwest of the community of Jamestown in Tuolumne County, California. The Golden State Natural Resources Forest Resiliency Demonstration Project (proposed project) is a response to the growing rate of wildfires in California, which has been exacerbated by hazardous excess fuel loads in forests, and the need to promote economic activity with California's rural counties. Golden State Finance Authority is the applicant for the proposed project.

This Aquatic Resources Delineation Report (ARDR) was prepared in accordance with the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987), the Regional Supplement to the Wetland Delineation Manual: Arid West Region (USACE 2008a), and the Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region (USACE 2008b).

Dudek conducted a field delineation on December 10, 2020 and March 31, 2023, to identify aquatic resources in the approximately 61-acre review area potentially subject to regulations in Sections 401 and 404 of the Clean Water Act, Porter–Cologne Water Quality Control Act, and Section 1602 of the California Fish and Game Code. Table 1 summarizes the delineation findings with regards to USACE jurisdiction. Potential jurisdiction of each aquatic resource is preliminary until verified by the USACE Sacramento District.

Table 1. USACE Aquatic Resources in the Review Area

Aquatic Resource	Cowardin Code[1]	Location (Latitude, Longitude)	Acres[2]	Linear Feet
Non-Wetland Waters				
Channel – Natural, Intermittent	R4	37.842638, -120.506279	0.254	1,056
Ditch – Drainage	R6	37.843176, -120.507892	0.006	40
Pond – Perennial	PAB	37.842626, -120.504203	2.191	—
		Subtotal	*2.450*	*1,095*
Wetlands				
Freshwater Emergent Wetland	PEM	37.842424, -120.503001	1.363	—
Seasonal Wetland	PEM	37.842509, -120.505623	0.082	—
Vernal Pool	PEM	37.835775, -120.502800	0.093	—
		Subtotal	*1.538*	—
		Total[3]	***3.988***	***1,095***

Source: USFWS 2023.
USACE = U.S. Army Corps of Engineers; '—' = not applicable
1 E2 = Estuarine Intertidal; PEM = palustrine, emergent; R4 = intermittent channel; R6 = ephemeral channel.
2 Acreage of the non-wetland waters extend to ordinary high-water mark.
3 Minor discrepancies in totals are the result of rounding differences between Excel and ArcMap.

A discussion of waters of the state, lake/streambed, and riparian resources potentially subject to jurisdiction by the California Department of Fish and Wildlife (CDFW) and/or Regional Water Quality Control Board (RWQCB) is provided in Sections 6.3 and 6.4.

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2 Introduction

This Aquatic Resources Delineation Report was prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017). This report and supporting appendices provide the 20 items listed in the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. This report presents the results of the jurisdictional aquatic resource delineation conducted by Dudek for the proposed Forest Resiliency Project (project) located in Tuolumne County, California. The delineation was conducted to identify and map existing aquatic resources potentially subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (33 USC 1344), waters of the state potentially subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and stream and riparian habitats potentially subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code (collectively defined as jurisdictional aquatic resources).

2.1 Disclaimer Statement

This report presents Dudek's best effort to quantify the extent of aquatic resources potentially regulated by USACE, RWQCB, and CDFW (i.e., regulatory agencies) within the identified review areas using the current regulations, written policies, and guidance from these regulatory agencies. The potential jurisdictional boundaries described in this report are subject to verification by the regulatory agencies. Only the regulatory agencies can make a final determination on whether the features present are subject to USACE, RWQCB, and/or CDFW regulation. A request for USACE Jurisdictional Determination is provided in Appendix A.

2.2 Contact Information

Contact information for the project applicant and agent are provided in Table 2. Access to the review area is not restricted, but if a site visit is requested, the project applicant or agent will accompany regulatory staff to the review area. Golden State Finance Authority is the project applicant and landowner.

Table 2. Contact Information

Project Applicant	Golden State Finance Authority	Agent	Dudek
Contact Name	Arthur J. Wylene	Contact Name	Allie Sennett
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Phone	916.447.4806	Phone	916.521.5798
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3 Review Area Description and Landscape Setting

The ±61-acre review area is located approximately 15.4 kilometers southwest of the community of Jamestown in Tuolumne County, California (Figure 1, Location). The review area consists of the abandoned Sierra Pacific Industries (SPI) Keystone Mill at 12001 La Grange Road [Assessor's Parcel Number (APN) 063-190-56] and the junction of State Route (SR) 108 and La Grange Road (Figure 2, Review Area).

The review area is situated in Township 1 South, Range 13 East, and Sections 14 and 23 of the U.S. Geological Survey (USGS) Keystone, California 7.5-minute quadrangle (USGS 2020). The approximate center of the review area corresponds to 37°50'22.44" north latitude and 120°30'17.15" west longitude. The review area is surrounded by widely scattered rural development and open space generally composed of scattered oak woodland and annual grassland.

To access the review area from Sacramento, travel south on SR-99 for approximately 46 miles. Take exit 252A to E Mariposa Road. Continue on E Mariposa Road for approximately 15 miles, then turn left onto Lone Tree Road. Continue on Lone Tree Road for two miles, then turn right onto Steinegul Road. Continue on Steinegul Road for two miles then turn left onto CA-120. Continue on CA-120/CA-108 for 21 miles then turn left onto La Grange Road. The review area will on the left site on La Grange Road in half a mile.

3.1 Geology and Topography

The review area is underlain primarily by the Jurassic Mariposa Formation, with lesser areas of Jurassic/Triassic Logtown Ridge Formation (CDMG 1972). The Mariposa Formation consists of marine sedimentary and metasedimentary rocks, including slate, tuffaceous metasandstone, metagraywacke, metaconglomerate, metasiltstone, and minor sandy metatuff. The Logtown Ridge Formation consists of metavolcanic rocks, including metamorphosed tuffaceous sediment and metachert. The metavolcanic rocks trend northwest-southeast across the central portion of the review area.

The review area is located on relatively flat to gently sloping topography. Elevations in the review area range from approximately 1,070 feet above mean sea level (AMSL) in the northwest corner of the site to 1,140 feet AMSL in the eastern portion of the site.

3.2 Soils

According to the Natural Resources Conservation Service (USDA 2022b), there are four soil types mapped in the review area: Copperopolis-Whiterock complex, 2–8% slopes, rocky; Bonanza-Loafercreek complex, 3–15% slopes; Aquic Haploxeralfs-Loafercreek-Dunstone complex, 1–12% slopes; and water (Figure 3, Soils). The Copperopolis soil series is found on hills and consists of shallow, well to somewhat excessively well drained soils formed in colluvium over residuum from metasedimentary rocks. This soil series occurs along La Grange Road in the southern portion of the parcel. The Bonanza soil series is found on summits, shoulders, and backslopes of hills and consists of shallow, well drained soils formed in residuum weathered from metavolcanic rocks. This soil series occurs throughout the majority of the central portion of the parcel. The Aquic Haploxeralfs soil series is found in depressions and drainageways and consists of moderately well drained soils. This soil series occurs to the east and

west of the pond in the northern portion of the parcel. Approximately 5% of the Copperopolis-Whiterock Complex, 2–8% slopes mapping unit is identified as hydric (USDA 2022c).

3.3 Vegetation Communities and Other Land Cover Types

The following vegetation communities and land cover types were documented within the review area and are described in further detail below: annual grassland, blue oak woodland, riparian woodland, spikerush marsh, riparian scrub, cattail marsh, and disturbed. A total of 122 species of native or naturalized plants, 67 native (55%) and 55 non-native (45%), were recorded during the delineation fieldwork (see Appendix B).

Annual grassland. Annual grassland is the dominant vegetation community present the review area. This community is generally present in undeveloped areas throughout the review area. Plant species present in this community include a mix of annual grasses and forbs, such as medusa head (*Elymus caput-medusae*), slender oat (*Avena barbata*), mouse barley (*Hordeum murinum*), rose clover (*Trifolium hirtum*), harvest brodiaea (*Brodiaea elegans*), and black mustard (*Brassica nigra*). Shrub and tree layers are sparse to absent in this vegetation community, and where present is typically limited to young blue oaks (*Quercus douglasii*).

Blue oak woodland. Blue oak woodland is located in the northwestern portion of the review area. This vegetation community has an open to intermittent tree canopy and includes shrubs and small trees. Blue oak is the dominant overstory species, with a lesser abundance of foothill pine (*Pinus sabiniana*) and Brewer spruce (*Picea breweriana*). The herbaceous layer includes a similar assemblage of plant species as in the grassland community.

Spikerush marsh. Spikerush marsh is present in the northeast corner of the review area. This vegetation community lacks a tree and shrub layer and is located near the eastern edge of a perennial pond (discussed in Section 5.1.7 below). Pale spike rush (*Eleocharis macrostachya*) is the dominant plant species, with a lesser abundance of perennial rye grass (*Festuca perennis*), annual rabbitsfoot grass (*Polypogon monspeliensis*), California horkelia (*Horkelia californica*), and rushes (*Juncus* spp.).

Riparian woodland. Riparian woodland is present along the western and southern banks of a perennial pond in the northeastern portion of the review area. This vegetation community has an intermittent to continuous tree canopy dominated by Fremont cottonwood (*Populus fremontii*), with a lesser abundance of willows (*Salix exigua, S. gooddingii,* and *S. lasiolepis*). The understory is variable, but generally includes a similar assemblage of species in the spikerush marsh and riparian scrub communities where the community abuts the pond or upland grasses and forbs where the understory is further from the pond.

Riparian scrub. Riparian scrub is present in the northeast corner of the review area. This vegetation community is located near the eastern edge of a perennial pond (discussed in Section 5.1.7 below). The tree and shrub layers are intermittent to continuous and include Himalayan blackberry (*Rubus armeniacus*), Fremont cottonwood, interior live oak (*Quercus wislizeni*), and willow (*S. exigua, S. gooddingii, S. lasiolepis*). The herbaceous layer includes a similar assemblage of plant species as in the spikerush marsh and cattail marsh communities (discussed above and below).

Cattail marsh. Cattail marsh is present in the northeast corner of the review area. This vegetation community lacks a tree and shrub layer and is located near the eastern edge of a perennial pond. Broadleaf cattail (*Typha latifolia*) is the dominant plant species present in this densely vegetated community. Other plant species found within this vegetation community include pale spikerush, rush (*Juncus* spp.), and fiddle dock (*Rumex pulcher*).

Disturbed. This land cover includes areas that have been heavily disturbed or completely altered by human activities and contain little to no vegetation. Such areas in the review area include buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other constructed environments associated with the abandoned mill.

3.4 Watershed

The review area occurs within the Upper Stanislaus River watershed, which drains approximately 250 square miles of land (Hydrological Unit Code 1804001006) (CDFW 2021a). According to the USFWS National Wetlands Inventory, there are three aquatic resources mapped on the project site: riverine (R45BA), freshwater pond (PUBHh), and freshwater forested/shrub wetland (PSSA) (USFWS 2020b) (Figure 4, Hydrologic Setting).

Surface run-off in the review area is generally directed to a drainage and freshwater pond in the northern portion of the project site and to a drainage in the southeast portion of the site. In addition, there are four detention basins constructed throughout the project site to collect and store run-off.

3.5 Review Area Alterations, Current and Past Land Use

The review area is partially developed with existing structures generally concentrated in the center of the site. Developed areas include buildings, stockpiling and staging areas, paved and gravel roadways, gravel lots, and other features associated with the abandoned mill. The site has two existing accessways: one for truck access at the southwest area of the site and one for employee access at the northwest area of the site, both from La Grange Road.

According to historic aerial photographs, the review area was undeveloped in 1945 and 1959. By 1984, when the next available aerial photograph was taken, the wood shaving plant west of the review area was developed, SR-108 was built to the north of the review area, and there is evidence of some development of the south and central portions of the review area. By 1998, the bulk of the facilities that currently exist on the site were developed.

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4 Precipitation Data and Analysis

4.1 Regional Climate

The review area is located in a semi-arid climate where annual temperatures range from 33.4°F to 94.5°F, and the average annual precipitation is 32.14 inches. On average, the months with the highest rainfall are January and February, and July has the least precipitation (WRCC 2021).

The USACE-developed Antecedent Precipitation Tool (APT) was used to assess whether the delineation date occurred in a drier, average, or wetter than normal period (USACE 2022). To determine what constitutes a "typical year," USACE developed the APT. The information generated from the APT can help to determine whether normal hydrologic and/or climatic conditions were present during the site visit and assist with completing the Wetland Determination Data Form.

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and antecedent precipitation condition. The PDSI is a standardized index calculated on a monthly basis with PDSI value outputs ranging from -4 (extreme drought) to +4 (very wet) (NOAA 2021) to assess drought conditions (i.e., PDSI Class). The APT determines wet vs. dry season based on related procedures provided in the applicable regional supplement for the review area (in this case, the Western Mountains, Valleys, and Coast Region Supplement). If the antecedent precipitation condition (APC) score is less than 10, then the antecedent precipitation condition is classified as drier than normal; normal conditions are present with an APC score of 10 to 14; conditions are wetter than normal when an APC score is greater than 14 (USACE 2020).

Table 3 summarizes the key data extrapolated from the APT output: estimated drought conditions (PDSI Class), wet or dry season determination, APC score, and antecedent precipitation condition. Based on the APT output provided in Appendix B and summarized in Table 3, the precipitation and climatic conditions for the review area were drier than normal on December 10, 2020 and wetter than normal on March 31, 2023.

Table 3. Antecedent Precipitation Tool Data for the Review Area

Main Field Survey Date	PDSI Class	Season	APC Score	Antecedent Precipitation Condition
December 10, 2020	Severe drought	Wet season	7	Drier than normal
March 31, 2023	Extreme wetness	Wet season	16	Wetter than normal

Notes: PDSI = Palmer Drought Severity Index; APC = antecedent precipitation condition

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5 Investigation Methods

The jurisdictional delineation was conducted by Dudek biologists Laura Burris and Paul Keating on December 10, 2020, and a follow-up delineation was conducted by Dudek biologists Allie Sennett and Alex Freeman on March 31, 2023. Potential aquatic resources were recorded using ESRI Field Maps on a mobile device and a Trimble® R1 Global Navigation Satellite System Receiver with submeter accuracy. Following the field work, aquatic resources were digitized using ArcGIS. Remote sensing was not used for the delineation. Photos of the review area are provided as Appendix B.

All plant species encountered were identified to the lowest taxonomic level needed to determine wetland plant indicator status. Those species that could not be immediately identified were brought into the laboratory for further investigation. Latin names follow conventions within the PLANTS Database (USDA 2023c). These resources were further referenced to identify plant taxonomic level appropriate to determine species and regulatory status, if needed. Wetland plant indicator status for each plant was determined using the National Wetland Plant List (USACE 2023c). Appendix C, Plant List, contains a complete list of plant species identified in the review area and their indicator status.

5.1 U.S. Army Corps of Engineers

The aquatic resources field delineation was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987). All figures generated for this ARDR follow the recommendations in the USACE Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (USACE 2016b). Wetlands were delineated in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008). Non-wetland waters are mapped at the OHWM based on the procedures defined in USACE's 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b). The OHWM guide addresses the underlying hydrologic and geomorphic concepts pertaining to the OHWM, and the field indicators, methods, and additional lines of evidence used to assess and delineate the OHWM. Delineation of the active channel signature (i.e., the OHWM) is based largely on identification of three primary physical or biological indicators:

- Topographic break in slope
- Change in sediment characteristics
- Change in vegetation characteristics (species or cover)

Wetland Determination Forms were completed for representative points to assess three wetland parameters— hydrophytic vegetation, hydric soils, and hydrology—and to determine the presence of a three-parameter wetland. USACE OHWM Forms were completed at representative cross-sections of non-wetland waters to capture their characteristics and widths. All data forms can be found in Appendix D.

5.2 Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) defines a waters of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050[e]). As of April 2019, the SWRCB has clarified their definition of a wetland water of the state in the State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) to include the following (SWRCB 2019):

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state,
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
    d. Greater than or equal to one acre in size unless the artificial wetland was constructed and is currently used and maintained, primarily for one or more of the following purposes: industrial or municipal wastewater treatment or disposal; settling of sediment; detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial permitting program; treatment of surface waters; agricultural crop irrigation or stock watering; fire suppression; industrial processing or cooling water; active surface mining – even if the site is managed for interim wetlands functions and values; log storage; treatment, storage, or distribution of recycled water; maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or fields flooded for rice growing.

All waters of the United States are waters of the state. Wetlands, such as isolated seasonal wetlands, that are not generally considered waters of the United States are considered waters of the state if, "under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."

Wetlands subject to RWQCB jurisdiction were delineated based on methodology described in the USACE Wetlands Delineation Manual (USACE 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a) and per the Procedures (SWRCB 2019). Non-wetland waters were mapped at the OHWM based on the procedures defined in USACE's 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

5.3 California Department of Fish and Wildlife

In Title 14 of the California Code of Regulations, Section 1.56, CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." Diversion, obstruction, or change to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or other aquatic wildlife requires authorization from CDFW by entering into an agreement pursuant to Section 1602 of the Fish and Game Code. In Title 14 of the California Code of Regulations,

Section 1.72, CDFW defines a "stream" as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

The delineation defined areas under the jurisdiction of the CDFW pursuant to Sections 1600–1603 of the California Fish and Game Code. CDFW asserts jurisdiction over rivers, streams, and lakes to the extent of the Top of Bank (TOB). The term "bank" is interpreted to encompass the physical bank of the stream that rises vertically above and horizontally away from it (Vyverberg 2010). TOB was mapped as the physical break in slope between the channel or lake and surrounding upland. Streambeds or lakes under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology).

Riparian status was determined by the USACE's National Wetland Plant List indicator of the dominant species in a community being classified as obligate, facultative wetland, or facultative (USACE 2023). In general, the change in species cover and/or composition from the surrounding upland to predominantly hydrophytic vegetation was used to determine CDFW-regulated riparian areas associated with a stream channel or lake.

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6 Aquatic Resources

6.1 Aquatic Resources Data Summary

Results from 21 representative data points and 10 transects document potentially jurisdictional aquatic resources within the review area based on observable field indicators. The data collected at each data point and transect are provided in Appendix D. Photos of the review area are included in Appendix D.

6.2 Waters of the United States (USACE)

Dudek biologists delineated approximately 2.450 acres (1,095 linear feet) of non-wetland waters and 1.538 acres of wetlands potentially subject to USACE jurisdiction (Table 4). Figure 5, Preliminary Aquatic Resources Delineation – USACE, visually depicts waters of the United States mapped within the review area.

There are 15 additional aquatic resources in the review area not anticipated to meet the criteria to be waters of the United States: three ephemeral drainages, one intermittent channel, two drainage ditches, four detention basins, one freshwater emergent wetland, and four seasonal wetlands. These are features constructed in uplands for the purpose of conveying run-off from adjacent development, a result of prior grading activities in uplands, and/or isolated from waters of the United States. These features are identified on Figure 6, Preliminary Aquatic Resources Delineation – CDFW/ RWQCB, and discussed in Section 6.3 below. Findings with regard to federal jurisdiction are preliminary until verified by the Sacramento District of the USACE.

Table 4. USACE Aquatic Resources in the Review Area

Aquatic Resource	Cowardin Code[1]	Location (Latitude, Longitude)	Acres[2]	Linear Feet
Non-Wetland Waters				
Intermittent Drainage 1	R4	37.842638, -120.506279	0.254	1,056
Drainage Ditch 3	R6	37.843176, -120.507892	0.006	40
Perennial Pond	PAB	37.842626, -120.504203	2.191	—
		Subtotal	*2.450*	*1,095*
Wetlands				
Freshwater Emergent Wetland 2	PEM	37.842424, -120.503001	1.363	—
Seasonal Wetland 1	PEM	37.842509, -120.505623	0.082	—
Vernal Pool	PEM	37.835775, -120.502800	0.093	—
		Subtotal	*1.538*	—
		Total[3]	**3.988**	***1,095***

Source: USFWS 2023.
USACE = U.S. Army Corps of Engineers; '—' = not applicable
1 E2 = Estuarine Intertidal; PEM = palustrine, emergent; R4 = intermittent channel; R6 = ephemeral channel.
2 Acreage of the non-wetland waters extend to ordinary high-water mark.
3 Minor discrepancies in totals are the result of rounding differences between Excel and ArcMap.

6.2.1 Intermittent Drainage 1

There is one intermittent drainage (ID-01) that flows through the northern extent of the review area. The drainage conveys overflow from the perennial pond to the west and outside of the review area. The OHWM of the drainage is 12-feet-wide on average and exhibits a sharp break in slope, destruction of terrestrial vegetation, vegetation matted down, bent or absent and change in vegetation. The bed of the drainage contains large cobble and boulders and significantly lower plant cover than the surrounding uplands. Dominant plant species present within and along the edge of the drainage include perennial rye grass (FAC), annual rabbitsfoot grass (FACW), and curly dock (FAC). Blue oak woodland is present along the drainage in the vicinity of La Grange Road. Flowing water was present in the drainage during the March 2023 field survey. The drainage turns into Green Spring Run west of the review area, which is tributary to Lake Tulloch, roughly 3.5 miles downstream of the review area.

6.2.2 Drainage Ditch 3

There is one drainage ditch (DIT-03) that flows through a culvert below La Grange Road just south of the Highway 120 intersection in the review area. The OHWM of the ditch is 10-feet-wide on average and exhibits a mild to moderate break in slope, vegetation matted down, bent or absent, sediment sorting, and a change in vegetation type and cover. The bed of the ditch contains gravel and large cobble, as well as rip-rap, which extends up the banks in some areas. California annual grassland and developed land cover is present beyond the banks. Flowing water was present in the ditch during the March 2023 field survey. The ditch flows into the intermittent drainage (ID-01) in the review area.

6.2.3 Perennial Pond

There is one perennial pond (P-01) located in the northern portion of the review area. The pond is an impoundment of an intermittent drainage (discussed below) and contains at least 5 feet deep of surface water. The margins of the pond support intermittent overhanging and emergent vegetation, including willows (FACW), cattails (OBL), and rushes (OBL). One freshwater emergent wetland (FEW-02) abuts the eastern edge of the pond (discussed below).

6.2.4 Freshwater Emergent Wetland 2

There is one freshwater emergent wetland within the OHWM of the perennial pond located in the northeast portion of the review area (FEW-02). The freshwater emergent wetland was discernible from the adjacent upland areas by a distinct change in vegetation. This wetland supported a dominance of hydrophytic plant species, such as perennial rye grass (*Festuca perennis*; FAC), broadleaf cattail (OBL), and rushes (OBL). FEW-02 contained surface water during the March 2023 fieldwork.

6.2.5 Seasonal Wetland 1

There is one seasonal wetland adjacent to an intermittent drainage in the northern portion of the review area (SW-01). This feature collects and holds water seasonally and is discernible from adjacent upland areas by a distinct change in vegetation. The wetland contained a dominance of hydrophytic species, including salt grass (*Distichlis spicata*; FACW) and Baltic rush (*Juncus balticus*; FACW). Hydric soils were present as indicated by thick dark surface (Hydric Soil Indicator A12). Hydric soils were indicated by redox dark surface (Hydric Soil Indicator F6). Wetland hydrology was confirmed by surface water (Hydrology Indicator A1), oxidized rhizospheres along living roots

(Hydrology Indicator C3), and/or drainage patterns (Hydrology Indicator B10). SW-01 contained surface water during the March 2023 fieldwork.

6.2.6 Vernal Pool

There is one vernal pool (VP-01) in the southeastern corner of the review area. The vernal pool receives input from a seasonal wetland swale that originates east (outside) of the review area. When the vernal pool exceeds its capacity, it overflows into an ephemeral drainage, which eventually exists the southern review area boundary. The vernal pool is discernible from adjacent upland areas by a distinct change in vegetation. The vernal pool contained a dominance of hydrophytic species, such include stalked popcornflower (*Plagiobothrys stipitatus*; FACW), Great Valley eryngo (*Eryngium castrense*; OBL), pale spike rush (OBL), and Hyssop loosestrife (*Lythrum hyssopifolia*; OBL). Hydric soils are present as indicated by redox depressions (Hydric Soil Indicator F8). Wetland hydrology was confirmed by inundation visible on aerial imagery (Hydrology Indicator B7) and oxidized rhizospheres along living roots (Hydrology Indicator C3). The vernal pool contained surface water during the March 2023 fieldwork.

6.3 Waters of the State (RWQCB)

Dudek biologists delineated approximately 2.552 acres (2,221 linear feet) of non-wetland waters and 4.411 acres of wetlands potentially subject to RWQCB jurisdiction (Table 5). Figure 6, Preliminary Aquatic Resources Delineation – RWQCB/CDFW, visually depicts waters of the state mapped within the review area.

All six features described in Section 6.2, Waters of the United States, have been identified as waters of the state. In addition, there are 15 aquatic resources identified as waters of the state: three ephemeral drainages, one intermittent channel, two drainage ditches, four detention basins, one freshwater emergent wetland, and four seasonal wetlands. These additional features are described below.

Table 5. RWQCB Aquatic Resources in the Review Area

Aquatic Resource	Location (Latitude, Longitude)	Acres[1]	Linear Feet
Non-Wetland Waters			
Ephemeral Drainage 1	37.835800, -120.503284	0.018	271
Ephemeral Drainage 2	37.840040, -120.505347	0.023	97
Ephemeral Drainage 3	37.839729, -120.505322	0.018	176
Intermittent Drainage 1	37.842638, -120.506279	0.254	1,056
Intermittent Drainage 2	37.837415, -120.503331	0.027	238
Drainage Ditch 1	37.836630, -120.504530	0.004	124
Drainage Ditch 2	37.840565, -120.504572	0.010	220
Drainage Ditch 3	37.843176, -120.507892	0.006	40
Perennial Pond	37.842626, -120.504203	2.191	—
	Subtotal	*2.552*	*2221*
Wetlands			
Detention Basin 1	37.837110, -120.504467	1.182	--
Detention Basin 2	37.841384, -120.503195	0.539	--
Detention Basin 3	37.840018, -120.506031	0.706	--
Detention Basin 4	37.840510, -120.506456	0.127	--

Table 5. RWQCB Aquatic Resources in the Review Area

Aquatic Resource	Location (Latitude, Longitude)	Acres[1]	Linear Feet
Freshwater Emergent Wetland 1	37.837257, -120.503873	0.246	--
Freshwater Emergent Wetland 2	37.842424, -120.503001	1.363	--
Seasonal Wetland 1	37.842509, -120.505623	0.082	--
Seasonal Wetland 2	37.836311, -120.503818	0.019	--
Seasonal Wetland 3	37.839892, -120.504652	0.031	--
Seasonal Wetland 4	37.839488, -120.505521	0.009	--
Seasonal Wetland 5	37.839476, -120.505337	0.012	
Vernal Pool	37.835775, -120.502800	0.093	--
	Subtotal	*4.411*	--
	Total[2]	**6.962**	**2221**

Notes:
1 Acreage of the non-wetland waters extend to ordinary high-water mark.
2 Minor discrepancies in totals are the result of rounding differences between Excel and ArcMap.

6.3.1 Ephemeral Drainage 1-3

There are three ephemeral drainages (ED-01 through ED-03) within the review area. One ephemeral drainage (ED-01) is located in the southeast corner of the review area. This drainage conveys overflow from a vernal pool and through a culvert south (outside) of the review area. The OHWM of the drainage is 2-feet-wide on average and exhibits a mild break in slope and change in vegetation type and cover. Dominant plants species present along the edge of the drainage include curly dock (FAC), medusa head (not listed), and milkthistle (*Silybum marianum*; not listed). Surface water was present in the drainage during the March 2023 field survey.

The other two ephemeral drainages (ED-02 and ED-03) occur in the center of the review area and convey water northwest down the slopes from the abandoned mill and the American Wood Fibers facility into detention basin DB-03 (discussed below). ED-02 conveys water from an upland swale located immediately upslope. The OHWM of the drainage is 10-feet-wide on average and exhibits a mild break in slope, changes in the character of soil, and a change in vegetation type and cover. The OHWM of ED-03 is 4-feet-wide on average and exhibits a mild break in slope and a change in vegetation type and cover. Surface water was present in ED-02 and ED-03 during the March 2023 fieldwork.

6.3.2 Intermittent Drainage 2

In addition to ID-01 discussed in Section 6.2.1, there is one intermittent drainage (ID-02) in the eastern portion of the review area. The drainage conveys run-off from the adjacent uplands through a freshwater emergent wetland (FEW-01) and into a detention basin (DB-01) located in the southern portion of the review area. This drainage appears to be fed in part by spring water originating from an offsite spring to the east of the review area. This drainage is approximately 2 feet wide on average and exhibits a mild to moderate break in slope. The bed of the drainage support emergent cattails (OBL), and a mix of annual grasses and forbs, such as perennial rye grass (FAC), curly dock (FAC), and soft brome (*Bromus hordeaceus*; FACU) are present along the banks. There is no riparian vegetation community associated with this drainage.

6.3.3 Detention Basin 1-4

There are four human-made detention basins (DB-01 through DB-04) in the review area. DB-01 is located in the southern portion of the review area (DB-01), DB-02 is located in the northeastern portion of the review area, and DB-03 and DB-04 are located near the mid-west portion of the review area. These basins were constructed in uplands for the purpose of collecting and storing run-off from the surrounding development. DB-01 was constructed in 2015 and DB-02, -03, and -04 were constructed in 2016 (Google Earth 2021). The detention basins were discernible from adjacent upland areas by a distinct change in vegetation. Vegetation within the basins was generally sparse, but where present contained a dominance of hydrophytic species, such as Hyssop loosestrife (OBL), pale spike rush (OBL) and perennial rye grass (FAC). Hydric soils were indicated by a thick dark surface (Hydric Soil Indicator A12) and redox depressions (Hydric Soil Indicator F8). Wetland hydrology was confirmed by the presence of surface water (Hydrology Indicator A1), surface soil cracks (Hydrology Indicator B6), and inundation visible on aerial imagery (Hydrology Indicator B7). Surface water in DB-03 was draining into a large sinkhole of unknown depth during the March 2023 fieldwork.

6.3.4 Freshwater Emergent Wetland 1

In addition to FEW-02 discussed in Section 6.2.4, there is one freshwater emergent wetland (FEW-01) located between a perennial drainage and detention basin (DB-01) near the southern portion of the review area. The freshwater emergent wetland was discernible from the adjacent upland areas by a distinct change in vegetation. This wetland supported a dominance of hydrophytic plant species, such as perennial rye grass (*Festuca perennis*; FAC), broadleaf cattail (OBL), and rushes (OBL). Hydric soils were present as indicated by red parent material (Problematic Hydric Soil Indicator TF2). Wetland hydrology was confirmed by surface water (Hydrology Indicator A1), a high water table (Hydrology Indicator A2), saturation (Hydrology Indicator A3), oxidized rhizospheres along living roots (Hydrology Indicator C3), and/or drainage patterns (Hydrology Indicator B10). FEW-01 contained surface water during the March 2023 fieldwork.

6.3.5 Seasonal Wetland 2-5

In addition to SW-01 discussed in Section 6.2.5, there are four isolated seasonal wetlands (SW-02 through SW-05) in the review area. SW-02 is located in the southern portion of the review area and SW-03, -04 and -05 are located in the central portion of the review area. These features were discernible from the adjacent uplands by a distinct change in vegetation. The wetlands contain a dominance of hydrophytic species, including pale spike rush (OBL), perennial rye grass (FAC), and Baltic rush (*Juncus balticus*; FACW). Hydric soils were indicated by a thick dark surface (Hydric Soil Indicator A12), and wetland hydrology was confirmed by the presence of surface water (Hydrology Indicator A1). SW-02 through -05 were dry during the December 2020 fieldwork.

6.4 Lake/Streambed and Riparian (CDFW)

All of the features described in Sections 6.2 and 6.3 have been identified as lake/streambed or riparian potentially regulated by CDFW (Table 6). In addition, riparian woodland surrounding the perennial pond was mapped as a CDFW-only aquatic resource in the review area. Because CDFW regulates from bank to bank, certain portions of the review area where the top of bank extended beyond the OHWM are subject to regulation by CDFW as lake or streambed.

Table 6. CDFW Aquatic Resources in the Review Area

Aquatic Resource	Location (Latitude, Longitude)	Acres1	Linear Feet
Lake/Streambed			
Channel – Natural, Ephemeral 1	37.835800, -120.503284	0.030	271
Channel – Natural, Ephemeral 2	37.840040, -120.505347	0.023	97
Channel – Natural, Ephemeral 3	37.839729, -120.505322	0.018	176
Channel – Natural, Intermittent 1	37.842638, -120.506279	0.369	1056
Channel – Natural, Intermittent 2	37.837415, -120.503331	0.031	143
Ditch – Drainage 1	37.836630, -120.504530	0.010	124
Ditch – Drainage 2	37.840565, -120.504572	0.052	220
Ditch – Drainage 3	37.843176, -120.507892	0.041	40
Pond – Perennial	37.842626, -120.504203	2.191	—
Detention Basin 1	37.837110, -120.504467	1.810	--
Detention Basin 2	37.841384, -120.503195	2.204	--
Detention Basin 3	37.840018, -120.506031	0.706	--
Detention Basin 4	37.840510, -120.506456	0.127	--
	Subtotal	*7.614*	*2221*
Riparian			
Riparian Woodland	37.842418, -120.504671	0.999	--
Freshwater Emergent Wetland 1	37.837257, -120.503873	0.246	--
Freshwater Emergent Wetland 2	37.842424, -120.503001	1.363	--
Seasonal Wetland 1	37.842509, -120.505623	0.082	--
Seasonal Wetland 2	37.836311, -120.503818	0.019	--
Seasonal Wetland 3	37.839892, -120.504652	0.031	--
Seasonal Wetland 4	37.839488, -120.505521	0.009	--
Seasonal Wetland 5	37.839476, -120.505337	0.012	--
Vernal Pool	37.835775, -120.502800	0.093	--
	Subtotal	*2.856*	--
	Total[2]	10.470	2221

Note:
[1] Acreage of the non-wetland waters extend to ordinary high-water mark.

6.4.1 Riparian Woodland

Riparian woodland (RIP-01) is present along a portion of the intermittent drainage and along the western and southern edge of the perennial pond in the review area. This woodland is discussed in Section 3.3 above.

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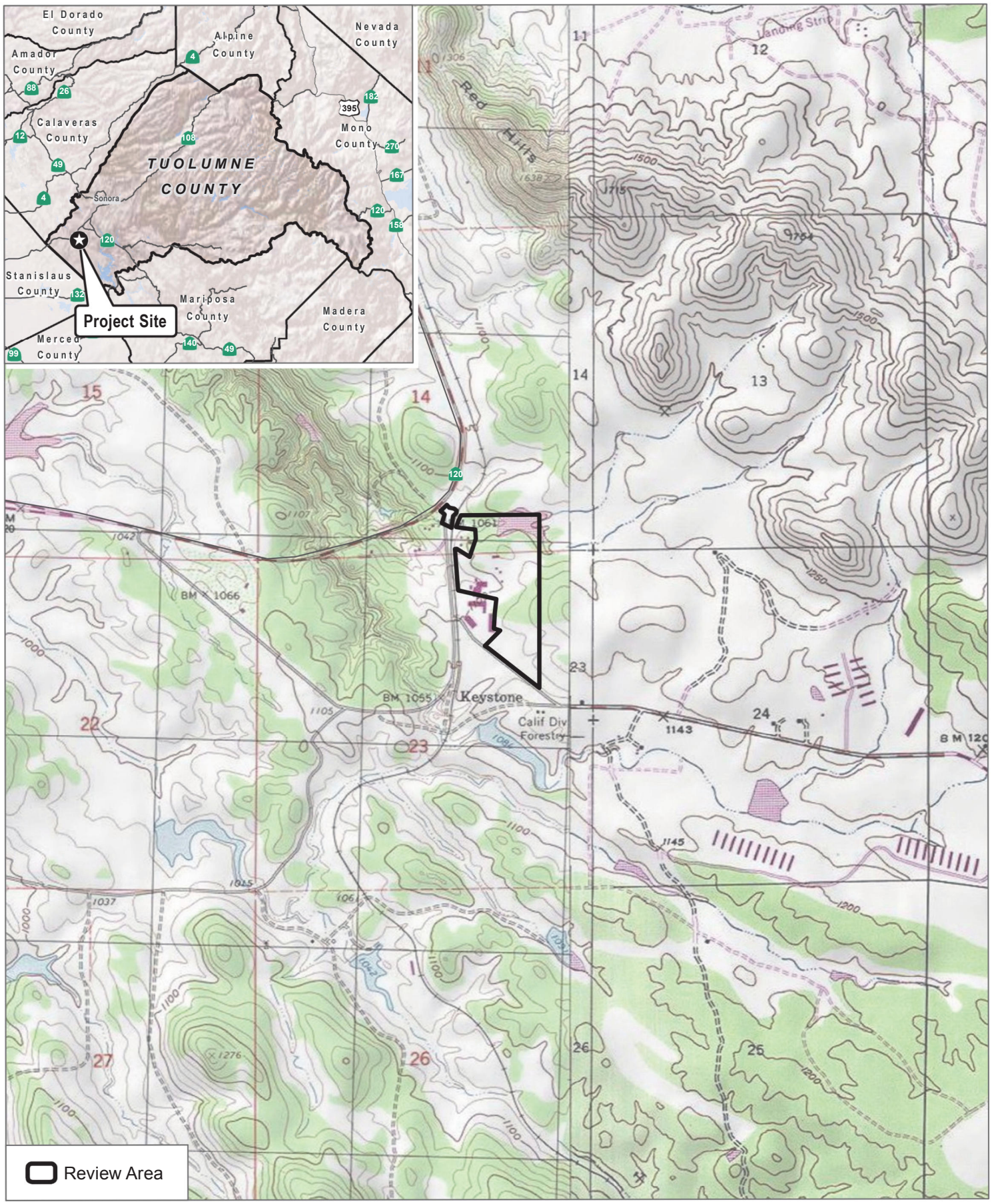

SOURCE: USGS 7.5-Minute Series Keystone Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Location

Forest Resiliency Program - Tuolumne Facility

INTENTIONALLY LEFT BLANK

SOURCE: Bing Maps (Accessed 2023), Tuolumne County 2020

DUDEK

0 175 350 Feet

FIGURE 2

Review Area

Forest Resiliency Program - Tuolumne Facility

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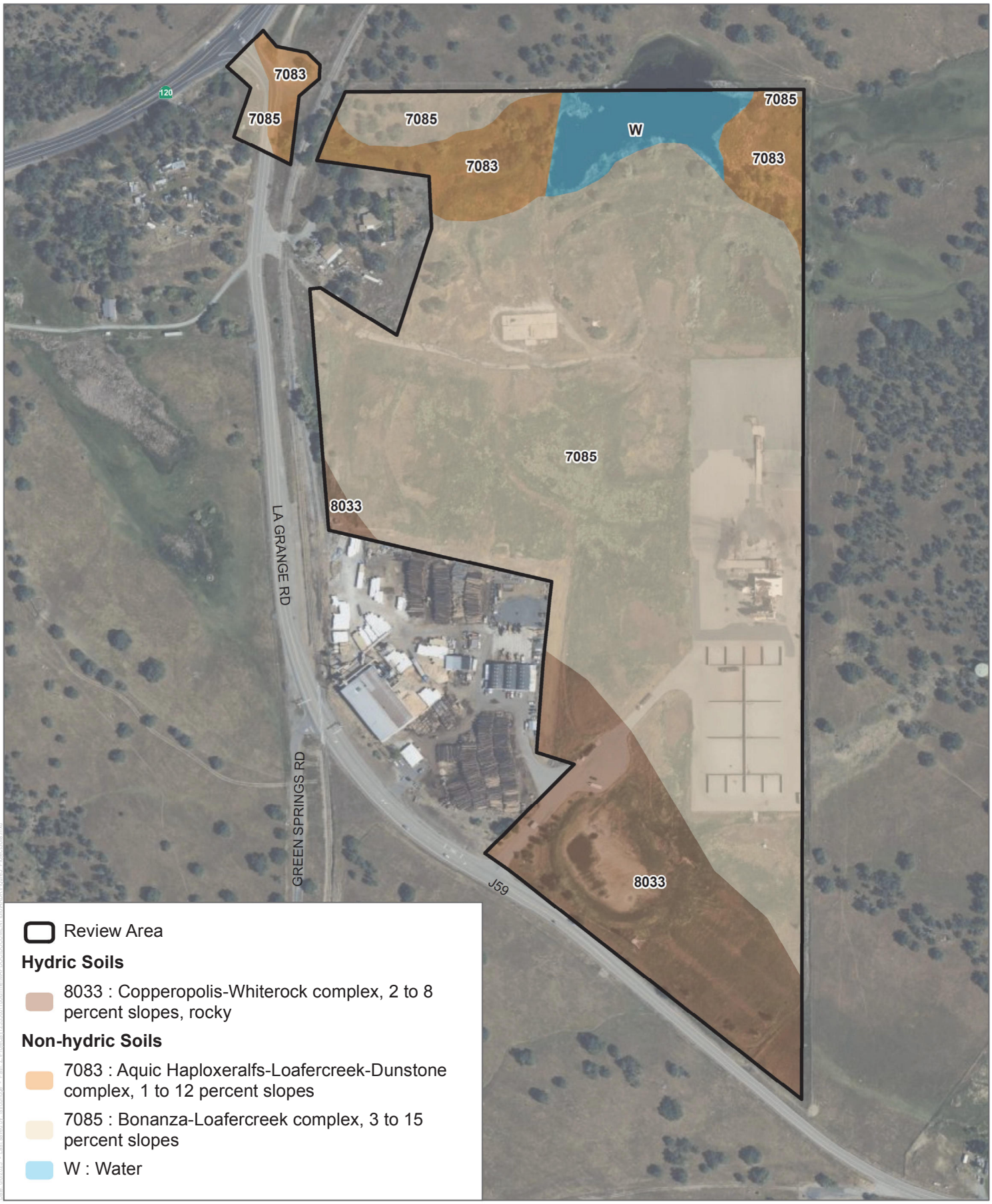

SOURCE: Bing Maps (Accessed 2023), Tuolumne County 2020, USDA SSURGO 2003

DUDEK

0 175 350 Feet

FIGURE 3

Soils

Forest Resiliency Program - Tuolumne Facility

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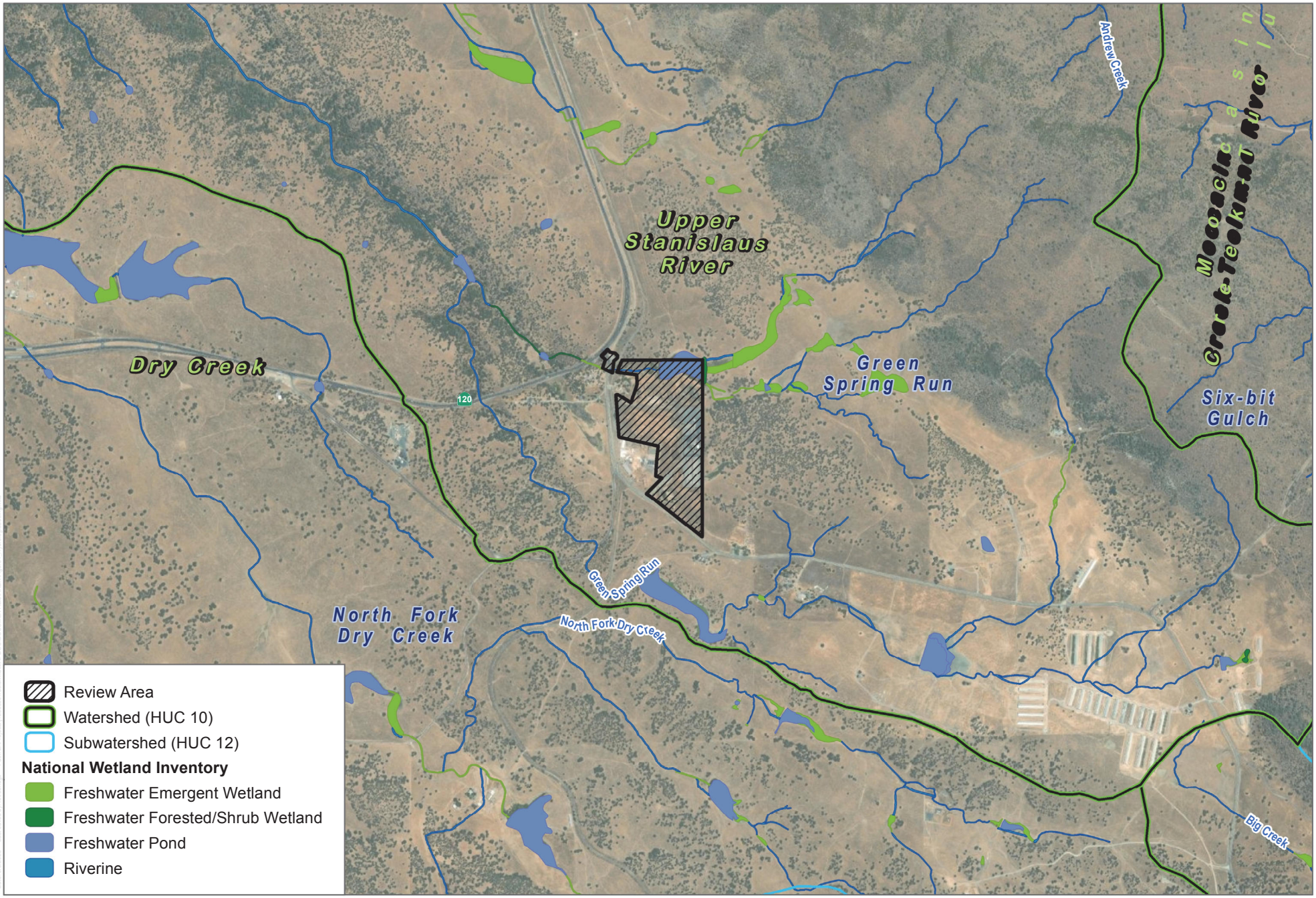

SOURCE: USGS 2019, USFWS 2019, ESRI (Accssed 2020)

DUDEK

0 1,000 2,000 Feet

FIGURE 4

Hydrologic Setting

Forest Resiliency Program - Tuolumne Facility

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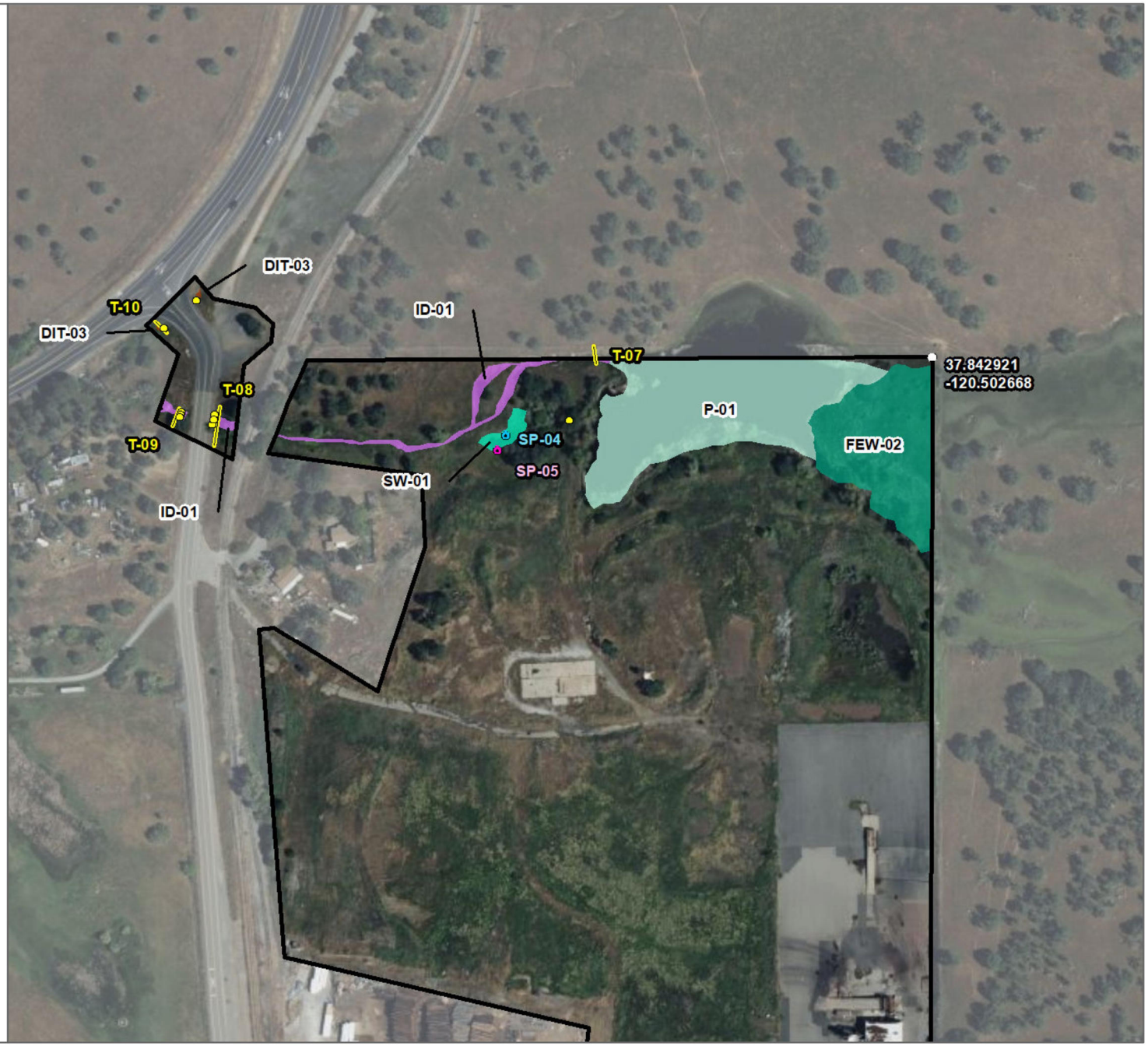
Review Area (57.19 acres)
Control Point
Culvert
Upland Sampling Point
Wetland Sampling Point
Transect

Non-Wetland Waters

Ditch - drainage (OHWM)*(0.01 acre)*
Channel - natural, intermittent (OHWM)*(0.25 acre)*
Pond - perennial (OHWM)*(2.19 acres)*

Wetlands

Freshwater emergent wetland *(1.36 acres)*
Seasonal wetland *(0.08 acre)*



Coordinate System: NAD 1983 CA State Plane (Zone III)
Projection: Lambert Conformal COnic
Datum: North American 1983
Vertical Datum: NAVD 88, U.S. Feet
1 inch = 300 feet

Delineated on July 13th, 2023

Made in accordance with the
Updated Map and Drawing Standards for the South Pacific Division Regulatory Program,
as amended on February 10, 2016, by:
Jason Deters, Project Manager
Enforcement and Special Projects Unit
U.S. Army Corps of Engineers
South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

SOURCE: ESIR Imagery 2023, OpenStreetMap

DUDEK

0 150 300 Feet

FIGURE 5.1

Preliminary Aquatic Resources Delineation - USACE

Forest Resiliency Program - Tuolumne Facility

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Review Area (57.19 acres)
Control Point
Culvert
Wetland Sampling Point
Upland Sampling Point
Transect

Non-Wetland Waters

Channel - natural, ephemeral (TOB) *(0.07 acre)*
Channel - natural, intermittent (TOB) *(0.38 acre)*
Ditch - drainage (TOB) *(0.10 acre)*
Pond - perennial (TOB) *(2.19 acres)*

Wetlands

Detention basin (TOB) *(4.85 acres)*
Freshwater emergent wetland *(1.36 acres)*
Seasonal wetland *(0.13 acre)*

CDFW-Only Resources

Riparian *(1.00 acre)*

Coordinate System: NAD 1983 CA State Plane (Zone III)
Projection: Lambert Conformal COnic
Datum: North American 1983
Vertical Datum: NAVD 88, U.S. Feet
1 inch = 300 feet

Delineated on July 13th, 2023

Made in accordance with the
Updated Map and Drawing Standards for the South Pacific Division Regulatory Program,
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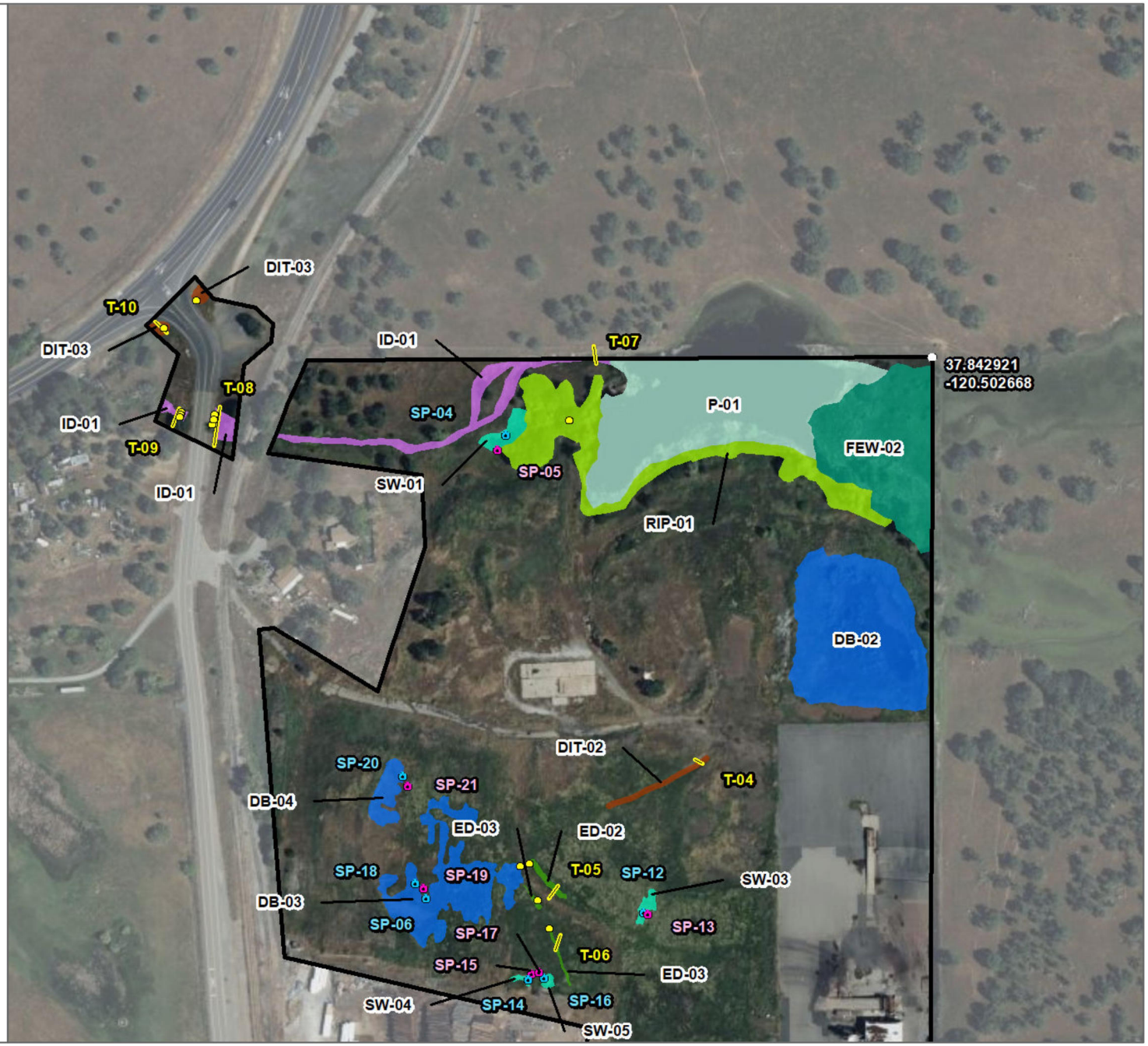
1325 J Street, Room 1350
Sacramento, California 95814-2922



SOURCE: ESIR Imagery 2023, OpenStreetMap

DUDEK

0 150 300 Feet

FIGURE 6.1

Preliminary Aquatic Resources Delineation - CDFW and RWQCB

Forest Resiliency Program - Tuolumne Facility

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Appendix A

Request for a USACE Approved Jurisdictional Determination

REQUEST FOR AQUATIC RESOURCES DELINEATION VERIFICATION

OR JURISDICTIONAL DETERMINATION

A separate jurisdictional determination (JD) is not necessary to process a permit. An Approved Jurisdictional Determination (AJD) is required to definitively determine the extent of waters of the U.S. and is generally used to disclaim jurisdiction over aquatic resources that are not waters of the U.S., in cases where the review area contains no aquatic resources, and in cases when the recipient wishes to challenge the water of the U.S. determination on appeal. Either an Aquatic Resources Delineation Verification or a Preliminary Jurisdictional Determination (PJD) may be used when the recipient wishes to assume that aquatic resources are waters of the U.S. for the purposes of permitting. In some circumstances an AJD may require more information, a greater level of effort, and more time to produce. If you are unsure which product to request, please speak with your project manager or call the Sacramento District's general information line at (916) 557-5250.

I am requesting the product indicated below from the U.S. Army Corps of Engineers, Sacramento District, for the review area located at:

Street Address: 12001 La Grange Road City: Jamestown County: Tuolumne
State: CA Zip: 95327 Section: 14, 23 Township: 1S Range: 13E
Latitude (decimal degrees): 37.839567 Longitude (decimal degrees): -120.504764
The approximate size of the review area for the JD is 57 acres. **(Please attach location map)**

Choose one:
- ○ I own the review area
- ○ I hold an easement or development rights over the review area
- ○ I lease the review area
- ○ I plan to purchase the review area
- ◉ I am an agent/consultant acting on behalf of the requestor
- ○ Other: _____

Choose one product:
- ○ I am requesting an Aquatic Resources Delineation Verification
- ◉ I am requesting an Approved JD
- ○ I am requesting a Preliminary JD
- ○ I am requesting additional information to inform my decision about which product to request

Reason for request: (check all that apply)
- ☐ I need information concerning aquatic resources within the review area for planning purposes.
- ☐ I intend to construct/develop a project or perform activities in this review area which would be designed to avoid all aquatic resources.
- ☐ I intend to construct/develop a project or perform activities in this review area which would be designed to avoid those aquatic resources determined to be waters of the U.S.
- ☐ I intend to construct/develop a project or perform activities in this review area which may require authorization from the Corps; this request is accompanied by my permit application.
- ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district's list of navigable waters under Section 10 of the Rivers and Harbors Act of 1899 and/or is subject to the ebb and flow of the tide.
- ☐ My lender, insurer, investors, local unit of government, etc. has indicated that an aquatic resources delineation verification is inadequate and is requiring a jurisdictional determination.
- ☑ I intend to contest jurisdiction over particular aquatic resources and request the Corps confirm that these aquatic resources are or are not waters of the U.S.
- ☐ I believe that the review area may be comprised entirely of dry land.
- ☐ Other: _____

Attached Information:
- ☑ Maps depicting the general location and aquatic resources within the review area consistent with Map and Drawing Standards for the South Pacific Division Regulatory Program (Public Notice February 2016, http://www.spd.usace.army.mil/Missions/Regulatory/Public-Notices-and-References/Article/651327/updated-map-and-drawing-standards/)
- ☑ Aquatic Resources Delineation Report, if available, consistent with the Sacramento District's Minimum Standards for Acceptance (Public Notice January 2016, http://1.usa.gov/1V68IYa)

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the review area. Your signature shall be an affirmation that you possess the requisite property rights for this request on the subject property.

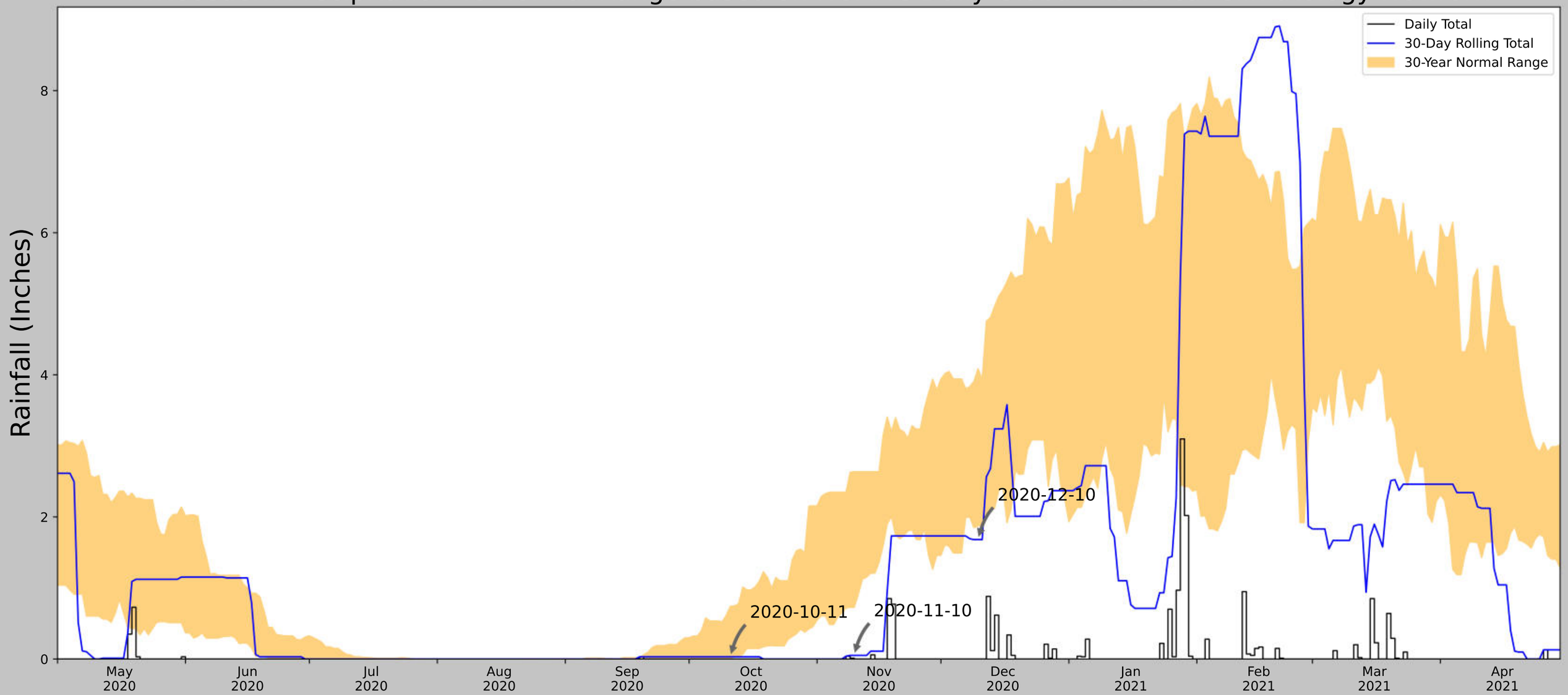
*Signature: _____ Date: _____
Name: Allie Sennett Company name: Dudek
Address: 853 Lincoln Way
Auburn, CA 95603
Telephone: 916-521-5798 Email: asennett@dudek.com

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Appendix B

Antecedent Precipitation Tool Output

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.839752, -120.504821
Observation Date	2020-12-10
Elevation (ft)	1100.467
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2020-12-10	1.872441	4.087008	1.681102	Dry	1	3	3
2020-11-10	0.725984	2.637008	0.051181	Dry	1	2	2
2020-10-11	0.008268	0.743701	0.031496	Normal	2	1	2
Result							Drier than Normal - 7

US Army Corps of Engineers

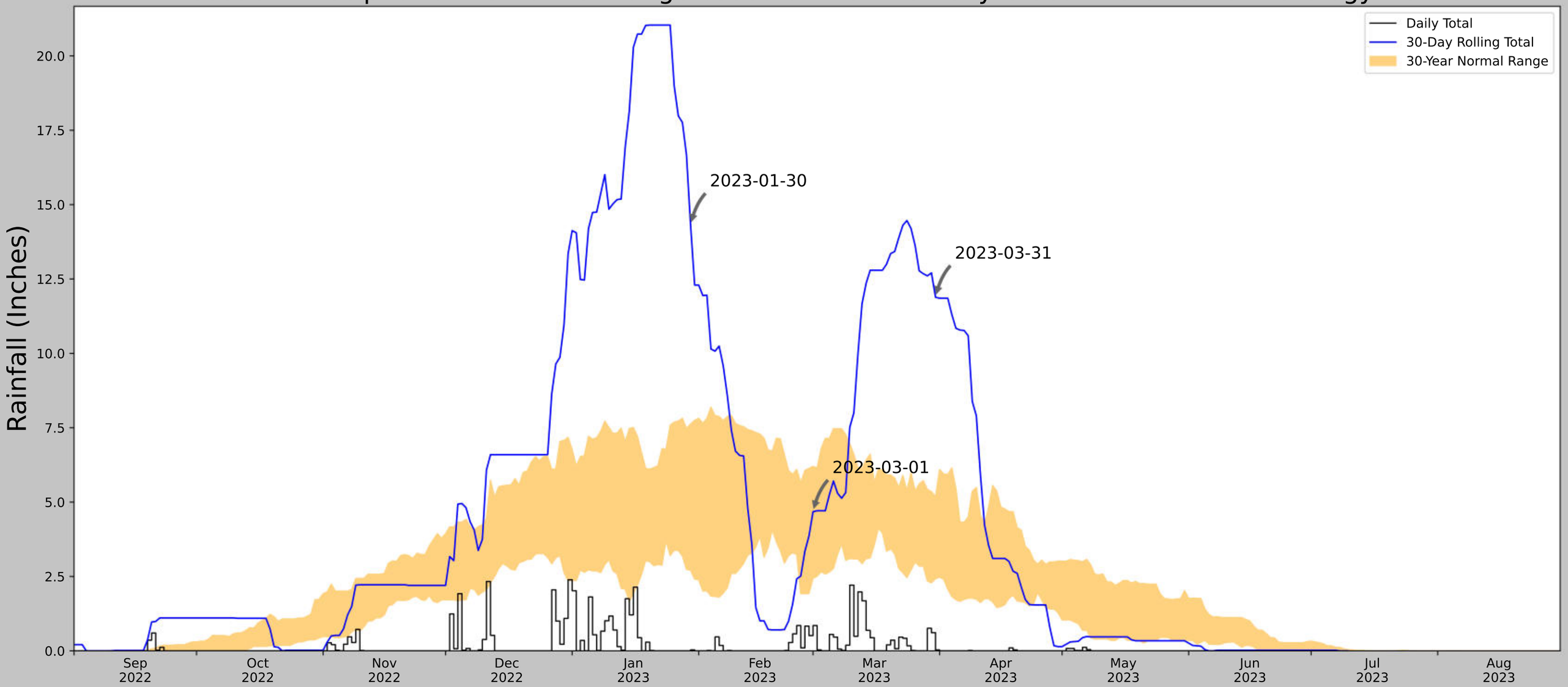
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by:
U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
NEW MELONES DAM HQ	38.0047, -120.4864	959.974	11.441	140.493	6.756	10376	90
NEW MELONES DAM	37.95, -120.5333	774.934	4.562	185.04	2.897	874	0
SONORA	37.9672, -120.3872	1674.869	5.991	714.895	6.979	99	0
EXCHEQUER DAM	37.585, -120.2672	441.929	31.371	518.045	30.369	4	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	37.839752, -120.504821
Observation Date	2023-03-31
Elevation (ft)	1100.467
Drought Index (PDSI)	Extreme wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-03-31	2.426378	5.180315	11.885827	Wet	3	3	9
2023-03-01	2.437402	6.199213	4.677166	Normal	2	2	4
2023-01-30	2.712599	7.624016	14.314961	Wet	3	1	3
Result							Wetter than Normal - 16

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation	Weighted	Days Normal	Days Antecedent
NEW MELONES DAM HQ	38.0047, -120.4864	959.974	11.441	140.493	6.756	11106	90
NEW MELONES DAM	37.95, -120.5333	774.934	4.562	185.04	2.897	145	0
SONORA	37.9672, -120.3872	1674.869	5.991	714.895	6.979	98	0
EXCHEQUER DAM	37.585, -120.2672	441.929	31.371	518.045	30.369	4	0

Appendix C
Plant List

Vascular Species

Eudicots

ADOXACEAE – MUSKROOT FAMILY

Sambucus mexicana – blue elderberry

ANACARDIACEAE – SUMAC OR CASHEW FAMILY

Toxicodendron diversilobum – poison oak

APIACEAE – CARROT FAMILY

* *Conium maculatum* – poison hemlock

APOCYNACEAE – DOGBANE FAMILY

Asclepias fascicularis – Mexican whorled milkweed

ASTERACEAE – SUNFLOWER FAMILY

* Carduus pycnocephalus – Italian plumeless thistle
* *Centaurea solstitialis* – yellow star-thistle
* *Dittrichia graveolens* – stinkwort

Erigeron canadensis – Canadian horseweed

Helianthus annuus – common sunflower

Heterotheca grandiflora – telegraphweed

Holocarpha virgata – yellowflower tarweed

* *Hypochaeris glabra* – smooth cat's ear
* *Lactuca serriola* – prickly lettuce
* Silybum marianum – blessed milkthistle
* *Sonchus asper* – spiny sowthistle

Xanthium strumarium – cocklebur

BORAGINACEAE – BORAGE FAMILY

Plagiobothrys stipitatus – stalked popcornflower

BRASSICACEAE – MUSTARD FAMILY

* *Brassica nigra* – black mustard

CAPRIFOLIACEAE – HONEYSUCKLE FAMILY

Lonicera hispidula – pink honeysuckle

CARYOPHYLLACEAE – PINK FAMILY

* *Silene gallica* – common catchfly

CHENOPODIACEAE – GOOSEFOOT FAMILY

* *Salsola tragus* – prickly Russian thistle

ERICACEAE – HEATH FAMILY

Arctostaphylos manzanita – common manzanita

FABACEAE – LEGUME FAMILY

Acmispon americanus – Spanish clover
* *Lotus corniculatus* – bird's-foot trefoil
Lupinus bicolor – miniature lupine
* *Medicago polymorpha* – burclover
* *Trifolium glomeratum* – clustered clover
* *Trifolium hirtum* – rose clover
* *Vicia sativa* – garden vetch

FAGACEAE – OAK FAMILY

Quercus douglasii – blue oak
Quercus wislizeni – interior live oak

GENTIANACEAE – GENTIAN FAMILY

Zeltnera muehlenbergii – Muhlenberg's centaury

GERANIACEAE – GERANIUM FAMILY

* Erodium botrys – longbeak stork's bill
* *Erodium cicutarium* – redstem stork's bill

LAMIACEAE – MINT FAMILY

Trichostema lanceolatum – vinegarweed

MORACEAE – MULBERRY FAMILY

* *Morus alba* – white mulberry

POLYGONACEAE – BUCKWHEAT FAMILY

* *Rumex crispus* – curly dock
* *Rumex pulcher* – fiddle dock

RHAMNACEAE – BUCKTHORN FAMILY

Frangula californica – California coffee berry
Rhamnus ilicifolia – hollyleaf redberry

ROSACEAE – ROSE FAMILY

Horkelia californica – California horkelia
Heteromeles arbutifolia – toyon
Rosa californica – California rose
* *Rubus armeniacus* – Himalayan blackberry

SALICACEAE – WILLOW FAMILY

Populus fremontii – Fremont cottonwood
Salix exigua – sandbar willow
Salix gooddingii – Goodding's willow
Salix lasiolepis – arroyo willow

SAPINDACEAE – SOAPBERRY FAMILY

Aesculus californica – California buckeye

SCROPHULARIACEAE – FIGWORT FAMILY

* *Verbascum virgatum* – wand mullein

SOLANACEAE – NIGHTSHADE FAMILY

Datura wrightii – sacred thorn-apple

VISCACEAE – MISTLETOE FAMILY

Phoradendron leucarpum – oak mistletoe

VITACEAE – GRAPE FAMILY

Vitis californica – California wild grape

Gymnosperms and Gnetophytes

PINACEAE – PINE FAMILY

Picea breweriana – Brewer spruce
Pinus sabiniana – foothill pine

Monocots

ALISMATACEAE – WATER-PLANTAIN FAMILY

Alisma triviale – northern water plantain

CYPERACEAE – SEDGE FAMILY

Eleocharis macrostachya – pale spike rush

JUNCACEAE – RUSH FAMILY

Juncus balticus – no common name

Juncus bufonius – toad rush

POACEAE – GRASS FAMILY

* *Avena barbata* – slender oat
* *Briza minor* – little quakinggrass
* *Bromus hordeaceus*- soft brome
* *Crypsis schoenoides* – swamp pricklegrass
* *Cynodon dactylon* – Bermudagrass
  Distichlis spicata – salt grass
* *Elymus caput-medusae* – medusahead
* *Festuca perennis* – perennial rye grass
* *Holcus lanatus* – common velvet grass
* *Hordeum marinum* – seaside barley
* *Hordeum murinum* – mouse barley
  Panicum capillare – witchgrass
* Polypogon monspeliensis – annual rabbitsfoot grass

THEMIDACEAE – BRODIAEA FAMILY

Brodiaea elegans – harvest brodiaea

TYPHACEAE – CATTAIL FAMILY

Typha latifolia – broadleaf cattail

* signifies introduced (non-native) species

Appendix D
Data Forms

OHWM DATA SHEET

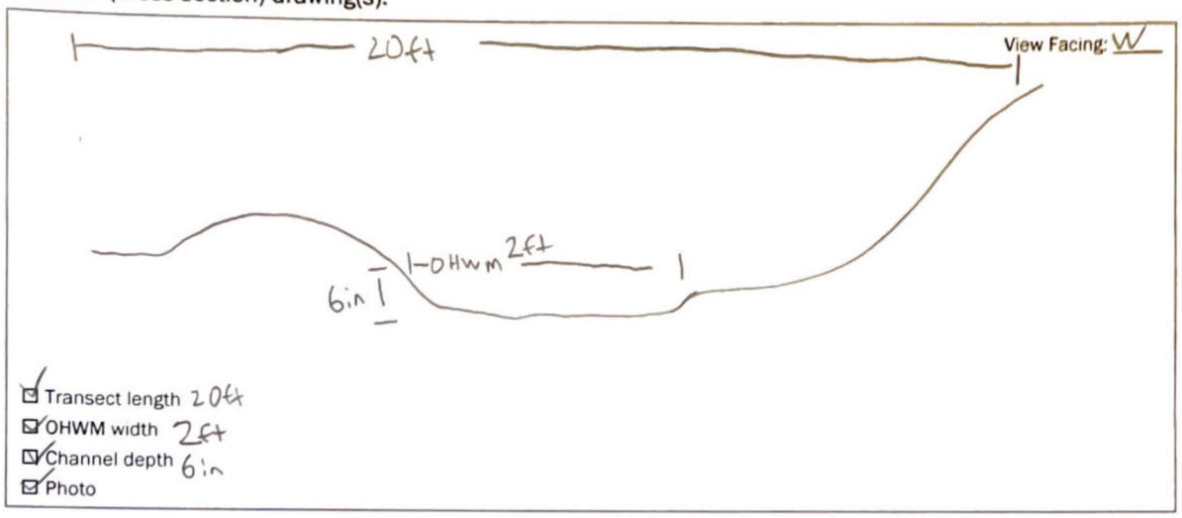
Project: 12001 La Grange Date: 3 31, 2023 Transect: 01

Investigator(s): Alex Sennett, A. Freeman Feature Name: DIT-01

Site Location: Southeast portion of site

Feature Type: ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):



☑ Transect length 20ft
☑ OHWM width 2ft
☑ Channel depth 6in
☑ Photo

Break in Slope at OHWM: ☐ Sharp (>60°) ☐ Moderate (30-60°) ☑ Gentle (<30°)

☐ Natural line impressed on the bank	☐ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☐ Changes in the character of soil	☐ Scour
☑ Destruction of terrestrial vegetation	☐ Deposition
☐ Presence of litter and debris	☐ Bed and banks
☐ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☑ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	100	—	—	—	—
Below OHWM	100	—	—	—	—

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	—	—	100	—
Below OHWM	—	—	30	70

Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
RUMCRI ELYCAPMED Milkthistle	← Same as Upland	N/A

Version 2; updated 11/16/2020

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):

N/A

Hydrology:

- ☑ Flowing water
- ☑ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: 2in

Temp: –

Min. depth: 0.5in

Max. depth: 6in

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☑ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

NA

Other forms related to this feature: ☐ Yes ☑ No

- ☐ Terrace, fringe, or floodplain wetland (wetland datasheet)
- ☐ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

Project: 12001 La Grange Date: 3 31.2023 Transect: 02

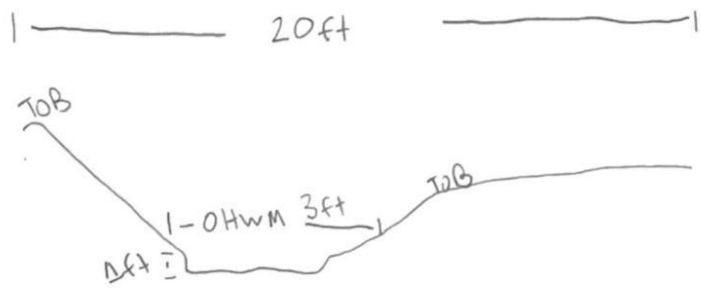
Investigator(s): A. Sennott, A. Freeman Feature Name: ED-01

Site Location: Southeastern portion of site

Feature Type: ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):

View Facing: NW



☑ Transect length
☑ OHWM width 3ft
☑ Channel depth 1ft
☑ Photo

Break in Slope at OHWM: ☐ Sharp (>60°) ☑ Moderate (30-60°) ☐ Gentle (<30°)

☐ Natural line impressed on the bank	☑ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☐ Changes in the character of soil	☐ Scour
☑ Destruction of terrestrial vegetation	☐ Deposition
☐ Presence of litter and debris	☐ Bed and banks
☐ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☑ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	100	–	–	–	–
Below OHWM	80	–	20	–	–

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	–	–	100	–
Below OHWM	–	–	50	50

Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
Elycapmed BRANIG GERDIS CAROLI RUMCRI	← Same as upland	N/A

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):

N/A

Hydrology:

- ☑ Flowing water
- ☑ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: 2 in

Min. depth: 0.5 in

Temp: N/A

Max. depth: 4 in

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

N/A

Other forms related to this feature: ☐ Yes ☑ No

- ☐ Terrace, fringe, or floodplain wetland (wetland datasheet)
- ☐ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

Project: 12001 La Grange Date: 3/31/23 Feature ID: PD-01

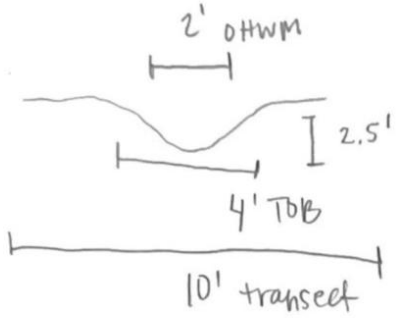
Investigator(s): AES + AF Transect ID: T-03

Site Location:

south of old mill

Feature Type: ☐ Ephemeral ☐ Intermittent ☑ Perennial ☐ Other

Transect (cross-section) drawing(s): View Facing: N



☑ Transect length
☑ OHWM width
☑ Channel depth
☑ Photo

OHWM Indicators (at OHWM; primary indicators indicated with *)

- ☐ Natural line impressed on the bank
- ☐ Shelving
- ☐ Changes in the character of soil (texture)*
- ☑ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☐ Wracking
- ☑ Vegetation matted down, bent, or absent
- ☐ Sediment sorting
- ☐ Leaf litter disturbed or washed away
- ☐ Scour
- ☐ Deposition
- ☐ Bed and banks
- ☐ Water staining
- ☑ Change in plant community and/or cover*
- ☐ Break in Slope at OHWM*: ☐ Sharp (>60°) ☐ Moderate (30-60°) ☑ Gentle (<30°)

Soil Texture

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	100				
Below OHWM	100				

Total Vegetation Cover

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	0	100	0
Below OHWM	0	0	20	80

Veg Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
ELYCAPMED milk thistle VISSAT	FESPER	RUMCRI

OHWM DATA SHEET

Condition/Disturbances/Anthropogenic Influences (e.g., erosion, grazing, culverts, etc.):

Run-off from adjacent development

Hydrology

☑ Flowing water	Avg. depth: 4"	Min. depth: 2"
☑ Standing water	Temp: NA	Max. depth: 2'
☐ Saturated		
☐ Dry		

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (aerial view), notes:

NA

Other forms related to this feature: ☐ Yes ☐ No

☐ Terrace, fringe, or floodplain wetland (wetland datasheet)

☐ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

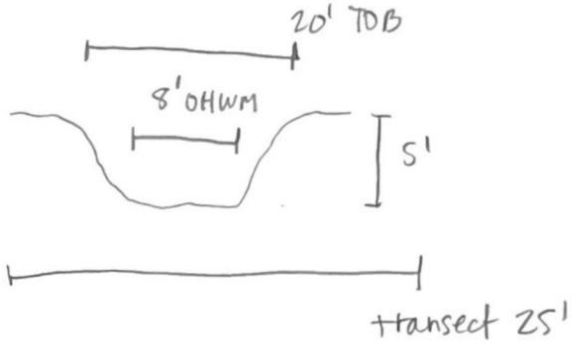
Project: 12001 LaGrange Date: 3/31/23 Feature ID: DIT-02

Investigator(s): AES + AF Transect ID: T-04

Site Location: west of old mill near center of site

Feature Type: ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s): View Facing: SE



☑ Transect length
☑ OHWM width
☑ Channel depth
☑ Photo

OHWM Indicators (at OHWM; primary indicators indicated with *)

- ☐ Natural line impressed on the bank
- ☐ Shelving
- ☐ Changes in the character of soil (texture)*
- ☐ Destruction of terrestrial vegetation
- ☑ Presence of litter and debris
- ☐ Wracking
- ☑ Vegetation matted down, bent, or absent
- ☐ Sediment sorting
- ☐ Leaf litter disturbed or washed away
- ☐ Scour
- ☐ Deposition
- ☑ Bed and banks
- ☐ Water staining
- ☑ Change in plant community and/or cover*
- ☑ Break in Slope at OHWM*: ☐ Sharp (>60°) ☑ Moderate (30-60°) ☐ Gentle (<30°)

Soil Texture

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	80	0	20	0	0
Below OHWM	80	0	20	0	0

Total Vegetation Cover

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	0	70	30
Below OHWM	0	0	30	70

Veg Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
AVEBAR ELYCAPMED LUP SP. VICSAT		NA

OHWM DATA SHEET

Condition/Disturbances/Anthropogenic Influences (e.g., erosion, grazing, culverts, etc.):

constructed

Hydrology

☑ Flowing water	Avg. depth: 2"	Min. depth: 1"
☑ Standing water	Temp: NA	Max. depth: 4"
☐ Saturated		
☐ Dry		

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (aerial view), notes:

NA

Other forms related to this feature: ☐ Yes ☐ No

☐ Terrace, fringe, or floodplain wetland (wetland datasheet)

☐ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

Project: 12001 La Grange Date: 3/31/23 Feature ID: ED-02

Investigator(s): AES + AF Transect ID: T-05

Site Location:
west of old mill near center of site

Feature Type: ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s): View Facing: NE

☑ Transect length
☑ OHWM width
☑ Channel depth
☑ Photo

OHWM Indicators (at OHWM; primary indicators indicated with *)

- ☐ Natural line impressed on the bank
- ☐ Shelving
- ☑ Changes in the character of soil (texture)*
- ☐ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☐ Wracking
- ☐ Vegetation matted down, bent, or absent
- ☐ Sediment sorting
- ☐ Leaf litter disturbed or washed away
- ☐ Scour
- ☐ Deposition
- ☐ Bed and banks
- ☐ Water staining
- ☑ Change in plant community and/or cover*

☐ Break in Slope at OHWM*: ☐ Sharp (>60°) ☐ Moderate (30-60°) ☑ Gentle (<30°)

Soil Texture

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	100				
Below OHWM	100				

Total Vegetation Cover

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	0	100	0
Below OHWM	0	0	60	40

Veg Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
AVEBAR FESPER		NA

OHWM DATA SHEET

Condition/Disturbances/Anthropogenic Influences (e.g., erosion, grazing, culverts, etc.):

culverted / likely constructed

Hydrology

☑ Flowing water	Avg. depth: 2"	Min. depth: 1"
☑ Standing water	Temp: NA	Max. depth: 4"
☐ Saturated		
☐ Dry		

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (aerial view), notes:

NA

Other forms related to this feature: ☐ Yes ☑ No

☐ Terrace, fringe, or floodplain wetland (wetland datasheet)

☐ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

Project: 12001 La Grange Date: 3/31/23 Transect: 06

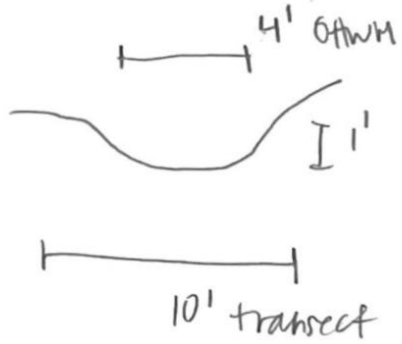
Investigator(s): AES & AF Feature Name: ED-03

Site Location: Isolated ED near center of site

Feature Type: ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):

View Facing: SW



☑ Transect length
☑ OHWM width
☑ Channel depth
☑ Photo

Break in Slope at OHWM: ☐ Sharp (>60°) ☐ Moderate (30-60°) ☑ Gentle (<30°)

☐ Natural line impressed on the bank	☐ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☐ Changes in the character of soil	☐ Scour
☐ Destruction of terrestrial vegetation	☐ Deposition
☐ Presence of litter and debris	☐ Bed and banks
☐ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☑ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	100				
Below OHWM	100				

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	0	100	0
Below OHWM	0	0	60	40

Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
AVEBAR FESPER		NA

Page ____

Version 2; updated 11/16/2020

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):

culverted, likely constucted

Hydrology:

- ☑ Flowing water
- ☑ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: 2"

Min. depth: 1"

Temp: NA

Max. depth: 4"

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

NA

Other forms related to this feature: ☐ Yes ☑ No

- ☐ Terrace, fringe, or floodplain wetland (wetland datasheet)
- ☐ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

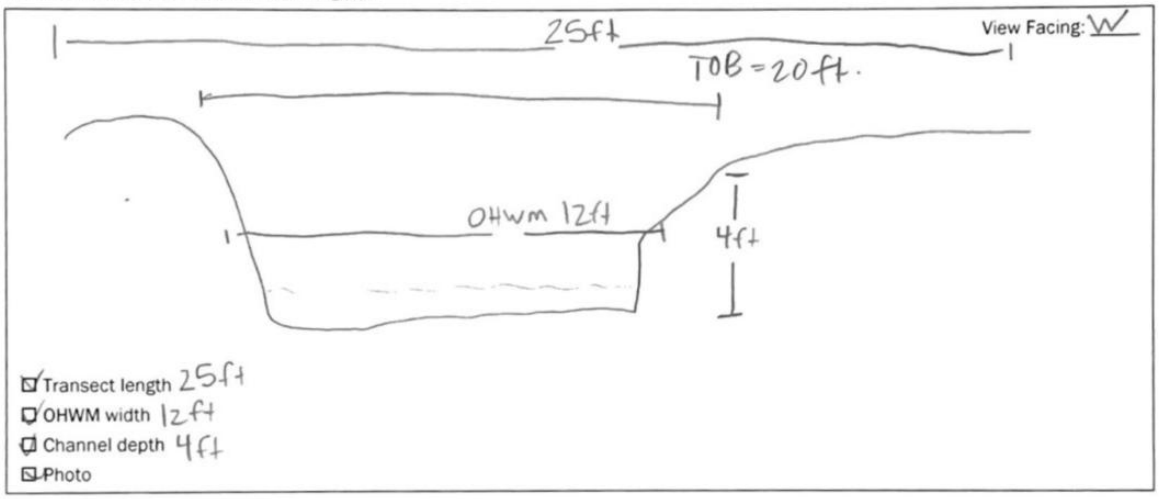
Project: 12001 La Grange Date: 3 31 2023 Transect: 7

Investigator(s): A. Serroff, A. Freeman Feature Name: ID-01

Site Location: western portion of site.

Feature Type: ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):



Break in Slope at OHWM: ☑ Sharp (>60°) ☐ Moderate (30-60°) ☐ Gentle (<30°)

☐ Natural line impressed on the bank	☑ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☐ Changes in the character of soil	☐ Scour
☑ Destruction of terrestrial vegetation	☐ Deposition
☐ Presence of litter and debris	☐ Bed and banks
☐ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☑ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	80	—	5	5	10
Below OHWM	70	—	5	5	10

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	—	—	90	10
Below OHWM	—	—	20	80

Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
BROHOR AVEBAR HOLVIR	FESPER Also on bank	N/A

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):
Erosion

Hydrology:

- ☑ Flowing water
- ☐ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: 2ft
Temp: —
Min. depth: 2in
Max. depth: Unknown

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☑ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

NA

Other forms related to this feature: ☑ Yes ☐ No

- ☐ Terrace, fringe, or floodplain wetland (wetland datasheet)
- ☑ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

Project: 12001 La Grange Date: 3/31/23 Transect: 8

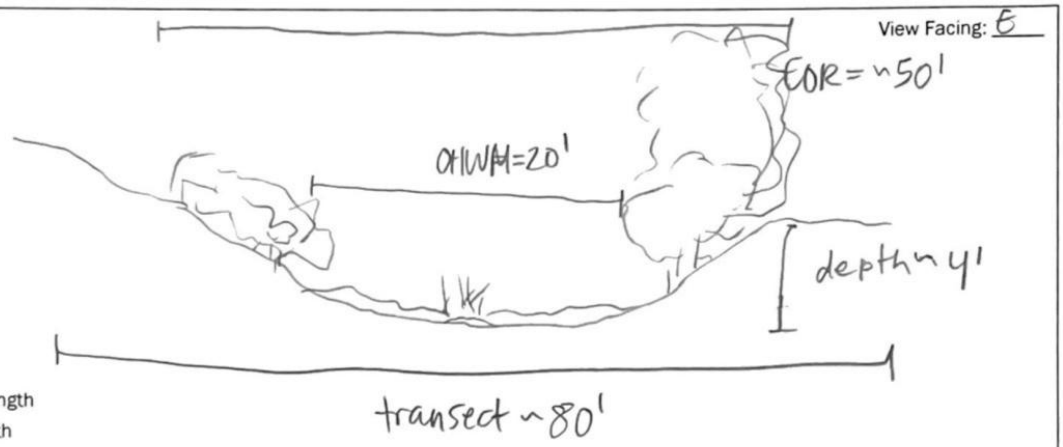
Investigator(s): AEJ + AF Feature Name: ID-01 (off-site)

Site Location:
crossing of ID-01 @ La Grange road near Hwy 120

Feature Type: ☐ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):

View Facing: E



☑ Transect length
☑ OHWM width
☑ Channel depth
☑ Photo

Break in Slope at OHWM: ☐ Sharp (>60°) ☑ Moderate (30-60°) ☐ Gentle (<30°)

☐ Natural line impressed on the bank	☑ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☑ Changes in the character of soil	☐ Scour
☑ Destruction of terrestrial vegetation	☐ Deposition
☐ Presence of litter and debris	☐ Bed and banks
☑ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☑ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	85	5	10	—	—
Below OHWM	15	20	60	5	0

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	10	20	70	10
Below OHWM	20	10	20	50

Stage: ☐ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☑ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
TOXDIV BRODIA AVEBAR EROCIC	TOXDIV BRANIG ALNUS SP. QUEWIZ	JUNCUS SP.

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):

feature flows below railroad tracks & La Grange Road via multiple concrete culverts

Hydrology:

- ☑ Flowing water
- ☐ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: 2"

Min. depth: 1"

Temp: NA

Max. depth: 3"

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

NA

Other forms related to this feature: ☑ Yes ☐ No

☐ Terrace, fringe, or floodplain wetland (wetland datasheet)

☑ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

Project: 12001 La Grange Date: 3/31/23 Transect: 9

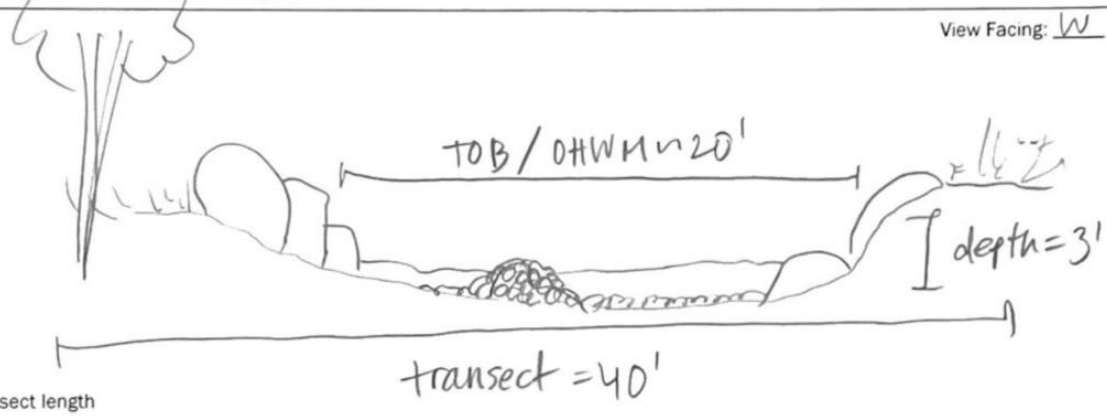
Investigator(s): AFS + AF Feature Name: ID-01 (off-site)

Site Location: portion of ID-01 west of La Grange Road.

Feature Type: ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):

View Facing: W



☑ Transect length
☑ OHWM width
☑ Channel depth
☑ Photo

Break in Slope at OHWM: ☐ Sharp (>60°) ☐ Moderate (30-60°) ☐ Gentle (<30°)

☐ Natural line impressed on the bank	☑ Sediment sorting
☑ Shelving	☐ Leaf litter disturbed or washed away
☑ Changes in the character of soil	☑ Scour
☑ Destruction of terrestrial vegetation	☐ Deposition
☐ Presence of litter and debris	☑ Bed and banks
☐ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☑ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	90				10
Below OHWM	10	10	60	10	10

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	10	0	90	0
Below OHWM	0	0	100	0

Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
AVEBAR BRODIA VICSAT EROCIC		N/A

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):

scour at culvert outfalls

Hydrology:

- ☑ Flowing water
- ☐ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: 1.5'

Min. depth: 1"

Temp:

Max. depth: 3'

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

NA

Other forms related to this feature: ☑ Yes ☐ No

☐ Terrace, fringe, or floodplain wetland (wetland datasheet)

☑ Low flow channel or other representative section (OHWM datasheet)

OHWM DATA SHEET

Project: 12001 La Grange Date: 3/31/23 Transect: 10

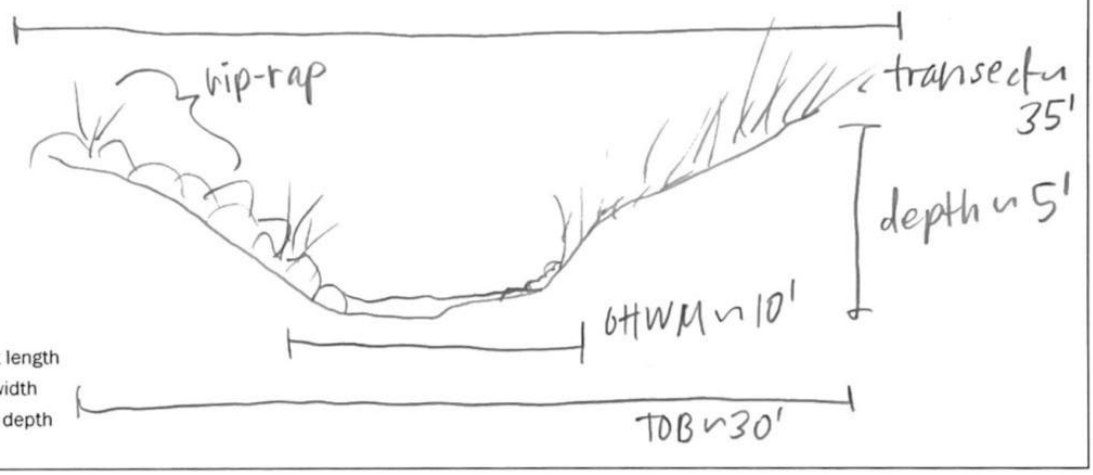
Investigator(s): AES & AF Feature Name: DIT-03

Site Location:
drainage ditch along hwy 120

Feature Type: ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s):

View Facing: W



☑ Transect length
☑ OHWM width
☑ Channel depth
☐ Photo

Break in Slope at OHWM: ☐ Sharp (>60°) ☐ Moderate (30-60°) ☐ Gentle (<30°)

☐ Natural line impressed on the bank	☑ Sediment sorting
☐ Shelving	☐ Leaf litter disturbed or washed away
☐ Changes in the character of soil	☐ Scour
☐ Destruction of terrestrial vegetation	☐ Deposition
☐ Presence of litter and debris	☑ Bed and banks
☐ Wracking	☐ Water staining
☑ Vegetation matted down, bent, or absent	☑ Change in plant community and/or cover

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	60	0	0	40	0
Below OHWM	50	10	20	20	0

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	0	60	40
Below OHWM	0	0	10	90

Stage: ☑ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
BRANIG AVEBAR EROCIC		NA

OHWM DATA SHEET

Condition/Disturbances (e.g., erosion, grazing, culverts, etc.):

feature is culverted below La Grange Road, rip-rap present along banks.

Hydrology:

- ☑ Flowing water
- ☐ Standing water
- ☐ Saturated
- ☐ Dry

Avg. depth: 3"

Min. depth: 1"

Temp: NA

Max. depth: 5"

Checklist of resources (if available):

☑ Aerial photography	☐ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☑ Soil maps	☐ Stream gage data
☐ Topographic maps	☑ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (plan view), notes:

NA

Other forms related to this feature: ☐ Yes ☑ No

- ☐ Terrace, fringe, or floodplain wetland (wetland datasheet)
- ☐ Low flow channel or other representative section (OHWM datasheet)

Appendix E
Review Area Photos

PP-01. View facing northeast along SR 120 in the northern parcel of the study area.

PP-02. View facing northeast along SR 120 in the northern parcel of the study area.

PP-03. View facing east near the intersection of La Grange Road and SR 120.

PP-04. View facing east along La Grange Road which runs parallel along the west side of the study area.

PP-05. View facing east of ID-01 in the northern parcel of the study area.

PP-06. View facing north along the railroad in the northern parcel of the study area.

PP-07. View facing east of feature P-01 in the north and northeastern portion of the study area.

PP-08. View facing east of feature P-01 in the north and northeastern portion of the study area.

PP-09. View facing east of oak woodland habitat in the northwestern portion of the study area.

PP-10. View facing northeast offsite along the eastern boundary.

PP-11. View facing west of DB-02 along the eastern boundary.

PP-12. View facing north near western boundary of the study area.

PP-13. View facing southeast of feature DIT-02.

PP-14. View facing northwest

PP-15. View facing northeast of feature DB-03.

PP-16. View facing southwest adjacent to DB-03.

PP-17. View facing southeast of feature DB-03.

PP-18. View facing south of DB-03.

PP-19. View facing east of feature US-02.

PP-20. View facing east of feature SW-03.

PP-21. View facing south of US-01.

PP-22. View facing southeast just south of the concrete lot facing PD-01 in the southeastern portion of the project.

PP-23. View facing southeast of DIT-01 in the southwestern portion of the study area.

PP-24. View facing east of feature SW-03.