P-18 Sewer Trunkline Project

Aquatic Resources Delineation Report

Butte County

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Prepared By: Sean O'Brien Sara Galindo Date: 10/18/2023

Sean O'Brien, Shannon Henke, and Sara Galindo, ICF Biologists
980 9th Street, Suite 1200, Sacramento, CA 95814
(916) 737-3000

Summary

This report presents the results of an aquatic resources delineation survey conducted for the P-18 Sewer Trunkline Project (Project). This Aquatic Resources Delineation Report provides technical documentation of the wetlands and non-wetland waters identified within the Project's delineation area.

The Project proponent, City of Chico (Proponent), is proposing to install a sewer trunkline mainly in the unincorporated region outside the south section of city limits. The delineation area was considered a 50-foot buffer around the Project Footprint. The delineation area includes the locations of all proposed Project elements. Included in this report is the delineation data necessary to obtain a jurisdictional determination by the U.S. Army Corps of Engineers (USACE).

The purpose of this delineation is to identify the extent of jurisdictional aquatic resources within and adjacent to the Project to support the federal and state regulatory permitting process. Relevant jurisdictions include federal jurisdiction regulated by the USACE as non-wetland waters of the United States (WOTUS) and wetland WOTUS under Section 404 of the Clean Water Act (CWA); state jurisdiction regulated by the State Water Resources Control Board (SWRCB)/Regional Water Quality Control Board (RWQCB) as WOTUS and wetland WOTUS under Section 401of the CWA; RWQCB surface waters of the State (WoS) regulated under Section 13260 of the Porter-Cologne Water Quality Act (Porter-Cologne Act); and lakes, streams and associated riparian vegetation regulated by the California Department of Fish and Wildlife (CDFW) under Section 1600 of the California Fish and Game Code.

In summary, a total of 1.39 acres of aquatic resources were delineated in the delineation area. There are a total of 0.32 acres (767 linear feet) of non-wetland waters (NWW) of the U.S./State, including 0.10 acre of non-wetland waters of the U.S./State exhibiting wetland characteristics below the Ordinary High Water Mark. Additionally, there are a total of 1.39 acres CDFW-jurisdictional comprised of 0.42 acres (767 linear feet) of streambed and 0.97 acres of associated riparian habitat outside of the top of bank.

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List of Tables and Figures

List of Abbreviated Terms

Abbreviation	Description
°F	degrees Fahrenheit
amsl	above mean sea level
ARDR	Aquatic Resources Delineation Report
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
HUC	hydrologic unit code
Minimum Standards	Minimum Standards for Acceptance of Aquatic Resources Delineation Reports
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWW	non-wetland waters
OBL	Obligate
OHWM	ordinary high water mark
ORM	Ombil Regulatory Module
PJD	Preliminary Jurisdictional Determination
Porter-Cologne Act	Porter-Cologne Water Quality Act
Project	P-18 Sewer Trunkline Project
Project Footprint	construction corridor
Proponent	Project proponent, City of Chico
RAWS	Remote Automatic Weather Station
RWQCB	Regional Water Quality Control Board
SR	State Route
SSURGO	Soil Survey Geographic
SWRCB	State Water Resources Control Board
UPL	Upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WoS	waters of the State
WOTUS	waters of the United States

Chapter 1 Introduction

On behalf of the City of Chico, ICF conducted a formal aquatic resources delineation for the P-18 Sewer Trunkline Project (Project) Survey Area, to identify areas that may be considered jurisdictional under the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act; 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 the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code. The information provided in this Aquatic Resources Delineation Report (ARDR) is necessary to define the presence or absence of aquatic resources within the Survey Area. This ARDR can also be used by the agencies to inform the jurisdictional status of delineated aquatic resources and by the applicant and agencies to assess conformance with state and federal regulations and to estimate potential impacts and associated permitting requirements.

In April and June 2023, ICF conducted a routine-level aquatic resources delineation of potential non-wetland and wetland aquatic resources at the P-18 Sewer Trunkline Project (Project) as part of the federal and state regulatory permitting process (Figure 1). The ARDR Survey Area comprises the proposed Project area plus an additional 50-foot buffer.

The information contained in this report is in compliance with the USACE Sacramento District's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (Minimum Standards; U.S. Army Corps of Engineers 2016). This ARDR also serves as a request for the USACE to complete a Preliminary Jurisdictional Determination (PJD) based on the information provided in this report.

1.1 Project Location

The proposed Project is located within and immediately outside of the City of Chico, Butte County, California (Figure 1). The Project occurs along Midway, Entler Avenue, Cramer Lane, Morrow Lane, and Skyway and is bisected by State Route (SR) 99. The Project occurs on the Chico U.S. Geological Survey (USGS) 7.5-minute quadrangle.

The construction corridor (Project Footprint) is 40 feet wide and approximately 2.87 miles long. The aquatic resource delineation area consists of the Project Footprint plus a 50-foot buffer, encompassing a total of 63.27 acres.

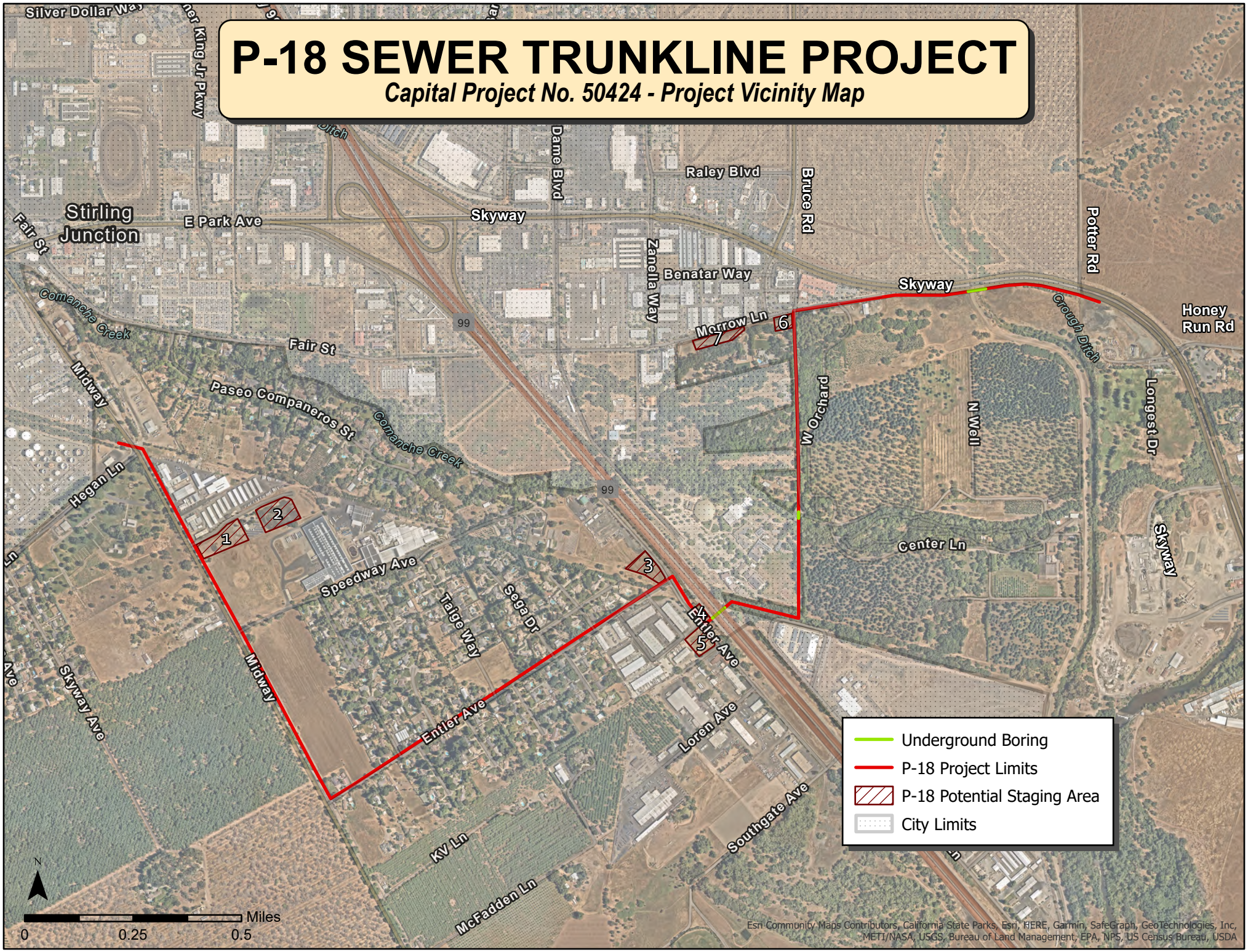

Figure 1. Project Vicinity

Chapter 2 Methods

2.1 Sources of Information

The following sources of information were reviewed in conjunction with fieldwork.

- Chico USGS 7.5-minute topographic quadrangle.
- Google Earth aerial imagery (2023).
- Watershed maps available from National Hydrography Dataset (NHD) (USGS 2022)
- National Wetlands Inventory (NWI) maps (U.S. Fish and Wildlife Service 2023) (Appendix E).
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database (Soil Survey Staff et al. 2022) for the delineation area (Appendix E).
- Natural Resources Conservation Service soils map (2023) (Appendix E).
- Biological Resource Assessment. Aquatic and Terrestrial Wildlife, and Botanical Resources. Valley's Edge Project in Butte County, California (Gallaway 2018).
- Biological Resource Assessment. Terrestrial Wildlife and Botanical Resources. Valley's Edge Off-site Infrastructure Project in Chico, California (Gallaway 2020).

These resources were used to assist in identifying the approximate locations of potential aquatic resources subject to regulation by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW), within the delineation area.

2.2 Field Delineation and Mapping

The aquatic resource delineation was conducted on April 10 and 11, 2023, by ICF biologists Sean O'Brien and Shannon Henke. Additional aquatic resource delineation fieldwork was conducted on June 27, 2023, by ICF biologists Sean O'Brien and Shannon Henke.

The maps in this report were generated from field measurements, aerial photography, and existing geospatial datasets (Appendix A, Aquatic Resources Delineation Map). Locations within the delineation area were identified using an iPad and EOS Arrow 100® Submeter GNSS Receiver. Wetland and OHWM determination data forms are included in this report to document the aquatic resources identified during the survey (Appendix B). A list of plant species observed within the delineation area was compiled, and the scientific name and wetland indicator status of each species are provided in Appendix C. Representative photographs were taken of representative potential wetland and non-wetland waters at each location within the delineation area (Appendix D). Supporting Information (Natural Resources Conservation Science [NRCS] Soils Map and National Wetland Inventory [NWI] Map) is provided in Appendix E. The Aquatic Resource Excel Spreadsheet (Ombil Regulatory Module [ORM] Worksheet) is provided in Appendix F.

The below subsections provide the aquatic resource delineation methods used per applicable regulatory agency guidance.

2.2.1 U.S. Army Corps of Engineers

The regulation defining the extent of WOTUS has changed a number of times since the enactment of the CWA in 1972. Most recently, U.S. Environmental Protection Agency (EPA) and Department of the Army (the agencies) promulgated a new definition of WOTUS, the 2023 WOTUS Rule that went into effect on March 20, 2023. On May 25, the U.S. Supreme Court decided *Sackett v. USEPA*, which considered the jurisdictional extent of WOTUS. On August 29, 2023, the agencies issued a final rule to conform the definition of "waters of the United States" to the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency*. This definition establishes the scope of USACE and EPA authority under the CWA. The conforming rule, "Revised Definition of 'Waters of the United States'; Conforming," became effective September 8, 2023, and is as follows.

33 CFR 328.3(a)(1)-(5)

a) ***Waters of the United States*** means:

1) Waters which are:

i) 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;

ii) The territorial seas; or

iii) Interstate waters;

2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

4) Wetlands adjacent to the following waters:

i) Waters identified in paragraph (a)(1) of this section; or

ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

5) Intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

Wetlands are in 33 C.F.R. 328.3(c)(1) as follows:

- The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in

saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Adjacent is in 33 C.F.R. 328.3(c)(2) as follows:

- The term *adjacent* means having a continuous surface connection.

2.2.1.1 Non-Wetland Waters Delineation Methods

If no adjacent wetlands are present, the lateral extent of federal jurisdiction over non-tidal waters of the U.S. is defined by the ordinary high-water mark (OHWM). The OHWM is defined in the pre-2015 regulations as "…the line on the [watercourse banks] established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 C.F.R. 328.3(c)(4)).The lateral limits of non-wetland waters of the U.S. were mapped using guidance provided in *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States: A Determination Manual* (U.S. Army Corps of Engineers 2008), *Ordinary High Water Flows and the Stage-Discharge Relationship in the Arid West Region* (U.S. Army Corps of Engineers 2011), and Regulatory Guidance Letter 05-05. OHWM Datasheets for representative non-wetland water features located within the delineation area were completed and are provided in Appendix B and the location of each OHWM sample point is depicted in Appendix A. The Rapid Ordinary High-Water Mark (OHWM) Field Identification Datasheet was completed (U.S. Army Corps of Engineers 2021). Common indicators of OHWM include changes in average sediment texture, break in slope, changes in vegetation species, and/or changes in vegetation cover.

Where ephemeral and intermittent non-wetland waters were encountered, the active floodplain was identified as the lateral limit of the watercourse.

2.2.1.2 Wetland Delineation Methods

Section 404 Wetland WOTUS consist of areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The delineation was conducted according to the routine onsite determination methods described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0). The *Field Indicators of Hydric Soils in the United States, Version 8.2*. (U.S. Department of Agriculture and National Resources Conservation Service 2018) was used to identify hydric soil, vascular plants were identified using *The Jepson eFlora* (Jepson Flora Project 2023), and nomenclature and associated wetland ratings follow *The National Wetland Plant List* (U.S. Army Corps of Engineers 2020).

2.2.2 State Water Resources Control Board/Regional Water Quality Control Board

2.2.2.1 Non-Wetland Waters Delineation Methods

In California, the State Water Regional Control Board (SWRCB) and nine RWQCBs regulate activities within state and federal waters under Section 401 of the CWA and the Porter-Cologne Water Quality Act (Porter-Cologne Act). The SWRCB defines waters of the State (WoS) broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB and RWQCBs do not have regulations or guidance defining the extent of non-wetland WoS. The lateral limits of potential non-wetland WoS were mapped using the same methods for determining OHWM as described in Section 2.2.1 because the Central Valley RWQCB has previously accepted this method for delineating WoS.

2.2.2.2 Wetland Delineation

On April 2, 2019, the SWRCB adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures; State Water Resources Control Board 2019). The Procedures became effective on May 28, 2020, and define wetland WoS as follows:

> An area is wetland 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.

The Procedures provide that RWQCBs shall rely on a wetland delineation from a final ARDR verified by the USACE to determine the extent of wetland WoS where USACE has verified such a delineation. If any potential wetland areas have not been delineated in a final ARDR verified by the USACE, the limits of such potential wetland WoS shall be identified using the same wetland delineation methods per the USACE as described in Section 2.2.1, except that a lack of vegetation (i.e., less than 5% areal coverage of plants during the peak of the growing season) does not preclude an area from meeting the definition of a wetland when hydric soils and wetland hydrology are present (State Water Resources Control Board 2019).

2.2.3 California Department of Fish and Wildlife Jurisdiction

Pursuant to Sections 1600 et al. of the California Fish and Game Code, CDFW regulates any activity that would substantially divert or obstruct the natural flow—or substantially change or use any material from the bed, channel, or bank—of any river, stream, or lake. CDFW jurisdiction relies on the presence of a lake and/or streambed and associated riparian habitat. CDFW regulation under California Fish and Game Code Section 1602 requires that all lakes and streams on a project site are identified in order to assess the proposed activity's potential impacts on these aquatic resources.

2.2.3.1 Lake, Streambed, and Associated Riparian Habitat Delineation

CDFW defines lakes as “natural lakes or man-made reservoirs” (14 California Code of Regulations [CCR] § 1.56). With respect to streams, it has been the practice of CDFW to define a stream as “a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” (Brady and Vyverberg 2014). The historic hydrologic regime is defined as circa 1800 to the present. In addition, streams include “watercourses having a surface or subsurface flow that supports riparian vegetation” (14 CCR § 1.72). Riparian habitat refers to vegetation and habitat associated with a stream. CDFW-jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream. Isolated riparian habitat (i.e., where riparian vegetation does not appear associated with a stream channel) is not considered CDFW-jurisdictional.

Historical court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear but re-emerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional. Water features such as vernal pools and other seasonal swales—where the defined bed and bank are absent, and the feature is not contiguous or closely adjacent to other jurisdictional features—are generally not asserted to fall within CDFW jurisdiction under Section 1600. CDFW generally does not assert jurisdiction over human-made water bodies unless they are located where such natural features were previously located or where they are contiguous with existing or prior natural jurisdictional areas.

Based on the above, potential CDFW-jurisdictional aquatic resources included lakes and/or streambeds and their associated riparian habitats. The lateral extent of potential CDFW jurisdiction is interpreted to be “bank to bank” for a streambed or to the “dripline” of riparian habitat and/or wetland boundary if present. In addition, wetlands identified below the top of bank of a streambed are also considered under the jurisdiction of CDFW.

Chapter 3 Setting

3.1 Climate

This Project region generally reflects a Mediterranean climate with cool, wet winters and warm, dry summers. The Project occurs in a warm temperate climate with dry summers and hot arid temperatures (Csa) according to the updated Koppen-Geiger Climate Classification Map (Kottek et al. 2006). This indicates potential evaporation and precipitation may be near equal (Bailey 2014). The arid conditions of the region are due in part to rain shadow effect where moist air coming from the Pacific Ocean rises once it reaches the mountains of the California coast range where the water vapor condenses and falls as precipitation and results in arid conditions, or a rain shadow, on the leeward side of the mountains.

The closest weather station to the Project with sufficient data is the Corning California Remote Automatic Weather Station (RAWS). The RAWS is located approximately 25 miles northwest of the Project at an elevation of approximately 294 feet above mean sea level (amsl) (Western Regional Climate Center 2023). A summary of the analysis of 26 years of the RAWS data (from 1998 to 2023) is provided. The annual mean high temperature is 76.4 degrees Fahrenheit (°F), with average daily highs ranging from 56.1°F in December to 97.2°F in July. The annual mean low temperature is 50.8 °F, with average daily lows ranging from 38.5 °F in December to 65.4 °F in July. The 26-year average annual precipitation is 19.3 inches, mostly falling during October through May with December and January having the most significant precipitation.

3.2 Recent Weather and Precipitation Before and During Fieldwork

The delineation occurred during the spring and summer of the 2023 water-year (October 1 of the previous year through September 30 of the referenced year). As of June 27, 2023 (the last day of fieldwork), precipitation for the Project vicinity is recorded at 28.69 inches for the 2023 water-year, above the 26-year average of 19.3 inches (Western Regional Climate Center 2023).

The timing of fieldwork was conducive to accurately delineating WOTUS/WoS at the Project. Due to the above average rainfall year, vegetation throughout the Project was in bloom and readily identifiable during fieldwork. Additionally, wetland hydrology indicators were apparent and discernible where present.

3.3 Topography

The Project is situated at the eastern edge of the Sacramento Valley, the northern portion of California's Central Valley, just west of the foothills at the base of the Sierra Nevada Mountains. The Project is primarily, topographically flat and elevations range from approximately 200 feet above sea level near Hegan Lane, increasing to 250 feet near its eastern terminus along Skyway.

3.4 Hydrology

The Project occurs in the Dubock Slough-Little Butte Creek (hydrologic unit code [HUC] 12: 180201580204) and Comanche Creek (HUC 12: 180201580301) subwatersheds, which are located in the Angel Slough (HUC 10: 1802015803) and Middle Butte Creek (HUC10: 1802015802) subwatersheds, which are further located within the Butte Creek (HUC8: 18020158) watershed (USGS 2023).

The sources of hydrology in the delineation area are direct precipitation and surface runoff. The ephemeral streams in the Project flow west and join with Comanche Creek to the west of the delineation area. Comanche Creek continues flowing west until it joins Little Chico Creek to become Angel Slough. Angel Slough flows into the Sacramento River, which eventually flows through the San Fransisco Bay Delta and into the Pacific Ocean. The Butte Creek Diversion Channel flows south until it joins Butte Creek, which continues southwest to the Sacramento River.

3.5 National Wetlands Inventory

The NWI provides maps and information on the status, extent, characteristics, and functions of wetland, riparian, deep-water, and related aquatic habitats in priority areas to promote the understanding and conservation of these resources. The mapping uses the U.S. Fish and Wildlife Service definition of wetland. The NWI mapping shows the extent of wetlands and deep-water habitats that can be determined with the use of remotely sensed data and originates from 1977 to the present. The NWI mapping, therefore, cannot be used to delineate wetlands and other WOTUS but can provide useful background information on the broad types of wetland and riparian vegetation communities in the delineation area and vicinity.

A review of NWI online mapping (U.S. Fish and Wildlife Service 2023) shows riverine, freshwater emergent wetland, and freshwater forested/shrub wetland mapped within the Project (Appendix E).

3.6 Land Use

The Project Footprint is primarily situated along existing roads, which are used for transportation purposes. The delineation area includes lands that are utilized for a combination of residential, commercial, recreational, and agricultural purposes. The Chico Seed Orchard, part of the Mendocino National Forest Genetic Resource and Conservation Center, occurs within the Project along Cramer Lane and is used for seed production, ecological restoration, and recreation (e.g., walking, wildlife watching, picnicking).

The surrounding area has similar land uses of residential, commercial, recreational, and agricultural. Residences and commercial buildings associated with the City of Chico occur to the north and south of the Project. Agricultural lands occur to the west of the Project. More natural lands occur to the east of the Project.

3.7 Soils

Soil map units in the delineation area are listed in Table 1 below (National Resources Conservation Service 2023). The only major soil map units within the delineation area that are considered hydric are 118 - Xerorthents, Tailings and 0 to 50% slopes and 301 - Wafap-Hamslough, 0 to 2% slopes. The NRCS soil map is provided in Appendix E.

Table 1. Soil Map Units in the Delineation area

Map Unit Symbol	Map Unit Name	Acres in Delineation area	Percent of Delineation area
118	Xerorthents, Tailings and 0 to 50%slopes	0.4	0.6%
300	Redsluff gravelly loam, 0 to 2% slopes	4.6	7.3%
301	Wafap-Hamslough, 0 to 2% slopes	1.0	1.6%
302	Redtough-Redswale, 0 to 2% slopes	11.0	17.3%
425	Vina fine sandy loam, sandy substratum, 0 to 2% slopes, MLRA 17	17.4	27.5%
445	Chico loam, 0 to 1% slopes	24.6	38.9%
447	Charger fine sandy loam, 0 to 1% slopes	3.8	6.0%
615	Doemill-Jokerst, 3 to 8%slopes	0.5	0.7%
Totals for Area of Interest		**63.3**	**100.0%**

3.8 Vegetation

The delineation area occurs within the Great Valley region and the Sacramento Valley geographic subdivision of the California Floristic Province (Baldwin et al. 2012) and within the USACE Arid West region. Wetland indicator status for each plant species reflects the Arid West National Wetlands Plant List and uses the abbreviations provided in Table 2 (U.S. Army Corps of Engineers 2020).

Table 2. Wetland Indicator Status Definitions

Abbreviation	Wetland Indicator Status	Description
OBL	Obligate	Almost always occurs in wetlands (>99% probability of occurrence).
FACW	Facultative wetland	Usually occurs in wetlands (66–99% probability of occurrence).
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (34–66% probability of occurrence).
FACU	Facultative upland	Usually occurs in non-wetlands but occasionally in wetlands (1–33% probability of occurrence).
UPL	Upland	Almost always occurs in non-wetlands (>99% probability of occurrence).

Five upland and five aquatic features and associated land cover types occur within the delineation area. A description of each land cover type found within the delineation area is provided below. Representative photos of some of these land cover types can be found in Appendix D.

3.8.1 Upland Land Cover Types

Five upland land cover types are present in the delineation area: agriculture, annual grassland, developed, upland ditch, and valley oak woodland. A general description of each upland land cover type is provided.

3.8.1.1 Agriculture

Agricultural landcovers in the delineation area includes English walnut (*Juglans regia*) orchards and the Mendocino National Forest Chico Seed Orchard Administrative Site. These habitats are characterized by evenly spaced trees of the same age. The understory is variable and often has very low cover of weedy species or is of similar composition as the annual grassland land cover. Fallow farm fields and apiaries in the delineation area were included in the annual grassland land cover based on the vegetation composition.

3.8.1.2 Annual Grassland

Annual grassland habitat is common in the delineation area and is dominated by annual grasses and forbs. Plant species composition, density, and habitat quality is variable in this habitat. Some areas are dominated by introduced species, especially in areas that are routinely disturbed, whereas other areas can be dominated by a mix of native annual wildflowers. This habitat can intergrade with adjacent habitats, include planted ornamental trees and shrubs, and occasionally supports patches of perennial herbs. Common plant species observed includes slender oat (*Avena barbata*), common fiddleneck (*Amsinckia intermedia*), filaree (*Erodium* spp.), and wall barely (*Hordeum murinum*). Some staging areas in the delineation area with grassland habitat are being utilized for bee keeping apiaries. These areas could be considered agricultural land covers, they are included in annual grassland based on the vegetation cover, not human use. Similarly, some fields in the delineation area may have been subjected to relatively recent agricultural disturbance such as plowing/discing. These habitats were still included in the annual grassland land cover based on vegetation composition.

3.8.1.3 Developed

Developed habitats are characterized by features associated with human development, including structures (e.g., buildings, bridges, etc.), roads and other paved and gravel surfaces. Developed habitats may include ornamental landscaping, and weedy plant species and can support wildlife species that utilize developed habitats.

3.8.1.4 Upland Ditch

Ditches in the delineation area are constructed in uplands to drain uplands and conveying flows only immediately after rain events, are common along roads in the delineation area. These features support variable conditions, being unvegetated or supporting weedy upland species consistent with plant species present in the annual grassland habitat.

3.8.1.5 Valley Oak Woodland

Valley oak woodland is characterized by the dominance of valley oak (*Quercus lobata*) trees. This habitat is present in the delineation area, sometimes in rural, undeveloped areas and also in residential and rangeland settings. The understory is variable and slender oat and other

species common in the annual grassland habitat are common. Other common understory species includes vetch (*Vicia* spp.), ripgut brome (*Bromus diandrus*), and bedstraw (*Galium aparine*).

3.8.2 Aquatic Features and Associated Land Cover Types

A general description of the five aquatic land cover types (all non-wetland waters and no wetlands) observed within the delineation area is provided. A detailed description with jurisdictional rationale of each aquatic feature is provided in Chapter 4, *Results*.

3.8.2.1 Wetlands

No wetlands outside of the OHWM were mapped within the delineation area.

3.8.2.2 Non-Wetland Waters

Non-wetland waters and associated habitats mapped within the delineation area include aquatic ditch, ephemeral stream, intermittent stream, perennial stream, and valley oak riparian forest.

Aquatic Ditch

Aquatic ditches are artificially constructed to convey flows, are common along roads in the delineation area, and are constructed adjacent to culverts. Aquatic ditches can support hydrophytic vegetation such as tall sedge (*Cyperus eragrosti*s) and curly dock (*Rumex crispus*).

Ephemeral Stream

Ephemeral streams in the delineation area convey surface flow largely in response to precipitation and were mostly dry during the survey. These features have a bed, bank, and show evidence for frequent and recent waterflow.

Intermittent Stream

An intermittent stream has flowing water during certain times of the year, both in response to precipitation and when groundwater provides water for stream flow. Intermittent streams may not have flowing water during the dry season. Runoff from rainfall is a supplemental source of water for stream flow.

Butte Creek Diversion Channel is an intermittent stream in the delineation area which is supported by groundwater though rainfall can also contribute to flow. This feature's name implies that portions of may have been modified in the past though and urban and agricultural development surrounds this feature in some locations within and outside of the delineation area. Structures such as bridges, roads, and associated reinforcement (e.g., riprap) can confine, reinforce the channel, and altering the conveyance of water through the feature. Intermittent streams can support hydrophytic vegetation adapted to the hydrological conditions of the stream, however plant phenology was dormant or early conditions during the survey.

Perennial Stream

Perennial streams are water courses that flow year-round. Comanche Creek is a perennial stream in the delineation area and is surrounded by valley oak riparian forest habitat on the banks. This channel is primarily unvegetated in the delineation area, likely due to regular scouring, though occasional patches of hydrophytic vegetation may be present.

Valley Oak Riparian Forest

Valley oak riparian forest is a habitat associated with non-wetland waters. It grows along the banks of ephemeral and perennial stream (Comanche Creek) habitats in the delineation area. This habitat has a diverse canopy including valley oak, Oregon ash (*Fraxinus latifolia*), California sycamore (*Platanus racemosa*), and Northern California black walnut (*Juglans hindsii*); redbud (*Cercis occidentalis*), California grape (*Vitis californica*), and poison oak (*Toxicodendron diversilobum*) in the low canopy, and a mix of shrubs, herbs, and graminoids in the understory.

Chapter 4 Results

A total of 1.405 acres of potentially jurisdictional aquatic resources were identified in the delineation area (Table 3, Appendix A). The information provided in this report reflects the best professional judgement of the ICF delineators but has not been independently verified by the USACE Sacramento District, Central Valley RWQCB, or CDFW.

OHWM data forms are provided in Appendix B. A list of plants observed in the delineation area during the delineation is provided in Appendix C. Representative photographs of the delineated features are provided in Appendix D.

Table 3. Aquatic Resources in the Delineation Area

Feature	Cowardian Classification[1]	Dominant Vegetation (indicator status)	Waters WOUS/WOS (ac./LF)		CDFW Jurisdiction		Lat/Long
			Non-wetland waters (ac./LF)	Non-wetland waters with wetland characteristics (ac./LF)	Streambed (ac./LF)	Riparian (ac)	
NWW-1	Riverine, Perennial	*Quercus lobata* (FACU) *Salix lasiolepis* (FACW) *Rubus armeniacus* (FAC)	0.14/225	-	0.19/225	0.35	39.70714, -121.7872
NWW-2	Riverine, Ephemeral	*Rumex crispus* (FAC) *Festuca perennis* (FAC) *Quercus lobata* (FACU)	0.02/70	-	0.02/70	0.11	39.70943, -121.7874
NWW-3	Riverine, Ephemeral	*Rumex crispus* (FAC) *Festuca perennis* (FAC) *Quercus lobata* (FACU)	0.05/235	-	0.07/235	0.51	39.7114, -121.7872
NWW-4	Riverine, Ephemeral	*Rumex crispus* (FAC) *Festuca perennis* (FAC)	0.01/103	-	0.02/103	-	39.71283, -121.7844
NWW-5	Riverine, Intermittent	*Eleocharis macrostachya* (OBL) *Typha* sp. (OBL) *Mentha pulegium* (OBL)	-	0.10/134	0.12/134	-	39.71302, -121.7812
Total			**0.22/633**	**0.10/134**	**0.42/767**	**0.97**	

Data based on ICF GIS Calculations, October 2023

[1] Cowardin et al. 1979

4.1 Potentially Jurisdictional Features in the Delineation Area

Five potentially jurisdictional non-wetland waters were delineated within the delineation area. No adjacent wetlands were identified within the delineation area, however Non-Wetland 4 supported wetland vegetation within the OHWM.

4.1.1 Non-Wetland Water 1

NWW-1 (Comanche Creek) is a perennial stream, which flows into Little Chico Creek west of the delineation area and prior to flowing to the Sacramento River, which ultimately flows to the Pacific Ocean via the San Fransisco Bay Delta. The stream supports year-round flows with increased hydrologic inputs following rain events. The feature was observed with flowing water

on April 10, 2023, and June 27, 2023. No vegetation, emergent or otherwise, was observed in the feature below the OHWM. Areas above the OHWM tended to have higher vegetation cover and were dominated by riparian trees and understory including Himalayan blackberry (*Rubus armeniacus*) (FAC), California wild rose (*Rosa californica*) (FAC), valley oak (*Quercus lobata*) (FACU), Fremont cottonwood (*Populus fremontii*) (UPL), arroyo willow (*Salix lasiolepis*) (FACW), and common buttonbush (*Cephalanthus occidentalis*) (OBL). While we expect this area to be inundated at times, we did not see indicators of hydrology nor expect the area above the OHWM to hold water beyond a normal storm event. Thus, no adjacent wetland was mapped for this feature. NWW-1 supports an average OHWM width of 44 feet, identified by a clear break in slope of approximately 30% and a change in vegetation cover. No indicators of wetland hydrology were observed outside the OHWM.

4.1.2 Non-Wetland Water 2

NWW-2 is an ephemeral feature within the delineation area. This feature flows from east to west into Comanche Creek west of the delineation area. On the west side of Cramer Lane and downstream of the culvert conveying flows under the road, presence of an OHWM and bed and bank were observed. A small depression was observed on the east side of the road and upstream of the culvert. This feature lacked presence of an OHWM and was therefore not delineated. This upstream portion of the feature was likely destroyed when the orchard to the east of Cramer Lane was developed. On the west side of the road, the stream was observed with flowing water on April 10, 2023, and dry on June 27, 2023. The bed of the ephemeral stream varied in vegetation density and ranged from unvegetated to sparsely vegetated with patches of bare ground. Below the OHWM was generally bare but occasional curly dock (*Rumex crispus*) (FAC) occurred. Areas above the OHWM tended to have higher vegetation cover and were dominated by facultative and upland species including Italian rye grass (*Festuca perennis*) (FAC) and slender oat (*Avena barbata*) (UPL). NWW-2 supports n average OHWM width of 10 feet. The OHWM was identified by a clear break in slope and a change in vegetation type and cover. An associated riparian canopy was delineated for NWW-2. The riparian canopy adjacent to this ephemeral feature is likely present due to an association with Comanche Creek, just south of the feature.

4.1.3 Non-Wetland Water 3

NWW-3 is an ephemeral feature within the delineation area. This feature flows from east to west into Comanche Creek west of the delineation area. NWW-3 has continuous flow and appears throughout the delineation at three locations and is thus depicted as NWW-3a, NWW-3b, and NWW-3c as applicable. The stream was observed with flowing water on April 10, 2023, and dry on June 27, 2023. The bed of the ephemeral stream varied in vegetation density and ranged from unvegetated to sparsely vegetated with patches of bare ground. Below the OHWM was generally bare but occasional curly dock (*Rumex crispus*) (FAC) occurred. Areas above the OHWM tended to have higher vegetation cover and were dominated by facultative and upland species including Italian rye grass (*Festuca perennis*) (FAC) and slender oat (*Avena barbata*) (UPL). NWW-3 supports an average OHWM width of 13-feet. The OHWM was identified by a clear break in slope and a change in vegetation type and cover. An associated riparian canopy was delineated for NWW-2. The riparian canopy adjacent to this ephemeral feature is likely present due to an association with Comanche Creek, just south of the feature.

4.1.4 Non-Wetland Water 4

NWW-4 is an ephemeral feature within the delineation area. The feature flows south under Morrow Lane and eventually joins with NWW-3 beyond the delineation area, which flows to Comanche Creek downstream. The feature was observed with flowing water on April 10, 2023, and dry on June 27, 2023. This feature is an aquatic ditch supporting an OHWM that carries flows from a wetland area just upstream and north of Morrow Lane. The bed of the feature varied in vegetation density and ranged from unvegetated to sparsely vegetated with patches of bare ground. Below the OHWM was generally bare but occasional curly dock (*Rumex crispus*) (FAC) occurred. Areas above the OHWM tended to have higher vegetation cover and were dominated by facultative and upland species including Italian rye grass (*Festuca perennis*) (FAC), slender oat (*Avena barbata*) (UPL), and yellow star thistle (*Centaurea solstitialis*) (UPL). NWW-4 supports an avrage OHWM width of 4 feet, identified by a clear break in slope of approximately 45% and a change in vegetation cover.

4.1.5 Non-Wetland Water 5

NWW-5 (Butte Creek Diversion Channel) is an intermittent stream present within the delineation area which flows south until it joins Butte Creek, which continues southwest to the Sacramento River. The stream supports flowing water seasonally and following rainfall events. The feature was observed flowing water on April 10, 2023, and dry with saturated soils on June 27, 2023. The bed of the intermittent stream varied in vegetation density and ranged from sparsely vegetated with patches of bare ground to densely vegetated. Dominant species below the OHWM consisted of hydrophytic species such as denseflower willowherb (*Epilobium densiflorum*) (FACW), rough cocklebur (*Xanthium strumarium*) (FAC), common spikerush (*Eleocharis macrostachya*) (OBL), curly dock (*Rumex crispus*) (FAC), pennyroyal (*Mentha pulegium*) (OBL), Italian rye grass (*Festuca perennis*) (FAC), dodder (*Cuscuta* sp.), cattail (*Typha* sp.) (OBL), and Oregon ash (*Fraxinus latifolia*) (FACW). Areas above the OHWM tended to have higher vegetation cover and were dominated by facultative and upland species including Italian rye grass (*Festuca perennis*) (FAC), English plantain (*Plantago lanceolata*) (FAC), tall annual willowherb (*Epilobium brachycarpum*) (FAC), and yellow star thistle (*Centaurea solstitialis*) (UPL). NWW-5 supports an average OHWM width of 34 feet, identified by a clear break in slope of approximately 30% and a change in vegetation cover. Due to the presence of hydrophytic vegetation and saturated soils (a primary hydrology indicator) observed during the June field effort, NWW-5 appears to support wetland characteristics below the OHWM. Because these indicators were observed below the OHWM, Wetland Determination Data Forms were not completed. Additionally, ICF biologists did not have permission to dig to determine the presence of hydric soils. No indicators of wetland hydrology were observed outside the OHWM.

4.2 Non-Jurisdictional Features

4.2.1 Stormwater Basin

A small area within the developed habitat was evaluated as a potential wetland. This feature was artificially constructed to collect stormwater and irrigation runoff. This area contains hydrophytic vegetation and displays indicators of hydrology. ICF biologists did not have permission to dig to determine the presence of hydric soils (Appendix B).

Per the conforming rule, “Revised Definition of ‘Waters of the United States’; Conforming,” effective September 8, 2023 (33 CFR 328.3(b)(1)), Waste treatment systems designed to meet the requirements of the Clean Water Act are excluded from waters of the United States. This basin was created and is maintained as a waste treatment system to treat stormwater runoff. Per the Procedures for Discharges of Dredged or Fill Material to Waters of the State, an artificial wetland constructed and maintained for detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program are not considered waters of the State. Further, this feature does not exhibit a channel, bed, bank, or riparian vegetation and is not considered subject to CDFW jurisdiction. Due to the aforementioned, this feature was determined to be non-jurisdictional under all regulations addressed in this report.

Chapter 5 Conclusion

NWW-1 (Comanche Creek) is a perennial stream, which flows into Little Chico Creek west of the delineation area and then to the Sacramento River, where it ultimately flows to the Pacific Ocean via the San Fransisco Bay Delta. NWW-2 and NWW-3 are ephemeral features within the delineation area. Both features flow west into Comanche Creek to the west of the delineation area. NWW-4 is an ephemeral feature within the delineation area, flowing south under Morrow Lane and eventually to NWW-3, and then into Comanche Creek downstream. NWW-5 (Butte Creek Diversion Channel) is an intermittent stream present within the delineation area which flows south until it joins Butte Creek and continues southwest to the Sacramento River.

NWW-1, NWW-2, NWW-3, NWW-4, and NWW-5 are considered potential waters of the U.S./State and CDFW streambed, subject to regulation under Sections 401 and 404 of the Clean Water Act by the USACE and RWQCB, and under 1600 of the CDFW Fish and Game Code.

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Appendix A Aquatic Resources Delineation Map

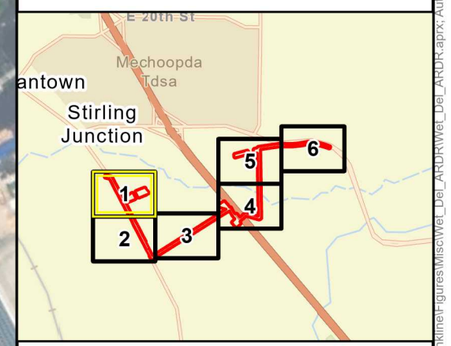
P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

- Delineation Area (63.34 acres)
- Photo Point

CDFW Jurisdiction

- Culverts
- Riparian
- Streambed



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1 inch = 200 ft

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Delineation Date: April 7 & June 23, 2023
Drawn By: Nicole Stotz

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CDFW Aquatic Resources Delineation Map

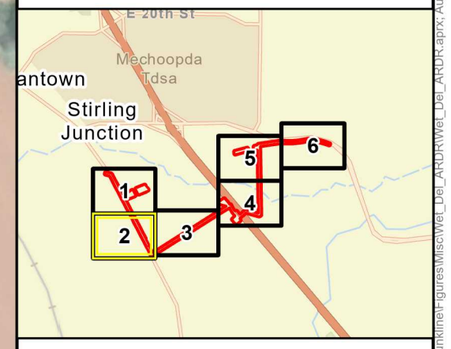
P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

- Delineation Area (63.34 acres)
- Photo Point

CDFW Jurisdiction

- Culverts
- Riparian
- Streambed



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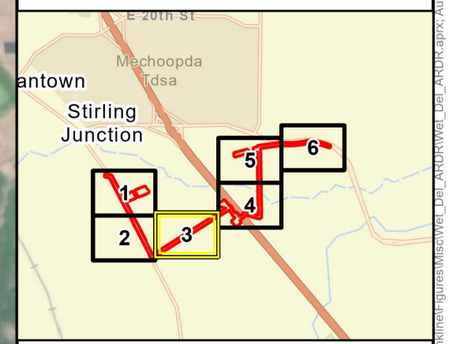
P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

- Delineation Area (63.34 acres)
- Photo Point

CDFW Jurisdiction

- Culverts
- Riparian
- Streambed



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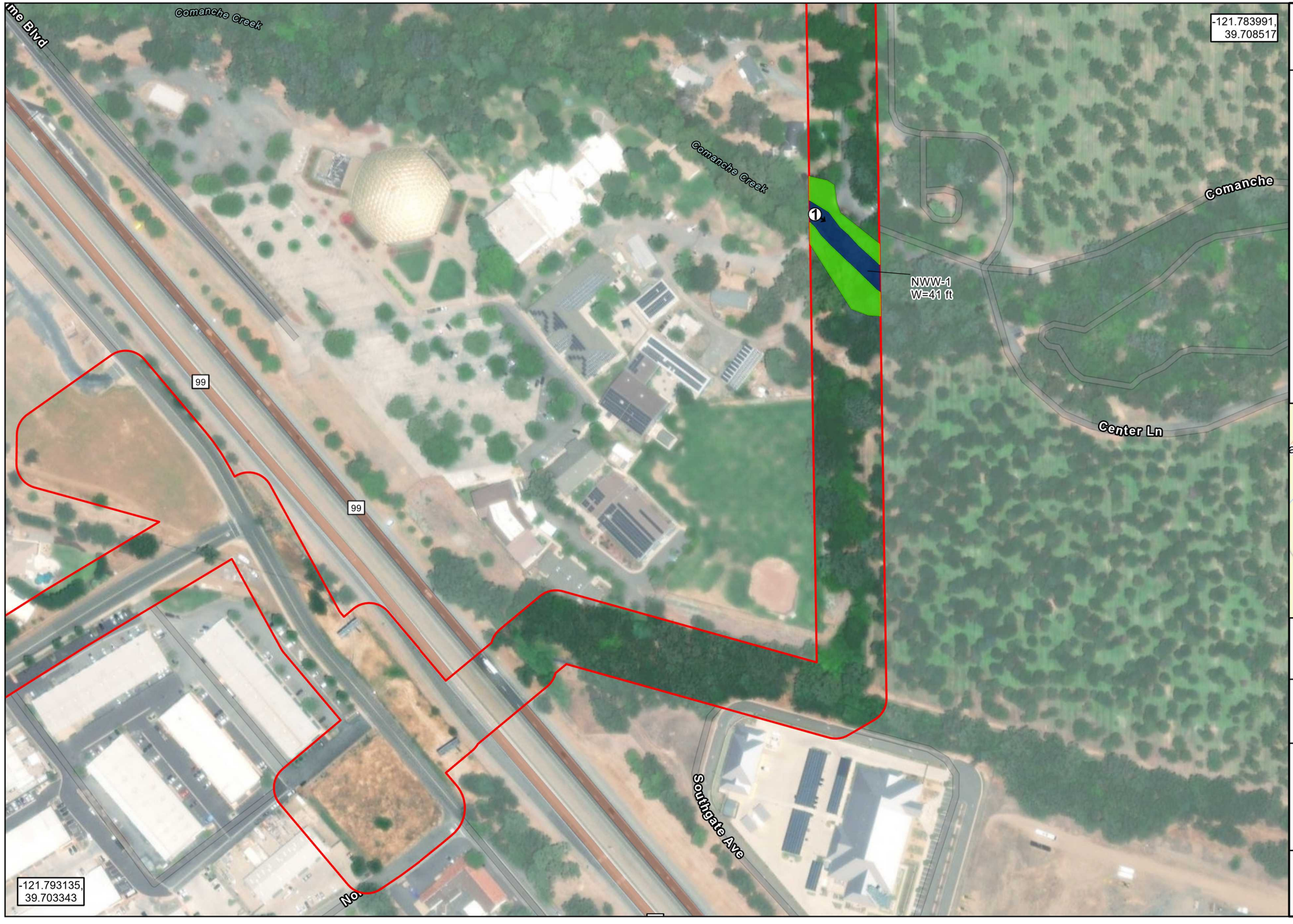


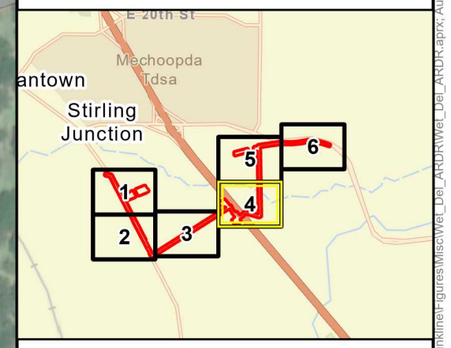
P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

- Delineation Area (63.34 acres)
- Photo Point

CDFW Jurisdiction

- Culverts
- Riparian
- Streambed



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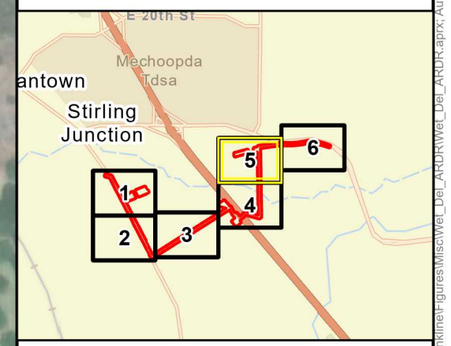
P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

- Delineation Area (63.34 acres)
- Photo Point

CDFW Jurisdiction

- Culverts
- Riparian
- Streambed



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CDFW Aquatic Resources Delineation Map

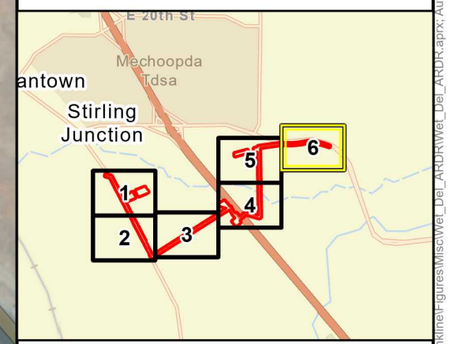
P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

- Delineation Area (63.34 acres)
- Photo Point

CDFW Jurisdiction

- Culverts
- Riparian
- Streambed



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P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

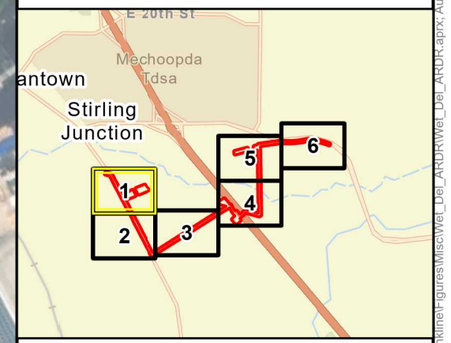
- Delineation Area (63.34 acres)

Data Points

- Ordinary High Water Mark Point
- Photo Point

USACE/RWQCB Jurisdiction

- Culverts
- Non-wetland Waters
- Non-wetland Waters with Wetland Characteristics



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RWQCB/USACE Aquatic Resources Delineation Map
Page 1 of 6

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P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

Delineation Area (63.34 acres)

Data Points

Ordinary High Water Mark Point

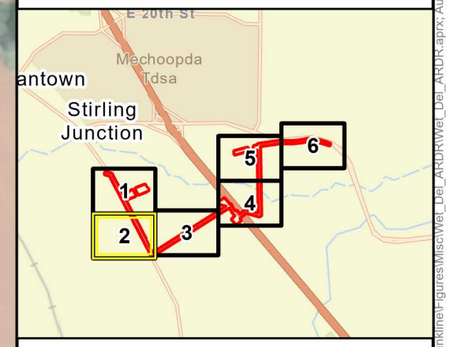
Photo Point

USACE/RWQCB Jurisdiction

Culverts

Non-wetland Waters

Non-wetland Waters with Wetland Characteristics



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Delineated By: Sean O'Brien, Shannon Henke
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P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

Delineation Area (63.34 acres)

Data Points

Ordinary High Water Mark Point

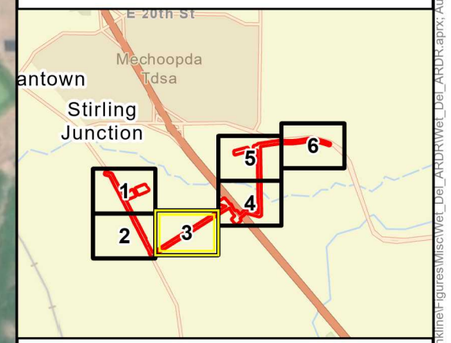
Photo Point

USACE/RWQCB Jurisdiction

Culverts

Non-wetland Waters

Non-wetland Waters with Wetland Characteristics



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Prepared By: ICF 916.737.3000
Delineated By: Sean O'Brien, Shannon Henke
Delineation Date: April 7 & June 23, 2023
Drawn By: Nicole Stotz

Path: \\Pdocfiles01\Projects_1\City_of_Chico\104082_0_007_Sewer_Trunkline\Figures\MisoWet_Del_ARDR\WetDel_ARDR.aprx; Author: ; Date: 10/16/2023

ICF

RWQCB/USACE Aquatic Resources Delineation Map
Page 3 of 6

-121.783991,
39.708517

1

OHWM-3

NWW-1
W=44 ft
(0.14 ac.)

-121.793135,
39.703343

P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

Delineation Area (63.34 acres)

Data Points

Ordinary High Water Mark Point

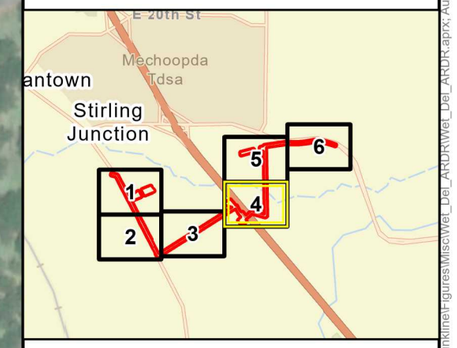
Photo Point

USACE/RWQCB Jurisdiction

Culverts

Non-wetland Waters

Non-wetland Waters with Wetland Characteristics



W = Average Width

0 100 200
Feet
1 inch = 200 ft

Notes:

Base Map Source: ICF, 2023
Imagery Source: ESRI
USGS Topo Quad: Chico
PLSS: E, 021, 002
Datum/Projection: NAD 1983
Vertical Datum: N/A

Prepared By: ICF 916.737.3000
Delineated By: Sean O'Brien, Shannon Henke
Delineation Date: April 7 & June 23, 2023
Drawn By: Nicole Stotz

Path: \\PDCCITRDS\SSD\Projects_1\City_of_Chico\104082_0_007_Sewer_Trunkline\Figures\MiscWet_Del_ARDR\WetDel_ARDR.aprx; Author: ; Date: 10/16/2023

RWQCB/USACE Aquatic Resources Delineation Map
Page 4 of 6

-121.784081,
39.713593

-121.793226,
39.708419

NWW-3b
W=10 ft
(0.02 ac.)

NWW-3a
W=13 ft
(0.03 ac.)

OHWM-4

NWW-2
W=10 ft
(0.02 ac.)

OHWM-1

NWW-4
W=4 ft
(0.01 ac.)

P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

Delineation Area (63.34 acres)

Data Points

Ordinary High Water Mark Point

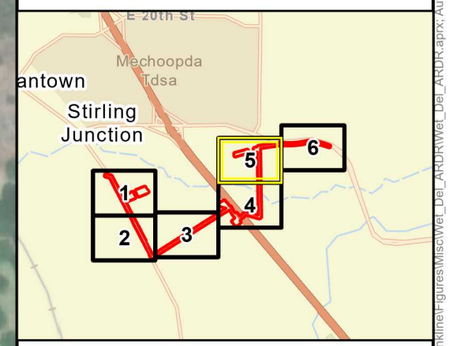
Photo Point

USACE/RWQCB Jurisdiction

Culverts

Non-wetland Waters

Non-wetland Waters with Wetland Characteristics



W = Average Width

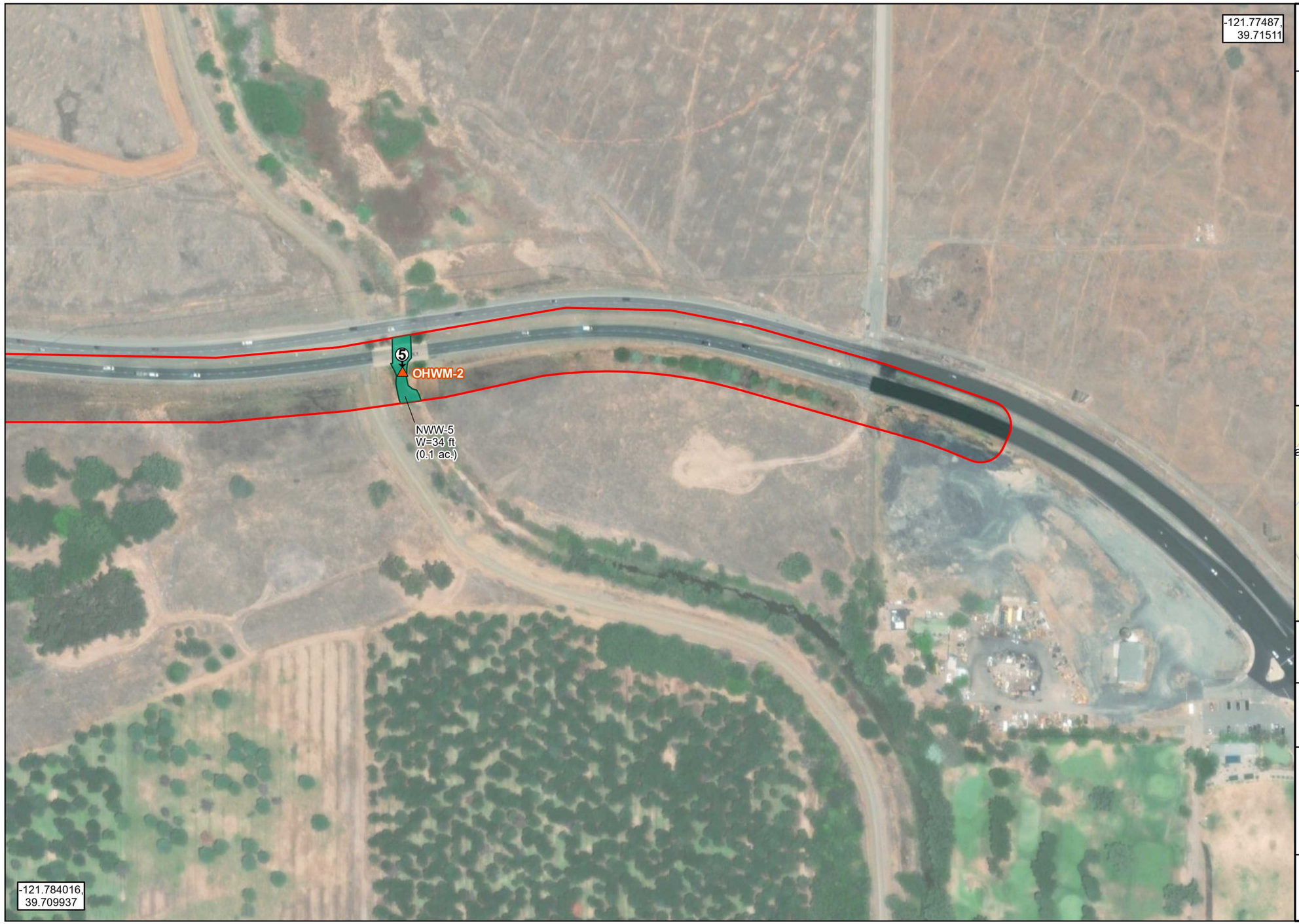
0 100 200
Feet
1 inch = 200 ft

Notes:

Base Map Source: ICF, 2023
Imagery Source: ESRI
USGS Topo Quad: Chico
PLSS: E, 021-022, 002
Datum/Projection: NAD 1983
Vertical Datum: N/A

Prepared By: ICF 916.737.3000
Delineated By: Sean O'Brien, Shannon Henke
Delineation Date: April 7 & June 23, 2023
Drawn By: Nicole Stotz

Path: W:\DCO\ROSclSt01\Projects_1\city_of_Chico\104082_0_007_Sewer_Trunkline\Figures\Misc\Wet_Del_ARD\Wet_Del_ARDR.aprx; Author: ; Date: 10/16/2023



P-18 Chico Sewer Trunkline
SPK # (TBD)
October 2023

Legend

Delineation Area (63.34 acres)

Data Points

Ordinary High Water Mark Point

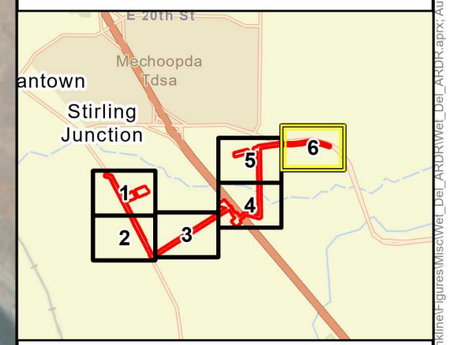
Photo Point

USACE/RWQCB Jurisdiction

Culverts

Non-wetland Waters

Non-wetland Waters with Wetland Characteristics



W = Average Width

0 100 200
Feet
1 inch = 200 ft

Notes:

Base Map Source: ICF, 2023
Imagery Source: ESRI
USGS Topo Quad: Chico
PLSS: E, 021-022, 002
Datum/Projection: NAD 1983
Vertical Datum: N/A

Prepared By: ICF 916.737.3000
Delineated By: Sean O'Brien, Shannon Henke
Delineation Date: April 7 & June 23, 2023
Drawn By: Nicole Stotz

Appendix B Wetland and OHWM Determination Data Forms

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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 #: P-18 | Site Name: OHWM-1 | Date and Time: 6/27/2023

Location (lat/long): | Investigator(s): SHenke, S. OBrien

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

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

- Culverted ditch conveys water under road to undeveloped land, south.
- Dry, No Flow on 6/27/2023, South Flowing water observed on 4/10/2023

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:**
  - [ ] *on the bank:*
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *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

- [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:* OHWM
- [ ] *moss to:*
- [x] *forbs to:* bank
- [x] *graminoids to:* bank
- [ ] *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:

Step 4 Is additional information needed to support this determination?

- [ ] Yes
- [x] No

If yes, describe and attach information to datasheet:

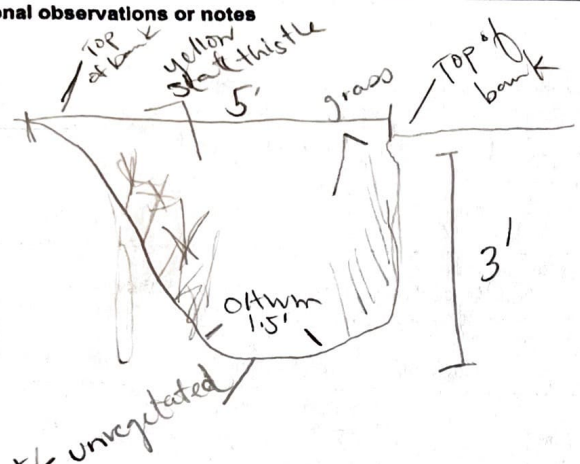
Print Form | Save As | E-mail

Project ID #: P-18 OHWM-1

Step 5 Describe rationale for location of OHWM

Break in slope and scoured / unvegetated

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: AGO

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.

From Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: P-18 | Site Name: OHWM-2 | Date and Time: 6/27/2023

Location (lat/long): | Investigator(s): S. Hinkle, S. O'Brien

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

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

- Butte Diversion Channel flowing beneath Skyway Bridge
- Prev. No flow on 6/27/2023, South flowing water observed on 4/10/2023

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.

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., pools, riffles, steps, etc.):*
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [x] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [x] **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:* Low flow Channel
  - [ ] *moss to:*
  - [x] *forbs to:* OHWM
  - [x] *graminoids to:* Bank
  - [x] *woody shrubs to:* Bank
  - [x] *deciduous trees to:* Bank
  - [ ] *coniferous trees to:*
- [x] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

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

Other observed indicators? Describe: Below OHWM: Epilobium densiflorum, Xanthium strumarium, Eleocharis macrostachya, Rumex crispus, Mentha pulegium, Festuca perennis, Cyperus sp., Typha sp., Juncus sp.

Above OHWM: Festuca perennis, plantago lanceolata, Epilobium brachycarpum, Carduus sp., Salix sp.

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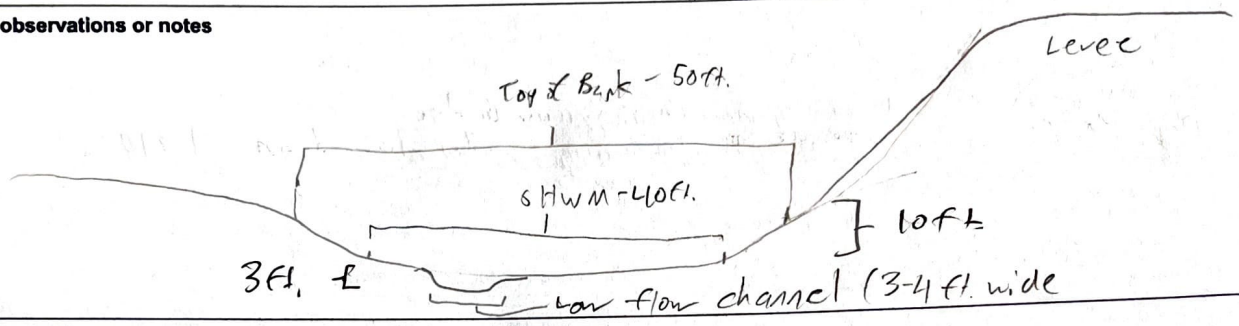
Project ID #: OHWM-2

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Break in slope, change in vegetation composition, presence of bed/bank

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

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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.

From Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: P-18	Site Name: OHWM-3	Date and Time: 6/27/2023
Location (lat/long):	Investigator(s): S. Henke, S. O'Brien	

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

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

- Comanche Creek - Fenceline (chain-link) near Bore area, bridge further downstream
- Flowing water above OHWM on 6/27/23, flowing on 4/10/2023

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.
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: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *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., pools, 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:* OHWM
  - [ ] *moss to:*
  - [x] *forbs to:*
  - [x] *graminoids to:*
  - [x] *woody shrubs to:*
  - [x] *deciduous trees to:*
  - [ ] *coniferous trees to:*

  → Riparian Dripline
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

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

Other observed indicators? Describe: Below OHWM: open water
Above OHWM: Rubus armeniacus, Carex barbarae, Rosa californica, Quercus lobata, Populus fremontii, Juglans hindsii, Salix lasiolepis, Cephalanthus occidentalis

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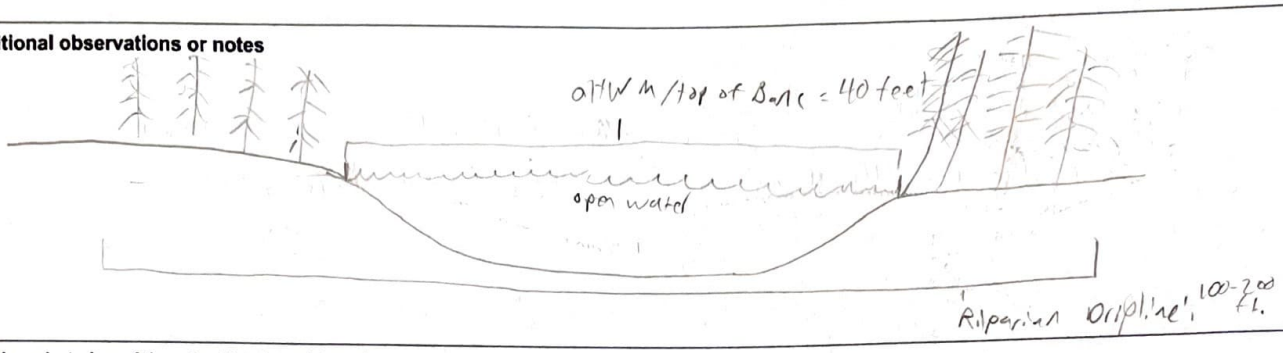
Project ID #: OHWM-3

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Break in slope, change in vegetation, presence of bed/bank
water flow at 10% just above OHWM

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

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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.

From Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

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Project ID #: P-18	Site Name: OHWM-4	Date and Time: 6/27/2023
Location (lat/long):	Investigator(s): S. Henke, S. O'Brien	

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)?

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.

- unnamed ephemeral drainage that passes underneath culvert under Cramer Lane
- dry on 6/27/2023, Flowing water on 4/10/2023

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.
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: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *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., pools, 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

- [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.***
  - [ ] *vegetation absent to:* OHWM
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*

  ↑ Above OHWM
- [ ] **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: Below OHWM: Mostly unvegetated, Rumex sp.
Above OHWM: Festuca perennis, Avena barbata

Print Form | Save As | E-mail

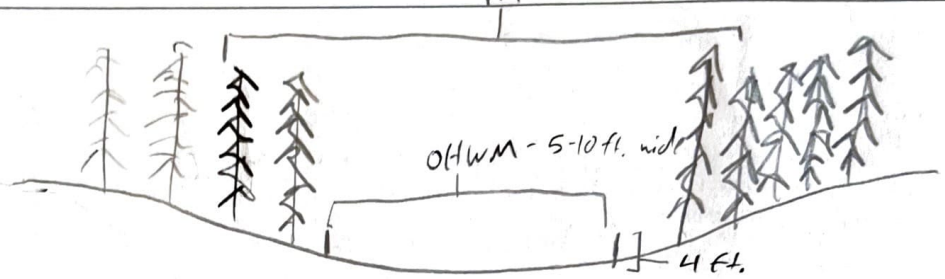
Project ID #: OHWM-4

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

- Break in slope, change in vegetation, presence of bed/bank

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

Appendix C Plant Species Observed in the Delineation area

Table C-1. Plant Species Observed in the Delineation area

Scientific Name	Common Name	Origin	Wetland Indicator Status
Trees			
Calocedrus decurrens	Incense cedar	Planted	NI
Ficus carica	Common fig	Introduced	FACU
Fraxinus latifolia	Oregon ash	Native	FACW
Juglans hindsii	Northern california black walnut	Native	FAC
Juglans regia	English walnut	Planted	NI
Nerium oleander	Oleander	Planted	NI
Pinus ponderosa	Yellow pine	Planted	FACU
Pinus sabiniana	Bull pine	Planted	NI
Platanus racemosa	California sycamore	Native	FAC
Populus fremontii	Fremont cottonwood	Native	FAC
Prunus domestica	European plum	Introduced	NI
Pseudotsuga menziesii	Douglas fir	Planted	FACU
Pyrus calleryana	Callery pear	Planted	NI
Quercus garryana var. semota	Oregon white oak	Native	UPL
Quercus lobata	Valley oak	Native	FACU
Quercus wislizeni	Interior live oak	Native	NA
Sequoia sempervirens	Coast redwood	Planted	NI
Shrubs			
Camellia japonica	Camellia	Planted	NI
Cercis occidentalis	Western redbud	Native	NI
Frangula californica	Coffeeberry	Native	NI
Rubus armeniacus	Himalayan blackberry	Introduced	FAC
Rubus ursinus	California blackberry	Native	FAC
Salix lasiolepis	Arroyo willow	Native	FACW
Sambucus nigra subsp. *caerulea*	Blue elderberry	Native	FACU
Toxicodendron diversilobum	Poison oak	Native	FACU
Vitis californica	California wild grape	Native	FACU
Forbs			
Achyrachaena mollis	Blow wives	Native	FAC
Allium amplectens	Narrow leaved onion	Native	NI
Amsinckia intermedia	Common fiddleneck	Native	NI
Anthriscus caucalis	Bur chevril	Introduced	UPL
Aphanes occidentalis	Ladie's mantle	Native	UPL
Aristolochia californica	California pipevine	Native	UPL
Artemisia douglasiana	California mugwort	Native	FAC
Athysanus pusillus	Dwarf athysanus	Native	UPL
Bidens frondosa	Sticktight	Native	FACW
Blennosperma nanum	Yellow carpet	Native	FACW
Boraginaceaea sp.	Borage family		UPL
Calandrinia menziesii	Red maids	Native	UPL

Scientific Name	Common Name	Origin	Wetland Indicator Status
Callitriche heterophylla	Water starwort	Native	OBL
Carduus pycnocephalus	Italian thistle	Introduced	UPL
Centaurea melitensis	Tocalote	Introduced	UPL
Clarkia sp.	Clarkia	Native	UPL
Claytonia perfoliata	Miner's lettuce	Native	FAC
Convolvulus arvensis	Field bindweed	Introduced	UPL
Crassula tillaea	Mediterranean pygmy weed	Introduced	FACU
Delphinium variegatum	Royal larkspur	Native	UPL
Dichondra micrantha	Asian ponysfoot	Introduced	FACW
Dipterostemon capitatus	Blue dicks	Native	UPL
Epilobium brachycarpum	Willow herb	Native	FAC
Erigeron canadensis	Canada horseweed	Native	FACU
Eriogonum nudum	Naked buckwheat	Native	UPL
Erodium botrys	Big heron bill	Introduced	FACU
Erodium brachycarpum	White stemmed filaree	Introduced	UPL
Erodium moschatum	Whitestem filaree	Introduced	UPL
Eryingium sp.	Button celery	Native	
Eschscholzia californica	California poppy	Native	UPL
Eschscholzia lobbii	Frying pans	Native	UPL
Galium aparine	Cleavers	Native	FACU
Galium parisiense	Wall bedstraw	Introduced	UPL
Geranium dissectum	Wild geranium	Introduced	UPL
Geranium molle	Crane's bill geranium	Introduced	UPL
Grindelia camporum	Gumweed	Native	FACW
Hypochaeris glabra	Smooth cats ear	Introduced	UPL
Lactuca serriola	Prickly lettuce	Introduced	FACU
Lasthenia californica	Goldfields	Native	FACU
Layia fremontii	Fremont's tidy tips	Native	UPL
Lepidium nitidum	Shining pepper grass	Native	FAC
Leptosiphon bicolor	True babystars	Native	UPL
Limnanthes douglasii subsp. *rosea*	Rosy Douglas' meadowfoam	Native	OBL
Lupinus bicolor	Lupine	Native	UPL
Lythrum hyssopifolia	Hyssop loosestrife	Introduced	OBL
Marah fabacea	California man-root	Native	UPL
Medicago minima	Small bur clover	Introduced	UPL
Medicago polymorpha	California burclover	Introduced	FACU
Micropus californicus	Q tips	Native	FACU
Microseris acuminata	Sierra foothills microseris	Native	UPL
Microseris douglasii subsp. *douglasii*	Douglas' microseris	Native	FACU
Montia fontana	Water montia	Native	OBL
Navarretia leucocephala subsp. *leucocephala*	White headed navarretia	Native	OBL
Nemophila pedunculata	Meadow nemophila	Native	FAC
Plagiobothrys austiniae	Rebecca Austin's allocarya	Native	OBL
Plagiobothrys fulvus	Fulvous popcorn flower	Native	UPL
Plagiobotrys sp.	Popcorn flower		N/A
Plantago elongata	Coastal plantain	Native	FACW
Plantago erecta	California plantain	Native	UPL
Plantago lanceolata	Ribwort	Introduced	FAC

Scientific Name	Common Name	Origin	Wetland Indicator Status
Plectritis ciliosa	Long spurred plectritis	Native	FACU
Primula clevelandii	Padre's shooting star	Native	UPL
Ranunculus californicus	California buttercup	Native	FACU
Rumex crispus	Curly dock	Introduced	FAC
Sanicula bipinnatifida	Purple sanicle	Native	UPL
Sedella pumila	Sierra mock stonecrop	Native	FAC
Senecio vulgaris	Common groundsel	Introduced	FACU
Sonchus asper	Spiny sowthistle	Introduced	FAC
Spergularia rubra	Purple sand spurry	Introduced	FAC
Stellaria media	Chickweed	Introduced	FACU
Trifolium depauperatum	Dwarf sack clover	Native	FAC
Trifolium hirtum	Rose clover	Introduced	UPL
Trifolium subterraneum	Subterranean clover	Introduced	UPL
Trifolium willdenovii	Tomcat clover	Native	FACW
Triphysaria eriantha	Butter 'n' eggs	Native	UPL
Vicia sativa	Spring vetch	Introduced	FACU
Vicia villosa	Hairy vetch	Introduced	UPL
Vinca major	Vinca	Introduced	FACU
Graminoids			
Avena barbata	Slender oat	Introduced	UPL
Bromus diandrus	Ripgut brome	Introduced	UPL
Bromus hordeaceus	Soft chess	Introduced	FACU
Bromus rubens	Red brome	Introduced	UPL
Carex sp.1	Sedge	Native	
Carex sp.*2*	Sedge	Native	
Cyperus eragrostis	Tal sedge	Native	FACW
Eleocharis macrostachya	Spike rush	Native	UPL
Elymus caput-medusae	Medusa head	Introduced	UPL
Festuca myuros	Rattail sixweeks grass	Introduced	UPL
Festuca perennis	Italian rye grass	Introduced	UPL
Hordeum marinum	Wall barley	Introduced	FAC
Hordeum murinum	Foxtail barley	Introduced	FACU
Juncus bufonius	Common toad rush	Native	FACW
Juncus effusus	Bog rush	Native	FACW
Juncus patens	Common rush	Native	FACW
Poa annua	Annual blue grass	Introduced	FAC
Poa bulbosa	Bulbous blue grass	Introduced	FACU
Ferns and Allies			
Equisetum laevigatum	Smooth scouring rush	Native	FACW
Marsilea vestita	Hairy waterclover	Native	OBL
Selaginella hansenii	Hansen's spike moss	Native	UPL

[a] Nomenclature follows Jepson eFlora (2023)

[b] Wetland indicator status categories defined on the National Wetland Plant List by the U.S. Army Corps of Engineers (2020)

OBL = Obligate, almost always occurs in wetlands (>99% probability of occurrence).

FACW = Facultative wetland, usually occurs in wetlands (66–99% probability of occurrence).

FAC = Facultative, equally likely to occur in wetlands or non-wetlands (34–66% probability of occurrence).

FACU = Facultative upland, usually occurs in non-wetlands but occasionally in wetlands (1–33% probability of occurrence).

UPL = Upland or not included on the wetland indicator list.

Appendix D Representative Photographs

Photo 1. View of NWW-1 (perennial stream – Comanche Creek) with adjacent valley oak riparian forest. View southeast on April 10, 2023.

Photo 2. View of NWW-2 (ephemeral stream) with adjacent valley oak riparian forest. View west on June 27, 2023.

Photo 3. View of NWW-3 (ephemeral stream) with adjacent valley oak riparian forest. View east on April 11, 2023.

Photo 4. View of NWW-4 (aquatic ditch). View south on June 27, 2023.

Photo 5. View of NWW-5 (intermittent stream – Butte Creek Diversion Channel). View south on April 10, 2023.

Photo 6. View of non-jurisdictional feature (stormwater basin). View northwest on June 27, 2023.

Appendix E Supporting Information (Custom Soil Resource Map and National Wetland Inventory Map)

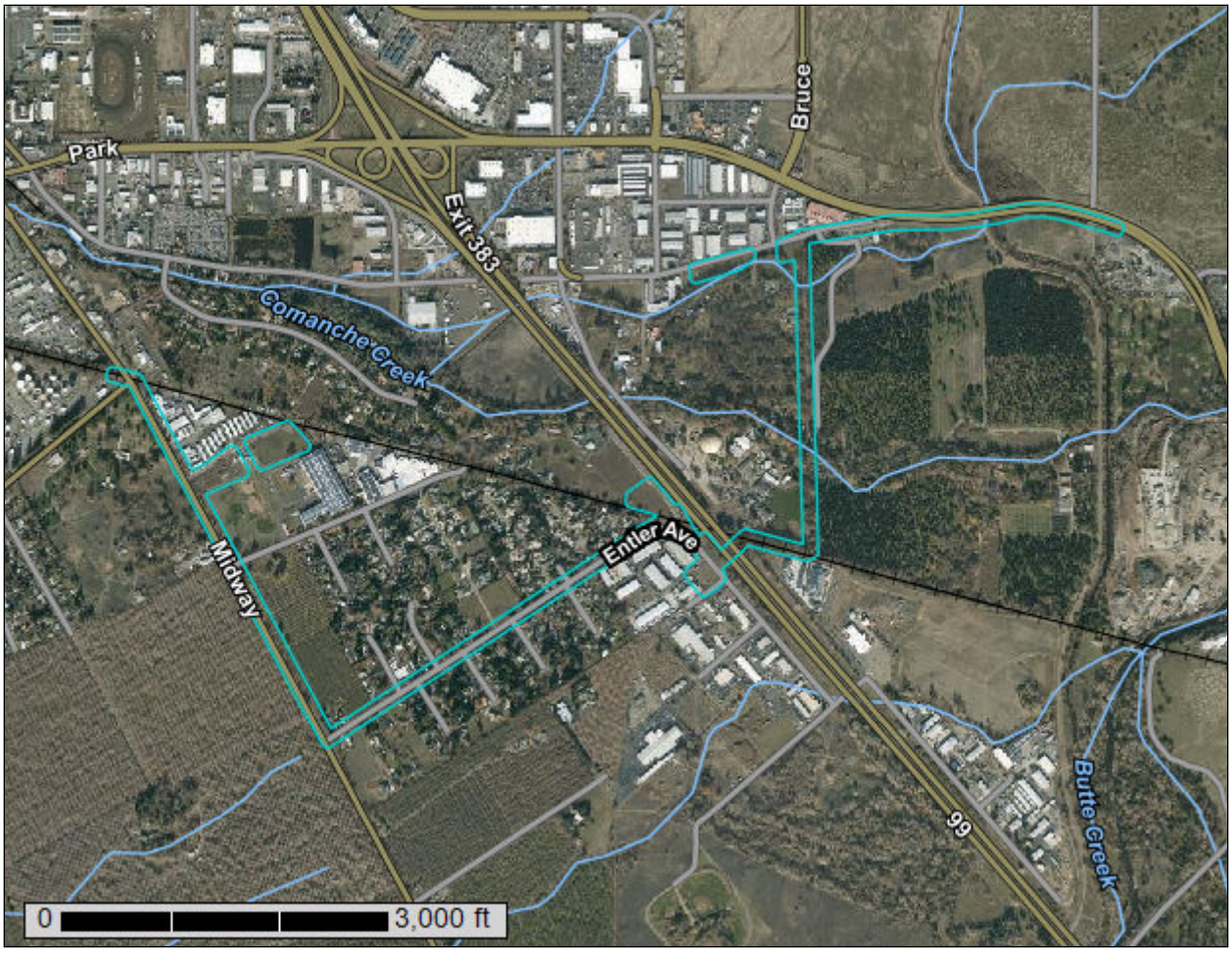
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Butte Area, California, Parts of Butte and Plumas Counties



October 4, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

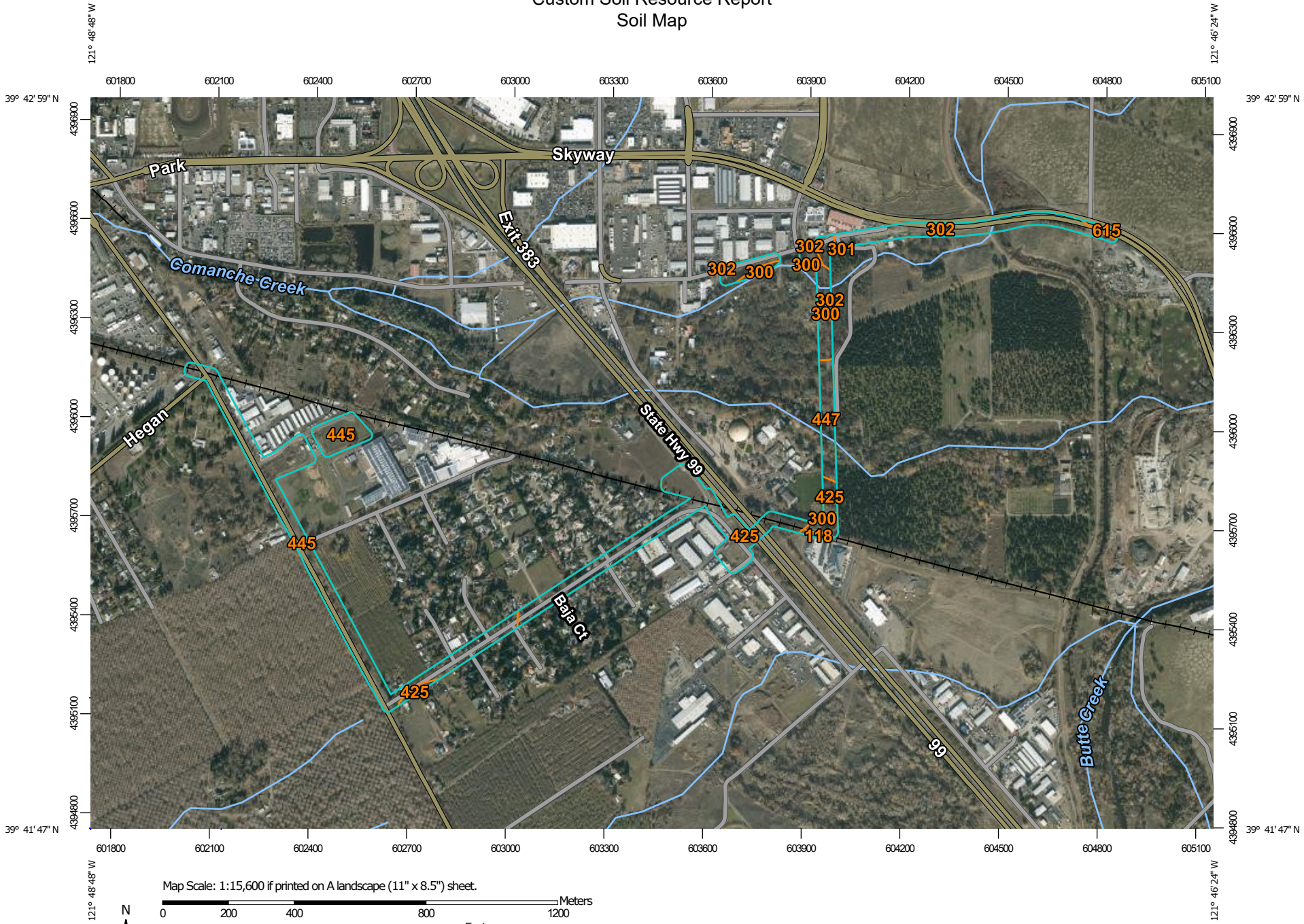
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:15,600 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Butte Area, California, Parts of Butte and Plumas Counties
Survey Area Data: Version 21, Aug 28, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 6, 2018—Dec 12, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
118	Xerorthents, Tailings and 0 to 50 percent slopes	0.4	0.6%
300	Redsluff gravelly loam, 0 to 2 percent slopes	4.6	7.3%
301	Wafap-Hamslough , 0 to 2 percent slopes	1.0	1.6%
302	Redtough-Redswale , 0 to 2 percent slopes	11.0	17.3%
425	Vina fine sandy loam, sandy substratum, 0 to 2 percent slopes, MLRA 17	17.4	27.5%
445	Chico loam, 0 to 1 percent slopes	24.6	38.9%
447	Charger fine sandy loam, 0 to 1 percent slopes	3.8	6.0%
615	Doemill-Jokerst , 3 to 8 percent slopes	0.5	0.7%
Totals for Area of Interest		**63.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Butte Area, California, Parts of Butte and Plumas Counties

118—Xerorthents, Tailings and 0 to 50 percent slopes

Map Unit Setting

National map unit symbol: hgxl
Elevation: 90 to 1,340 feet
Mean annual precipitation: 21 to 50 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Xerorthents, tailings, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xerorthents, Tailings

Setting

Landform: Stream terraces, flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Dredged spoil piles from gravelly alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

A - 0 to 3 inches: very gravelly sandy loam
AC - 3 to 8 inches: extremely gravelly sandy loam
C1 - 8 to 21 inches: loamy sand
C2 - 21 to 26 inches: loamy sand
C3 - 26 to 35 inches: loamy sand
C4 - 35 to 48 inches: loamy coarse sand
C5 - 48 to 59 inches: loamy sand
C6 - 59 to 81 inches: loamy sand

Properties and qualities

Slope: 0 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 4.25 in/hr)
Depth to water table: About 60 to 80 inches
Frequency of flooding: OccasionalRareNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R017XY903CA - Stream Channels and Floodplains

Hydric soil rating: Yes

Minor Components

Pits, water-filled
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Unnamed, riparian areas
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Xerofluvents, tailings
Percent of map unit: 3 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Xeropsamments, tailings
Percent of map unit: 3 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Haploxeralfs, terrace
Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, duripan
Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

300—Redsluff gravelly loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hh0t
Elevation: 180 to 400 feet
Mean annual precipitation: 24 to 29 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 255 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Redsluff, gravelly loam, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Redsluff, Gravelly Loam

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy alluvium derived from igneous, metamorphic and sedimentary rock over gravelly alluvium derived from volcanic rock

Typical profile

Ap - 0 to 2 inches: gravelly loam
Bt1 - 2 to 5 inches: gravelly loam
Bt2 - 5 to 12 inches: gravelly clay loam
Bt3 - 12 to 21 inches: gravelly loam
Bt4 - 21 to 29 inches: gravelly loam
Bt5 - 29 to 37 inches: gravelly loam
Bt6 - 37 to 42 inches: extremely gravelly sandy loam
Cq - 42 to 80 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.28 to 0.99 in/hr)
Depth to water table: About 35 to 80 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 0.5 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Unnamed, weak cementation below 40 inches

Percent of map unit: 4 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Fernandez, sandy loam

Percent of map unit: 4 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Typic haploxeralfs, very deep

Percent of map unit: 3 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Anita, gravelly duripan

Percent of map unit: 3 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Swales
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Redtough

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Pachic argixerolls

Percent of map unit: 2 percent

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Munjar

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

301—Wafap-Hamslough , 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hgxp
Elevation: 150 to 440 feet
Mean annual precipitation: 25 to 28 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 255 days
Farmland classification: Not prime farmland

Map Unit Composition

Wafap, gravelly loam, and similar soils: 70 percent
Hamslough, clay, and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wafap, Gravelly Loam

Setting

Landform: Stream terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Bars
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Gravelly and clayey alluvium over cobbly channel alluvium over cemented cobbly and gravelly alluvium derived from volcanic rock

Typical profile

A - 0 to 1 inches: gravelly loam
Bt1 - 1 to 5 inches: cobbly clay loam
Bt2 - 5 to 13 inches: very cobbly clay loam
Bt3 - 13 to 32 inches: extremely cobbly clay loam
Bt4 - 32 to 39 inches: extremely cobbly clay loam

Btq - 39 to 46 inches: extremely gravelly sandy clay loam
2Bqm - 46 to 56 inches: cemented cobbly gravelly material

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 40 to 60 inches to duripan
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 13 to 60 inches
Frequency of flooding: NoneRare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 0.5 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): 5w
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Description of Hamslough, Clay

Setting

Landform: Stream terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Channels
Down-slope shape: Concave, linear
Across-slope shape: Linear
Parent material: Clayey alluvium over clayey and gravelly alluvium over cemented cobbly and gravelly alluvium derived from volcanic rock

Typical profile

A1 - 0 to 3 inches: clay
A2 - 3 to 14 inches: cobbly clay
Bw - 14 to 19 inches: extremely gravelly clay
Bg - 19 to 27 inches: extremely gravelly sandy clay
2Bqm - 27 to 36 inches: cemented cobbly gravelly material

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 80 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 0.5 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): 5w
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: Yes

Minor Components

Unnamed, loamy-skeletal, duripan 40 to 60 inches

Percent of map unit: 3 percent
Landform: Stream terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Bars
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, fine, duripan 40 to 60 inches

Percent of map unit: 3 percent
Landform: Stream terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Bars
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, fine-loamy, duripan 40 to 60 inches

Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Bars
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Anita, gravelly duripan

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Swales
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: Yes

Tuscan taxadjunct

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex

Hydric soil rating: No

Unnamed, frequent long ponding

Percent of map unit: 1 percent
Landform: Stream terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Channels, vernal pools
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Unnamed, frequently flooded

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Oxyaquic argixerolls, very stony

Percent of map unit: 1 percent
Landform: Stream terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Bars
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

302—Redtough-Redswale , 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hh0v
Elevation: 200 to 400 feet
Mean annual precipitation: 23 to 28 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 255 days
Farmland classification: Not prime farmland

Map Unit Composition

Redtough, loam, and similar soils: 50 percent
Redswale, cobbly loam, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Redtough, Loam

Setting

Landform: Fan remnants

Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Mounds
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loamy alluvium over cemented cobbly and gravelly alluvium derived from volcanic rock

Typical profile

A - 0 to 1 inches: loam
Bt1 - 1 to 7 inches: gravelly loam
Bt2 - 7 to 13 inches: very cobbly loam
Bqm - 13 to 23 inches: cemented very gravelly material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to duripan
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 2 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.6 inches)

Interpretive groups

Land capability classification (irrigated): 7s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Description of Redswale, Cobbly Loam

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Swales
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Cobbly and loamy alluvium over cemented cobbly and gravelly alluvium derived from volcanic rock

Typical profile

A - 0 to 1 inches: cobbly loam
Bt - 1 to 7 inches: very cobbly loam
Bqm - 7 to 17 inches: cemented very gravelly material

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 4 to 10 inches to duripan
Drainage class: Poorly drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very low (about 0.7 inches)

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Unnamed, frequent long ponding

Percent of map unit: 3 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Vernal pools
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Redswale, frequent long flooding

Percent of map unit: 3 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Swales
Down-slope shape: Linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Tuscan

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Mounds
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Anita, gravelly duripan

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Swales
Down-slope shape: Linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Munjar

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Mounds
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Abruptic durixeralfs

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Microfeatures of landform position: Mounds
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Unnamed, riser slopes

Percent of map unit: 1 percent
Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

425—Vina fine sandy loam, sandy substratum, 0 to 2 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2w8b6
Elevation: 140 to 240 feet
Mean annual precipitation: 23 to 28 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 245 to 255 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Vina, fine sandy loam, sandy substratum, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vina, Fine Sandy Loam, Sandy Substratum

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap1 - 0 to 3 inches: fine sandy loam
Ap2 - 3 to 11 inches: fine sandy loam
A1 - 11 to 23 inches: sandy loam
A2 - 23 to 37 inches: sandy loam
C1 - 37 to 50 inches: sandy loam
C2 - 50 to 54 inches: loamy coarse sand
C3 - 54 to 80 inches: coarse sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.13 to 3.68 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.2 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: A
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Almendra

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Charger

Percent of map unit: 5 percent
Landform: Alluvial fans

Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Redsluff

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Unnamed, water table 40 to 80 inches

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Xerofluvents

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

445—Chico loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hgwz
Elevation: 140 to 230 feet
Mean annual precipitation: 22 to 24 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 245 to 255 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Chico, loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chico, Loam

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 5 inches: loam
Bt1 - 5 to 10 inches: clay loam
Bt2 - 10 to 21 inches: clay loam
Bt3 - 21 to 32 inches: clay loam
Bt4 - 32 to 50 inches: loam
Bt5 - 50 to 70 inches: loam
Bt6 - 70 to 80 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.28 to 0.71 in/hr)
Depth to water table: About 72 to 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 0.5 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Redsluff

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Almendra

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Conejo, clay loam

Percent of map unit: 3 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Vina, fine sandy loam

Percent of map unit: 2 percent
Landform: Inset fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

447—Charger fine sandy loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hgzf
Elevation: 180 to 600 feet
Mean annual precipitation: 24 to 28 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 255 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Charger, fine sandy loam, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charger, Fine Sandy Loam

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rock over gravelly alluvium derived from volcanic and metamorphic rock

Typical profile

Ap - 0 to 3 inches: fine sandy loam
A1 - 3 to 7 inches: fine sandy loam
A2 - 7 to 15 inches: fine sandy loam
Bw1 - 15 to 32 inches: sandy loam
Bw2 - 32 to 42 inches: sandy loam
Bw3 - 42 to 53 inches: sandy loam
Bw4 - 53 to 63 inches: sandy loam
C - 63 to 80 inches: extremely gravelly loamy coarse sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.27 to 4.25 in/hr)
Depth to water table: About 40 to 80 inches
Frequency of flooding: NoneRare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 0.5 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Vina, fine sandy loam

Percent of map unit: 8 percent
Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Redsluff

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, sandy-skeletal

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear

Across-slope shape: Linear
Hydric soil rating: No

Almendra

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, loamy-skeletal

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Wafap

Percent of map unit: 1 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

615—Doemill-Jokerst , 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hgzm
Elevation: 160 to 1,000 feet
Mean annual precipitation: 25 to 29 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 255 days
Farmland classification: Not prime farmland

Map Unit Composition

Doemill, gravelly loam, and similar soils: 50 percent
Jokerst, very cobbly loam, and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Doemill, Gravelly Loam

Setting

Landform: Strath terraces, ridges
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Interfluve, base slope, side slope, tread

Microfeatures of landform position: Mounds, mounds
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loamy residuum weathered from volcanic breccia

Typical profile

A - 0 to 1 inches: gravelly loam
Bt1 - 1 to 5 inches: gravelly loam
Bt2 - 5 to 9 inches: gravelly loam
Bt3 - 9 to 14 inches: gravelly loam
R - 14 to 24 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.43 to 1.28 in/hr)
Depth to water table: About 2 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018XA101CA - Basalt Flow Plateaus
Hydric soil rating: No

Description of Jokerst, Very Cobbly Loam

Setting

Landform: Strath terraces, ridges
Landform position (two-dimensional): Footslope, summit, toeslope
Landform position (three-dimensional): Interfluve, side slope, base slope, tread
Microfeatures of landform position: Swales, swales
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Loamy residuum weathered from volcanic breccia

Typical profile

A - 0 to 1 inches: very cobbly loam
Bt - 1 to 4 inches: gravelly loam
R - 4 to 14 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 17.0 percent
Depth to restrictive feature: 2 to 10 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.71 to 1.13 in/hr)
Depth to water table: About 0 to 10 inches

Frequency of flooding: FrequentNone
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very low (about 0.4 inches)

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Ecological site: R018XA101CA - Basalt Flow Plateaus
Hydric soil rating: No

Minor Components

Rock outcrop, mudflow breccia

Percent of map unit: 6 percent
Landform: Strath terraces, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Lithic xerorthents

Percent of map unit: 3 percent
Landform: Strath terraces, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, frequent long ponding

Percent of map unit: 1 percent
Landform: Strath terraces, ridges
Landform position (two-dimensional): Footslope, backslope, toeslope
Landform position (three-dimensional): Interfluve, base slope, tread
Microfeatures of landform position: Vernal pools, vernal pools
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

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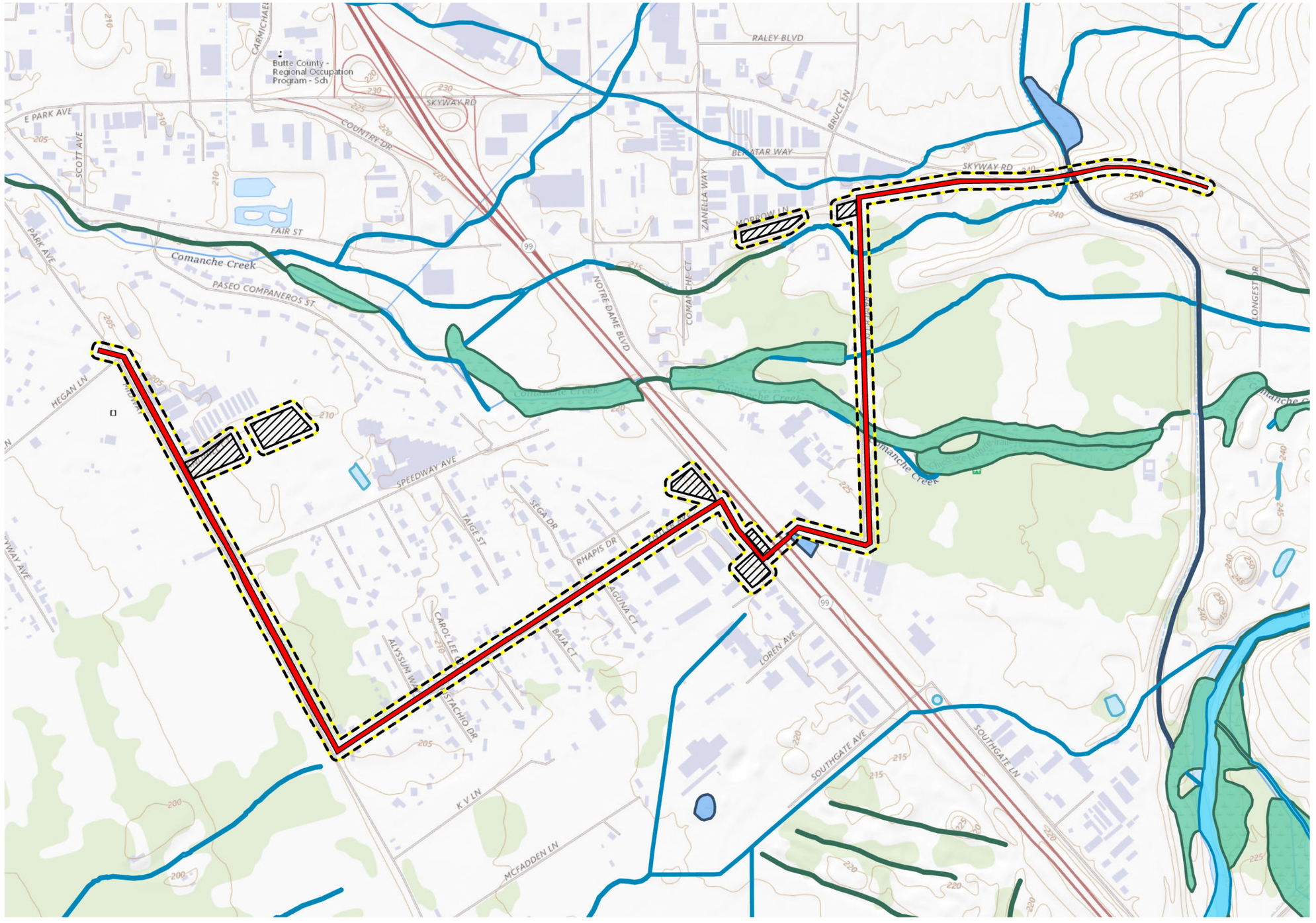


Legend

- P-18 Sewer Trunk Line
- Staging Areas
- 50-ft Project Area Buffer

National Wetland Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

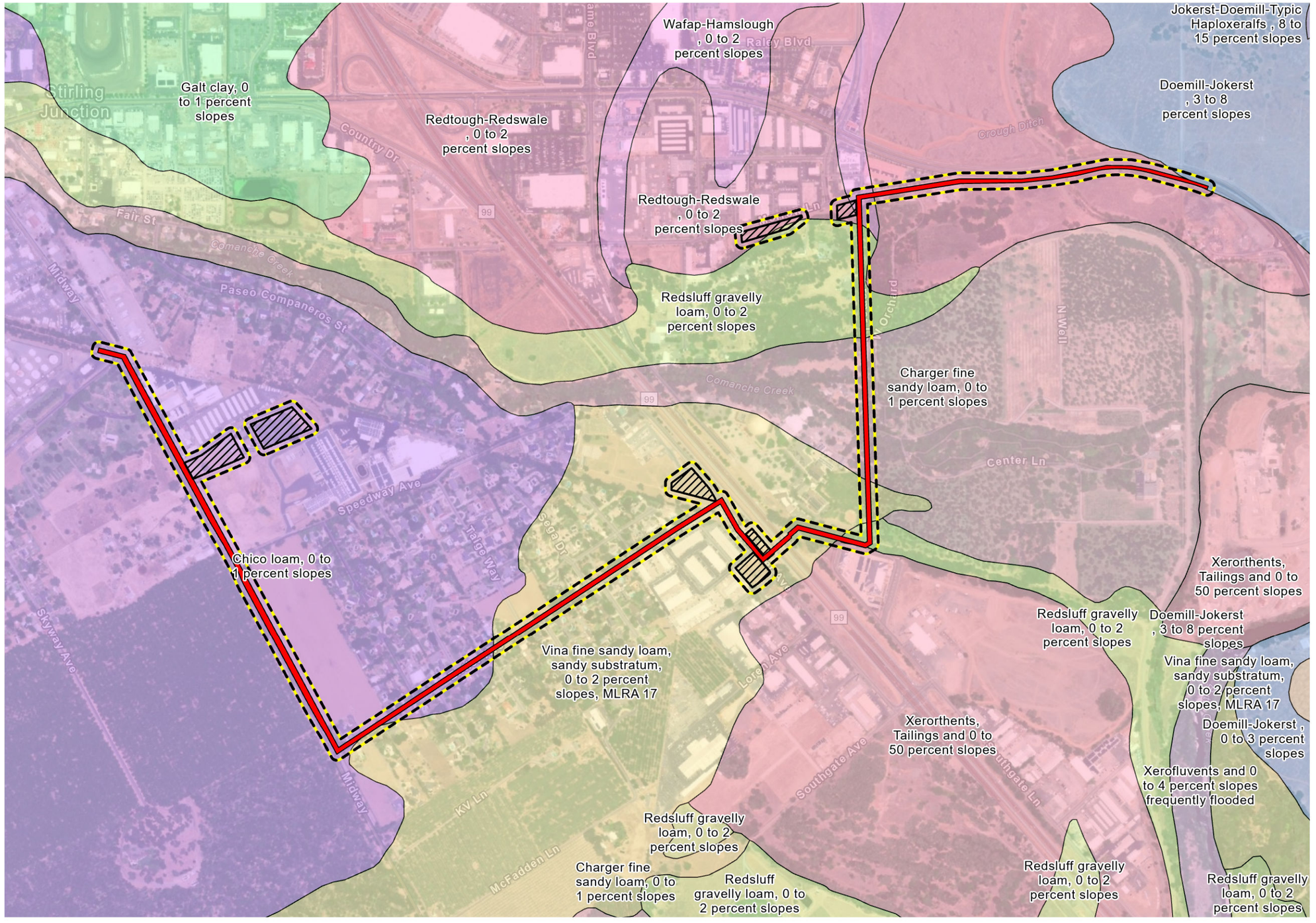
Source: ESRI 2023, City of Chico 2023, USFWS 2022

N

0 250 500 1,000 Feet

1:10,000

National Wetland Inventory
Chico P-18 Sewer Trunkline



Legend

- P-18 Sewer Trunk Line
- Staging Areas
- 50-ft Project Area Buffer

Soils

- Charger fine sandy loam, 0 to 1 percent slopes
- Chico loam, 0 to 1 percent slopes
- Doemill-Jokerst , 0 to 3 percent slopes
- Doemill-Jokerst , 3 to 8 percent slopes
- Galt clay, 0 to 1 percent slopes
- Jokerst-Doemill-Typic Haploxeralfs , 8 to 15 percent slopes
- Redsluff gravelly loam, 0 to 2 percent slopes
- Redtough-Redswale , 0 to 2 percent slopes
- Vina fine sandy loam, sandy substratum, 0 to 2 percent slopes, MLRA 17
- Wafap-Hamslough , 0 to 2 percent slopes
- Xerofluvents and 0 to 4 percent slopes frequently flooded
- Xerorthents, Tailings and 0 to 50 percent slopes

Source: ESRI 2023, City of Chico 2023, USFWS 2022

N

0 250 500 1,000 Feet

1:10,000

Soils
Chico P-18 Sewer Trunkline

Appendix F Aquatic Resource Excel Spreadsheet (Ombil Regulatory Module Worksheet)

PROJECT UPLOAD REQUEST DETAILS *

DA #	

So that the ORM team may accurately understand the requirements for this project upload, please provide the details of how the included data is to be loaded.
Specify clearly which data needs to be uploaded to ORM, and which is to be finalized. Provide Required Additional Information as described in the explanation below.

	Load	Finalize		Required Additional Information
Aquatic Resources	YES		*Loaded at District?*	
Impacts			*Permit Action ID?*	
Mitigation-Permittee Responsible			*Permit Action ID?*	
Mitigation Bank / ILF			*Permit Action ID?*	
NWP			*JD ID? Reasons for Delay?*	
2023Rule_JD				
RGP / PGP			*JD ID? Reasons for Delay?*	

Required Additional Information explanation:

Loaded at District? For ARs, please indicate whether the data has been already loaded by the District Administrators.
Permit Action ID? When Impact and/or Mitigation are provided, but not loading a Permit, you must provide the ACTION ID of one unfinalized Permit to which the data is to be tied.
JD ID? For NWP or RGP/PGP: if the permit is to be tied to a JD, but the JD information is not included for upload, please provide the ID of the JD to which the uploaded permits should be associated. (The id can be viewed by hovering over the specific JD in the JD lists.) Also consider including the Begin and End dates for the JD.
Reasons For Delay? For NWP or RGP/PGP, if the Permit End Date is more than 60 days past the Date Received, then please specifiy the Delay Reason information. (Multiple Delay Reasons may be provided.)

SHAPEFILE UPLOAD REQUEST DETAILS **

Specify the Filenames that contain geometry data for the ARs and/or Project Location to be loaded into ORM.

	Filename(s)	Notes
Aquatic Resources		
Project Boundary		

* The zip archive of upload template documents must first be downloaded and saved to your local disk.

The template file(s) must then be extracted from the zip archive and also saved to your local disk before using them.

If the template file is not first saved to your local disk, the data validation macros will not function.

** Please be aware that the .shp, .shx, .dbf, and .prj files at a minimum must be received in order to be a complete submission.

For Aquatic Resources, ORM must receive both an AR worksheet and a shapefile in the submission.
- In the Shapefile, each geometry must include an attribute for WatersName and each WatersName MUST be unique within and across all files.
- Furthermore, there must be a one to one relationship between the WaterName in the AR Worksheet and the WatersName in the Shapefile.
- When uploading Aquatic Resources via shapefile, the Latitude / Longitude in the AqResources worksheet is not required.

For Project Boundary, the submitted file must contain only one Geometry.