San Joaquin Joint Powers Authority

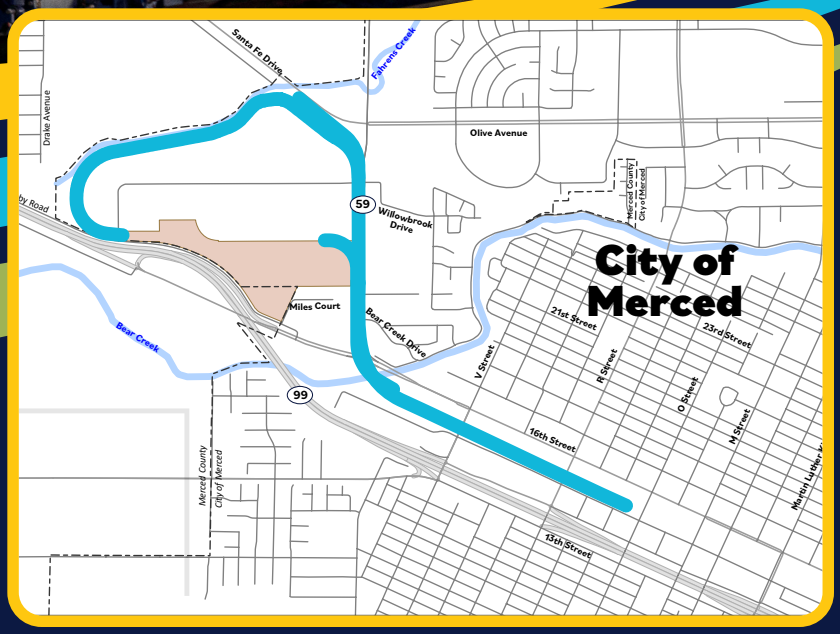
MITC
Merced Intermodal Track Connection

Appendix 3.4-2:

Preliminary Aquatic Resources Delineation Report

July 2024

SCH # 2023010061



MERCED INTERMODAL TRACK CONNECTION PROJECT

PRELIMINARY AQUATIC RESOURCES DELINEATION REPORT

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ICF. 2024. *Merced Intermodal Track Connection Project, Preliminary Aquatic Resources Delineation Report*. March. (ICF 104197.0.002.) Sacramento, CA. Prepared for San Joaquin Joint Powers Authority, Stockton, CA.

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Acronyms and Abbreviations

°F	degrees Fahrenheit
ACE	Altamont Corridor Express
BNSF	Burlington Northern Santa Fe
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
Conforming Rule	Revised Definition of 'Waters of the United States'; Conforming
CWA	Clean Water Act
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
HSR	high-speed rail
HUC	hydrologic unit code
I-80	Interstate 80
MITC	Merced Intermodal Track Connection
OBL	obligate
OHWM	ordinary high-water mark
PJD	preliminary jurisdictional determination
Project	Merced Intermodal Track Connection Project
RWQCB	Regional Water Quality Control Board
SR	State Route
TNW	traditional navigable water
UPL	upland
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

1 Executive Summary

This report presents the results of an aquatic resources delineation survey conducted for the San Joaquin Joint Powers Authority's Merced Intermodal Track Connection (MITC) Project (Project). The limits of the Project are in Merced County and almost entirely within the city limits of Merced. The purpose of this document is to identify aquatic resources within the survey area and provide the background information needed to support future permitting applications (if needed) for the Project.

Table 1 summarizes the habitat types and acreages that were delineated as potential jurisdictional waters of the United States in the survey area. In summary, a total of 12.081 acres of aquatic resources, consisting of 0.404 acre of seasonal wetland, 0.074 acre of freshwater marsh wetland, and 11.603 acres of perennial drainage, were mapped in the survey area. All mapped perennial drainages appear to eventually drain into the San Joaquin River, which is considered a traditional navigable water (TNW). Therefore, all mapped perennial drainages are most likely waters of the United States under Section 404 of the Clean Water Act (CWA).

Table 1. Summary of Aquatic Resources in the Survey Area

Aquatic Resources		Area (acres)
Wetlands		
Seasonal wetland		0.404
Freshwater marsh wetland		0.074
	Wetlands subtotal	*0.478*
Non-wetland Waters		
Perennial drainage		11.603
	Non-wetland waters subtotal	*11.603*
Total		**12.081**

A description of the wetlands and non-wetland waters mapped in the survey area is provided in Section 4, *Results*, and their locations are shown in Appendix A, *Preliminary Delineation Figures*. In addition to the aquatic resources listed above in Table 1, there are 8.501 acres of wastewater treatment ponds, 2.363 acres of an upland detention basin, and 0.035 acre of a roadside ditch mapped in the survey area. However, these features are excavated in uplands, do not realign natural features, and are subject to regular maintenance.

This report was prepared to support the San Joaquin Joint Powers Authority's request for a preliminary jurisdictional determination (PJD) from the U.S. Army Corps of Engineers (USACE) Sacramento District. Under a PJD, questions regarding the jurisdictional status of wetlands and non-wetland waters in the delineation survey area are waived or set aside by the San Joaquin Joint Powers Authority. Therefore, under a PJD, all wetlands and other waters mapped therein are subject to regulation as waters of the United States.

This report is intended to comply with the USACE's *Minimum Standards for Acceptance of Aquatic Resource Delineation Reports* (USACE 2016a) and the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016b), where applicable. Mapping of potential jurisdictional features presented in this report are subject to verification by the USACE. Mapping of the aquatic resources shown in Appendix A was based on whether they appeared to meet the technical criteria for waters of the United States.

All aquatic resources and their extent and boundaries identified in this report are considered preliminary, pending verification from the USACE. Accordingly, all parties are advised to treat the information contained herein as preliminary until the USACE provides written verification regarding the extent of jurisdiction.

2 Introduction

The approximately 420-acre survey area evaluated for the Project is in Merced County, California, and almost entirely within the city limits of Merced (Appendix A-1). It is also within the U.S. Geological Survey (USGS) Merced and Atwater 7.5-minute quadrangles—specifically, Township 7S, Range 13E, Sections 14, 23, 24, and 25.

The Project would include a new track connection from the Burlington Northern Santa Fe (BNSF) corridor to the proposed integrated Merced High-Speed Rail (HSR) Station in downtown Merced between O and R Streets, in addition to a new platform that would allow for cross-platform transfer between the San Joaquins passenger rail and HSR. The Project only includes the construction of the track connection; it does not include the construction of the proposed integrated Merced HSR Station.

The Project would consist of the following:

- New passenger rail connection for the San Joaquins from BNSF north of State Route (SR) 59 to the southern terminus at the proposed integrated Merced HSR Station
- New aerial guideway that would connect into the east side of the HSR platform (which would be shared with the San Joaquins) at the proposed integrated Merced HSR Station, creating an elevated integrated platform with HSR
- Modification of the approved Altamont Corridor Express (ACE) Merced Layover and Maintenance Facility

In addition to the Project, the San Joaquin Joint Powers Authority has identified three variants that assume different approaches for fueling future hydrogen-powered trains in response to the state's zero emission goals. The variants would occur within approximately the same environmental footprint as the Project.[1]

The delineation survey area (survey area) for aquatic resources and land cover is the 300-foot lateral buffer from the environmental footprint of the Project.[2] The survey area includes enough area to encompass all proposed Project elements. All potential jurisdictional waters within the survey area that could be directly or indirectly disturbed during implementation of the Project were assessed.

[1] Variant H1 would have some additional footprint for solar panels that is beyond the environmental footprint of the Project.

[2] The survey area includes the Variant H1 additional environmental footprint.

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This report was prepared by Lisa Webber and Sean O'Brien, both wetland ecologists at ICF. Ms. Webber has a master's degree in botany from the University of Massachusetts at Amherst and has been certified to conduct wetland delineations since 1996. Mr. O'Brien has a master's degree in biological sciences (ecology, evolution, and conservation) from California State University, Sacramento and has been conducting wetland delineations since 2016.

2.1 Site Location and Driving Directions

The survey area is in Merced County and almost entirely within the city limits of Merced (Appendix A-1). To reach the portion of the survey area at Bear Creek from downtown Sacramento, drive SR 99/Interstate 80 (I-80) east to SR 99 south toward Fresno. Continue for 109 miles to exit 189 for 16th Street. Continue onto West 16th Street for approximately 1 mile. The approximate centroid of the survey area is at 37.313318° north latitude and 120.511599° west longitude.

2.2 Site Description

2.2.1 General

The survey area flanks the existing rights-of-way of the BNSF and Union Pacific Railroad corridors in the vicinity of Merced. The survey area is in the San Joaquin Valley subregion of the California Floristic Province (Baldwin et al. 2012). Elevations in the survey area range from approximately 160 to 165 feet above mean sea level. The survey area is in an industrial and commercial part of Merced that is served by rail lines.

2.2.2 Hydrology

The survey area is in the Bear Creek watershed (hydrologic unit code [HUC] 180400011801) (USGS 2021). The sources of hydrology in the survey area are direct precipitation, runoff, and flow through Fahrens Creek and Bear Creek, which cross the survey area. Fahrens Creek flows southwest along the northern boundary of the survey area, while Bear Creek crosses the survey area near the intersection of West 16th Street and SR 59. Fahrens Creek and Bear Creek converge approximately 0.1 mile south of the delineation area; Bear Creek continues westward, eventually contributing flows to the San Joaquin River. The San Joaquin River originates in the Sierra Nevada, flows west to the valley, and ultimately discharges into the San Joaquin-Sacramento River Delta. Several culverts occur within the survey area and are included in the aquatic resources delineation map (Appendix A-2). These are not discussed further.

U.S. Fish and Wildlife Service National Wetland Inventory shows Fahrens Creek and Bear Creek as perennial riverine features (U.S. Fish and Wildlife Service 2023). The wastewater treatment ponds along the northern boundary of the survey area are considered lake habitat. Several other riverine features are depicted across the middle portion of the survey area; however, these features were photo interpreted using imagery from 1987 and were not observed during field surveys.

2.2.3 Soils

Table 2 summarizes the salient characteristics of the soil map units in the survey area. In summary, the survey area supports six soil map units: Honcut silt loam, 0 to 1 percent slopes; Honcut silty clay loam, 0 to 1 percent slopes; Landlow clay, 0 to 1 percent slopes; Wyman clay loam, 0 to 3 percent slopes; Wyman clay loam, deep over hardpan, 0 to 1 percent slopes; and water (U.S. Department of Agriculture, Natural Resources Conservation Service 2022). The only hydric soil mapped in the survey area is an unnamed minor component of Landlow clay that occurs in depressions (U.S. Department of Agriculture, Natural Resources Conservation Service 2022). Minor inclusions are typically isolated portions of the soil map unit and collectively composed of less than 15 percent of the entire map unit. Additional information on the soil map units is provided in the soil report in Appendix F, *Soil Map Units in the Survey Area*.

Table 2. Soil Map Units in the Survey Area

Soil Map Unit	Map Symbol	Major Component (M) or Inclusion (I)	Landform	Drainage Class	Hydric Criteria?
Honcut silt loam, 0 to 1 percent slopes	HtA	Honcut (M)	Alluvial fans	Well drained	N
		Ryer (I) Yokohl (I) Wyman (I)			
Honcut silty clay loam, 0 to 1 percent slopes	HwA	Honcut (M)	Alluvial fans	Well drained	N
		Wyman (I) Ryer (I) Yokohl (I)			
Landlow clay, 0 to 1 percent slopes	LaA	Landlow (M)	Basin floors	Somewhat poorly drained	N
		Lewis (I) Yokohl (I) Burchell (I)			
		Unnamed (I)	Depressions		Y
Wyman clay loam, 0 to 3 percent slopes	WoA	Wyman (M)	Terraces	Well drained	N
Wyman clay loam, deep over hardpan, 0 to 1 percent slopes	WnA	Wyman (M)	Terraces	Well drained	N
		Porterville (I) Yokohl (I) San Joaquin (I)			
Water	W	–	–	–	N

Source: U.S. Department of Agriculture, Natural Resources Conservation Service 2022.

2.2.4 Precipitation and Growing Season

The climate in the survey area is characterized by hot, dry summer months with relatively cool, wet winters. Data from the Merced weather station, which is 1.4 miles south of the survey area, were reviewed for temperature and precipitation averages (Natural Resources Conservation Service 2023). The average high temperatures range from 96.85 degrees Fahrenheit (°F) in July to 55.7°F in December and January; the average low temperatures range from 36.2°F in December to 61.5°F in July. Total average annual precipitation is 12.40 inches, with precipitation falling entirely as rain.

Recent Weather and Precipitation before Fieldwork

Fieldwork to support this report was conducted on May 2 and June 13, 2023. In the Project area, rainfall prior to fieldwork conducted on May 2, 2023, totaled 20.07 inches for the water year (October 2022–October 2023). An additional 0.77 inch fell during May 2023, bringing the total to 20.84 inches by June, which is 162 percent of normal rainfall (National Oceanic and Atmospheric Administration 2023). The fieldwork on May 2, 2023 occurred during intermittent rain showers, with a total of 0.03 inch of precipitation for the day. The fieldwork on June 13, 2023, occurred during dry conditions.

2.2.5 Vegetation

The survey area consists of developed/landscaped areas and a variety of land covers. Upland land cover types include developed/landscaped (includes industrial and commercial buildings and associated ornamental landscaping, roads, sidewalks, concrete culverts, and bridges), disturbed/unvegetated (includes graded road shoulders, gravel, barren land, driveways, and pullouts), ruderal annual grassland, and ruderal riparian. The disturbed/unvegetated land cover type is not discussed below because it does not include vegetation. Several other land cover types, including upland detention basin, wastewater treatment pond, and upland ditch, contain water at least occasionally, but are excluded from the definition of waters of the United States. General descriptions of the vegetated upland land cover types in the survey area are provided below.

Aquatic land cover types include perennial drainage, seasonal wetland, and freshwater marsh wetland. Aquatic landcover types are discussed further in Section 4, *Results*. Representative photographs were taken of wetland and non-wetland waters within the survey area and are included in Appendix C, *Site Photographs*.

Developed/Landscaped

Developed/landscaped areas include development for commercial, industrial, transportation, and landscaping uses (e.g., sites with structures, paved surfaces, horticultural and ornamental plantings, irrigated lawns). Vegetation in developed/landscaped areas is highly variable, ranging from nonexistent in paved areas to maintained lawns and ornamental shade trees. Common ornamental species in the survey area include eucalyptus (*Eucalyptus* sp.), olive (*Olea europaea*), coast redwood (*Sequoia sempervirens*), Chinese pistache (*Pistacia chinensis*), and oleander (*Nerium oleander*). Ground cover generally consists of ornamental or ruderal vegetation.

Ruderal Annual Grassland

Ruderal cover types occur in areas where natural vegetation has been removed or significantly degraded by past or current human activity (see Appendix C, Photo P9). Ruderal annual grassland is associated with areas at the sides of railroad tracks, vacant lots, roadsides, and other highly disturbed

areas. Ruderal vegetation is typified by the dominance of nonnative annual grasses and forbs that thrive in disturbed conditions, including wild oat (*Avena fatua*), wall barley (*Hordeum murinum*), rip-gut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perennis*), black mustard (*Brassica nigra*), bindweed (*Convolvulus arvensis*), horseweed (*Erigeron canadensis*), filaree (*Erodium* spp.), prickly lettuce (*Lactuca serriola*), cheeseweed (*Malva parviflora*), curly dock (*Rumex crispus*), Russian thistle (*Salsola tragus*), milk thistle (*Silybum marianum*), and Johnson grass (*Sorghum halapense*).

Ruderal Riparian

Riparian is a plant community that occurs in areas alongside perennial drainage habitats above the ordinary high-water mark (OHWM) (see Appendix C, Photos P1–P4). Riparian is a natural community of special concern in undisturbed situations, although the riparian habitat in the survey area supports mostly ruderal and nonnative species. The ruderal riparian cover type in the survey area is associated with Fahrens Creek and Bear Creek. A mix of native and nonnative species occur in the riparian habitat, with none being dominant throughout. Species include deodar cedar (*Cedrus deodara*), red gum eucalyptus (*Eucalyptus calmaldulensis*), Northern California black walnut (*Juglans hindsii*), English walnut (*Juglans regia*), olive, almond (*Prunus dulcis*), valley oak (*Quercus lobata*), narrowleaf willow (*Salix exigua*), black willow (*Salix gooddingii*), and coast redwood. The understory layer includes Himalayan blackberry (*Rubus armeniacus*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and native and nonnative herbaceous forbs and grasses. A large stand of invasive giant reed (*Arundo donax*) and several invasive black locust (*Robinia pseudoacacia*) trees grow in the riparian area along Bear Creek.

Upland Detention Basins and Wastewater Treatment Ponds

Six detention basins occur in the survey area (Appendix C, Photos P5–P8), five of which are located in the industrial area around Cooper Avenue. One detention basin north of West 16th Street (DB-6), which was not directly accessible, drains to Bear Creek. One area that appears to be a detention basin on aerial photographs was examined. This was an excavated area with ruderal annual grassland vegetation that does not appear to function as a detention basin that holds water (Appendix C, Photo P10). The detention basins, which are excavated in uplands, drain runoff following storm events.

The wastewater treatment ponds are part of the Franklin County Water District sewer/stormwater treatment area. The ponds are full year-round and maintained for water treatment. These areas do not support hydrophytic vegetation and are subject to regular maintenance and disturbance. They are not discussed in this report further.

Upland Ditch

Although most parts of the survey area have paved gutters along the roads, Ashby Road and SR 59 have unpaved upland ditches that are vegetated with ruderal grassland species along the shoulders (Appendix C, Photo P11). These ditches, which are excavated in uplands, drain road runoff following storm events. These areas do not support hydrophytic vegetation and are subject to regular maintenance and disturbance. They are not discussed in this report further.

3 Delineation Methods and Regulatory Background

ICF biologists Sean O'Brien and Lisa Webber made site visits on May 2 and June 13, 2023, to conduct the field delineation within the survey area, which is defined as the limits of disturbance for the Project and a buffer of 300 feet. During the field efforts, the biologists surveyed private properties where access was granted. Properties without access were analyzed and reviewed using a combination of aerial interpretation in conjunction with visual surveys from within the public right-of-way.

Jurisdictional limits were recorded using ArcMap Collector on an iPad unit with an external global positioning system unit (EOS Arrow 100) providing sub-meter accuracy. Field data were collected within the survey area and representative of the vegetation, soils, and hydrology across the various wetland types. The data were extrapolated to map aquatic features with similar vegetation and hydrology. Areas on inaccessible private property, as well as areas that were unsafe for the biologists to access, relied on remote mapping informed by field-collected data and aerial imagery interpretation. A series of aerial images were reviewed to capture the range of conditions present in the survey area, including images captured during the dry season as well as the wet season, with consideration of the normality of conditions captured by the aerial image (Google Earth 2023).

3.1 Delineation Methods

3.1.1 Field Delineation Methods for Jurisdictional Wetlands

The delineation field work and mapping were consistent with the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) as well as the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region,* version 2.0 (USACE 2008b). Vascular plants were identified using *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012), and nomenclature and associated wetland ratings follow *The National Wetland Plant List* (USACE 2020).

3.1.2 Field Delineation Methods for Non-Wetland Waters of the United States

Field Guide to the Identification of the Ordinary High-Water Mark (OWHM) in the Arid West Region of the Western United States (USACE 2008a) and *Ordinary High-Water Mark Identification* (USACE 2005) were referenced in identifying the OHWM of stream channels in the survey area.

3.2 Regulatory Background

3.2.1 U.S. Army Corps of Engineers

Under Section 404 of the CWA, the USACE regulates proposed work in, over, and under waters of the United States that results in a discharge of dredged or fill materials within USACE jurisdiction. Aquatic resources in the survey area potentially could be regulated as waters of the United States under the current definition of waters of the United States. On September 8, 2023, the U.S. Environmental Protection Agency (EPA) and the USACE announced a final rule, the "*Revised Definition of 'Waters of the United States'; Conforming*" (Conforming Rule). California is among the states that have adopted this rule.

Under the Conforming Rule (§ 328.3 Definitions) [88 FR 3142, Jan. 18, 2023, as amended at 88 FR 61968, Sept. 8, 2023], **waters of the United States** are defined as follows:

(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.

For ***Non-tidal waters of the United States****, i.e., rivers, streams, lakes, ponds, the* limits of jurisdiction are:

(1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or

(2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.

(3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

3.2.2 Regional Water Quality Control Board

In California, the State Water Board and nine RWQCBs regulate activities within state and federal waters under Section 401 of the CWA and the Porter-Cologne Act. The State Water Board defines waters of the State broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." The *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Water Resources Control Board 2021) define wetland waters of the State 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.

3.2.3 California Department of Fish and Wildlife

Pursuant to Section 1600 et seq. 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.

4 Results

Table 3 summarizes the individual areas (in acres and linear feet) of potential USACE, Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdictional aquatic resources in the survey area (Appendix A-2). A total of 12.081 acres of aquatic resources were delineated. Data forms from the aquatic resources delineation are provided in Appendix D, *Wetland Determination and Ordinary High-Water Mark Data Forms*. A list of plant species observed within the survey area was compiled, and the scientific name and wetland indicator status of each species are provided in Appendix E, *Plant Species Observed in the Survey Area*. All mapped aquatic features are presented in Appendix H, *USACE ORM Upload Sheet*. Monthly precipitation and growing season data are provided in Appendix G, *WETS Tables*.

Table 3. Summary of Potential USACE, RWQCB, and CDFW Jurisdiction Aquatic Resources

			USACE Section 404 and RWQCB Section 401 Aquatic Resources		RWQCB Porter-Cologne Act Aquatic Resources		CDFW Aquatic Resources	
Feature	**Latitude/ Longitude (centroid)**	**Cowardin Classification[a]**	**Non-Wetland Waters of the U.S. (acres/ linear feet)**	**Wetland Waters of the U.S. (acres)**	**Non-Wetland Waters of the State (acres/ linear feet)**	**Wetland Waters of the State (acres)**	**Unvegetated Streambed (acres/ linear feet)**	**Riparian (acres/ linear feet)**
SW-1	37.31127283/ -120.5058618	PAB3—Rooted Vascular, Aquatic Bed, Palustrine	–	0.369	–	0.369	–	–
SW-2	37.30992632/ -120.5057423	PAB3—Rooted Vascular, Aquatic Bed, Palustrine	–	0.035	–	0.035	–	–
FM-1	37.31848148/ -120.507169	PEM—Emergent, Palustrine	–	0.074	–	0.074	–	–
PD-1 (Fahrens Creek)	37.31818031/ -120.5193681	R2UB—Unconsolidated Bottom, Lower Perennial, Riverine	8.946/ 12,337	–	8.946/ 12,337	–	8.946/ 12,337	3.382/ 4,815
PD-2 (Bear Creek)	37.30751841/ -120.5042712	R2UB—Unconsolidated Bottom, Lower Perennial, Riverine	2.657/ 2,728	–	2.657/ 2,728	–	2.657/ 2,728	0.444/ 940
Total Acres/Linear Feet			**11.603/15,065**	**0.478**	**11.603/15,065**	**0.478**	**11.603/15,065**	**3.827/5,755**

Source: Data based on ICF GIS calculations (July 2023).

[a] Cowardin et al. 1979.

4.1 Wetlands

Seasonal Wetland

There are two seasonal wetlands (SW-1 and SW-2) within detention basins on the east side of the survey area (Appendix C, Photos P12 and P13). Data point DP-1 was established in SW-1, which exhibited hydrophytic vegetation, hydric soil (F8), and wetland hydrology (B3 and B10). Dominant vegetation includes Oregon ash (*Fraxinus latifolia* [facultative wetland, or FACW]), narrowleaf cattail (*Typha angustifolia* [obligate, or OBL]), curly dock (*Rumex crispus* [facultative, or FAC]), Italian ryegrass (*Festuca perennis* [FAC]), and Bermuda grass (*Cynodon dactylon* [facultative upland, or FACU]). SW-2 is mapped as seasonal wetland, based on the presence of hydrophytic vegetation similar to that of SW-1 and a connection from a culvert. These two basins are the first in a series of three basins. The water is ultimately pumped and discharged to Bear Creek.

Bear Creek flows to the San Joaquin River, a TNW.

Freshwater Marsh

Freshwater marsh in the survey area occurs within an intermittently flooded detention basin (FM-1). It is dominated by emergent herbaceous wetland plants, including spikerush (*Eleocharis macrostachya* [OBL]) and narrowleaf cattail. Mapping of the freshwater marsh wetland border was based on the transition from obligate wetland species to upland vegetation. No data points were established because of inundation at the time of the survey (Appendix C, Photo P14). The wetland appears to be fed by groundwater and surface water. It appears to drain to groundwater.

The freshwater marsh cover type in the survey area is also associated with the Fahrens Creek and Bear Creek perennial drainage and riparian land cover types. Fahrens Creek drains to Bear Creek, which flows to the San Joaquin River, a TNW.

4.2 Non-Wetland Waters

4.2.1 Perennial Drainage

Perennial drainages are characterized by a defined bed and bank, which are closely associated with riparian and freshwater marsh plant communities. Fahrens Creek (PD-1 in Appendix A-2; Appendix C, Photos P1, P2, P15, and P16; and Appendix D, OHWM-2) and Bear Creek (PD-2 in Appendix A-2; Appendix C, Photos P3 and P4; and Appendix D, OHWM-1) are the perennial drainages in the survey area. Because the fringe of freshwater marsh vegetation along creek edges is non-continuous, occupying less than 20 percent of the creek and occurring below the OHWM, these areas were mapped as part of the perennial drainage non-wetland waters (Appendix C, Photos P17–P19). Fahrens Creek drains to Bear Creek, which flows to the San Joaquin River, a TNW.

The banks of the perennial drainages are steeply sloped, and the mapped OHWM is equivalent to the top of bank for CDFW jurisdiction.

5 References

Baldwin, Bruce G., Douglas Goldman, David J. Keil, Robert Patterson, Thomas J. Rosatti, Dieter Wilken (eds.). 2012. *The Jepson Manual: Vascular Plants of California.* Second edition. Berkeley, CA: University of California Press, 1,568 pp.

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. Available: http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm (Version 04DEC1998).

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Waterways Experiment Station.

Google Earth. 2023. Aerial Imagery for the Survey Area. Various dates between 2010 and 2023.

National Oceanic and Atmospheric Administration. 2023. Monthly Precipitation Summary Water Year 2023, Merced, California. Available: cnrfc.noaa.gov/monthly_precip.php. Accessed: July 27, 2023.

Natural Resources Conservation Service. 2023. *Climate Data for Merced, California*. Available: https://agacis.rcc-acis.org/?fips=06047. Accessed: May 10, 2023.

State Water Resources Control Board. 2021. *State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. Revised April 6, 2021. Available: <https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf>.

U.S. Army Corps of Engineers. 2020. *National Wetland Plant List, Version 3.5*. Available: https://wetland-plants.sec.usace.army.mil/nwpl_static/v34/home/home.html. Accessed: July 12, 2023.

———. 2016a. *Minimum Standards for Acceptance of Aquatic Resource Delineation Reports*.

———. 2016a. *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*.

———. 2008a. *Field Guide to the Identification of the Ordinary High-Water Mark (OHWM) in the Arid West Region of the United States.* Vicksburg, MS: U.S. Army Engineer Research and Development Center. August. Available: https://www.spl.usace.army.mil/Portals/17/docs/regulatory/JD/FinalOHWMManual_2008.pdf.

———. 2008b. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. Version 2.0. Vicksburg, MS: U.S. Army Engineer Research and Development Center. September. Available: https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7627.

———. 2005. *Ordinary High-Water Mark Identification*. USACE Regulatory Guidance Letter 05-05. December.

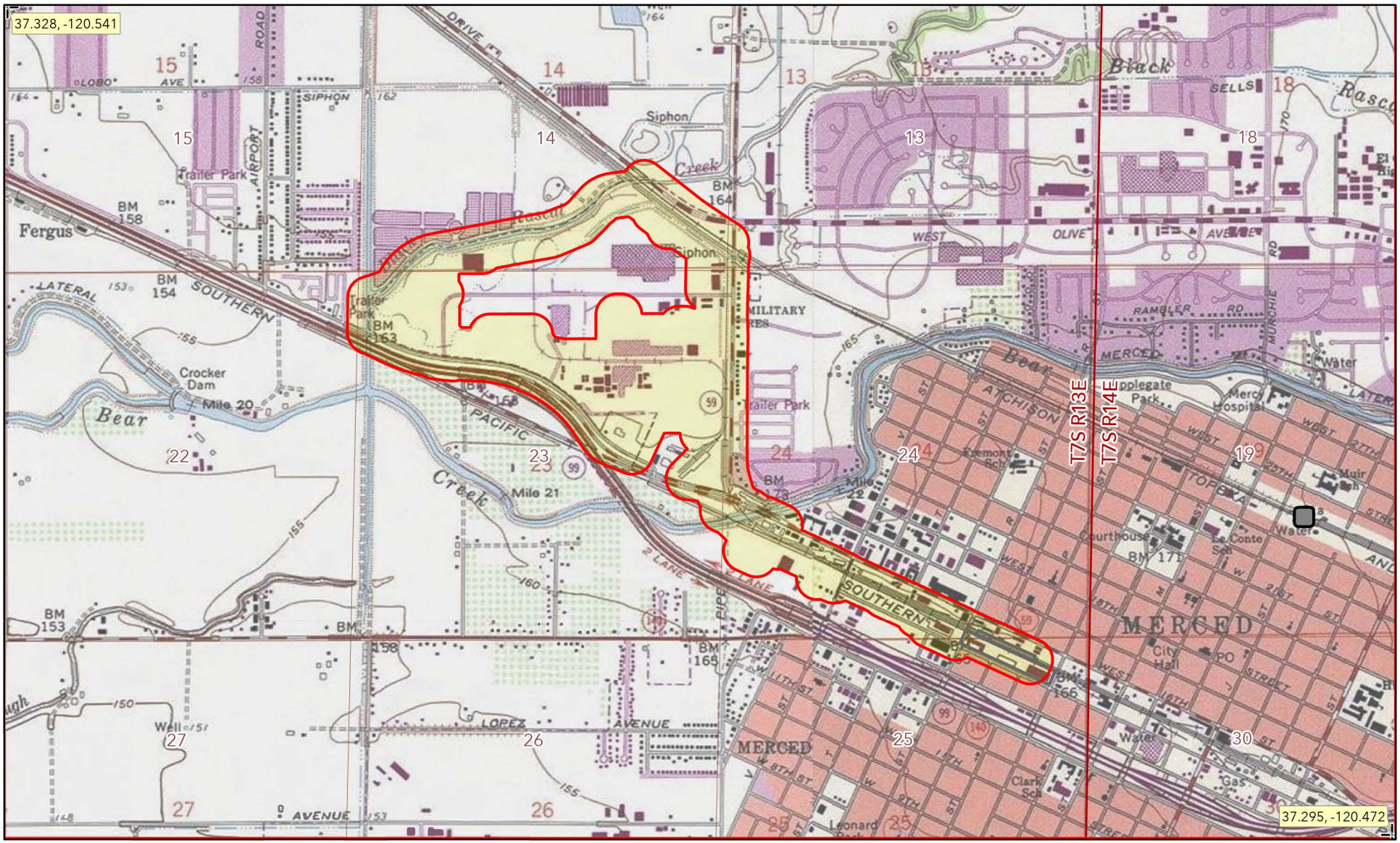
U.S. Department of Agriculture, Natural Resources Conservation Service. 2022. *Web Soil Survey, Merced Area, California, Version 17*. Last Updated: September 1, 2022. Available: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed: May 10, 2023.

U.S. Fish and Wildlife Service. 2023. *National Wetlands Inventory*. Available: https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper. Accessed: June 20, 2023.

U.S. Geologic Survey. 2021. *Science in Your Watershed, Bear Creek*. Last Updated: August 3, 2021. Available: https://water.usgs.gov/wsc/a_api/wbd/subwatershed18/180400011801.html. Accessed: July 27, 2023.

Appendix A

Preliminary Delineation Figures



Delineation Survey Area (420.24 ac)

Notes:
Imagery Source: ESRI 2023
USGS Quadrangles: Atwater and Merced
PLSS: T7S - R13E - Sections 13, 14, 22, 23, 24 and 25
Prepared by: ICF
Prepared Date: July 26, 2023
Delineated by Lisa Webber and Sean O'Brien
Delineation Date: June 23, 2023
Drawn by: B. Read

0 1,000 2,000 Feet

N

Appendix A-1
Project Location
Merced Intermodal Track Connection Project

MITC

\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Figures\Doc\ARDR\AppendixA-2_AquaticResources.aprx; User: 35015; Date: 7/28/2023

Delineation Survey Area (420.24 ac)

Aquatic Resources

Non-Wetland Waters

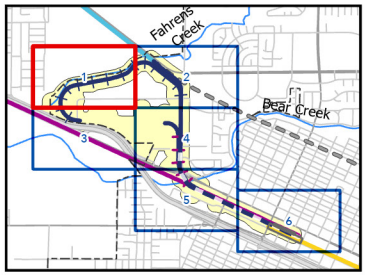
Perennial Drainage (11.603 ac)

OHWM Data Point

Photo Point

Upland Detention Basin (2.363 ac)

Wastewater Treatment Pond (8.501 ac)



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Appendix A-2
Aquatic Resources Delineation
Merced Intermodal Track Connection Project

Notes:

Imagery Source: ESRI 2023

Prepared by: ICF

Prepared Date: July 26, 2023

Delineated by Lisa Webber and Sean O'Brien

Delineation Date: June 23, 2023

Drawn by: B. Read

Delineation Survey Area (420.24 ac)

Photo Point

Aquatic Resources

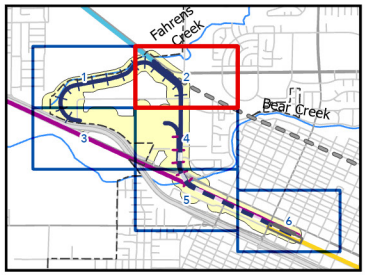
Wetlands

Freshwater Marsh Wetland (0.074 ac)

Non-Wetland Waters

Perennial Drainage (11.603 ac)

0 200 400 Feet



Appendix A-2
Aquatic Resources Delineation
Merced Intermodal Track Connection Project

Notes:

Imagery Source: ESRI 2023

Prepared by: ICF

Prepared Date: July 26, 2023

Delineated by Lisa Webber and Sean O'Brien

Delineation Date: June 23, 2023

Drawn by: B. Read

Delineation Survey Area (420.24 ac)

Aquatic Resources

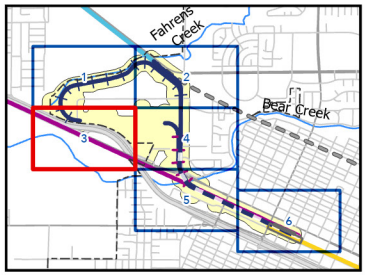
Non-Wetland Waters

Perennial Drainage (11.603 ac)

Photo Point

Upland Detention Basin (2.363 ac)

Upland Ditch (0.035 ac)



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Appendix A-2
Aquatic Resources Delineation
Merced Intermodal Track Connection Project

Notes:

Imagery Source: ESRI 2023

Prepared by: ICF

Prepared Date: July 26, 2023

Delineated by Lisa Webber and Sean O'Brien

Delineation Date: June 23, 2023

Drawn by: B. Read

Delineation Survey Area (420.24 ac)

Aquatic Resources

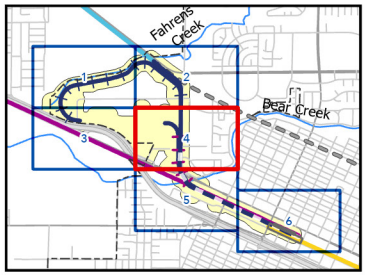
Wetlands

Seasonal Wetland (0.404 ac)

Wetland Data Point

Photo Point

Upland Ditch (0.035 ac)



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Appendix A-2
Aquatic Resources Delineation
Merced Intermodal Track Connection Project

Notes:

Imagery Source: ESRI 2023

Prepared by: ICF

Prepared Date: July 26, 2023

Delineated by Lisa Webber and Sean O'Brien

Delineation Date: June 23, 2023

Drawn by: B. Read

Delineation Survey Area (420.24 ac)

Aquatic Resources

Non-Wetland Waters

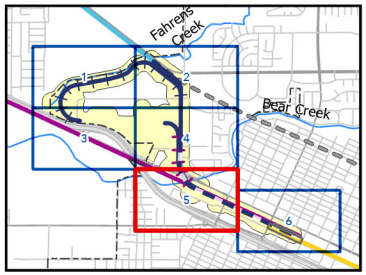
Perennial Drainage (11.603 ac)

OHWM Data Point

Photo Point

Upland Detention Basin (2.363 ac)

Upland Ditch (0.035 ac)



0 200 400 Feet

N

Appendix A-2
Aquatic Resources Delineation
Merced Intermodal Track Connection Project

Notes:

Imagery Source: ESRI 2023

Prepared by: ICF

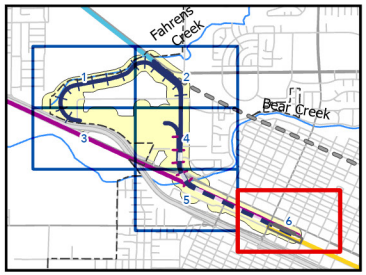
Prepared Date: July 26, 2023

Delineated by Lisa Webber and Sean O'Brien

Delineation Date: June 23, 2023

Drawn by: B. Read

Delineation Survey Area (420.24 ac)



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Appendix A-2
Aquatic Resources Delineation
Merced Intermodal Track Connection Project

Notes:
Imagery Source: ESRI 2023
Prepared by: ICF
Prepared Date: July 26, 2023
Delineated by Lisa Webber and Sean O'Brien
Delineation Date: June 23, 2023
Drawn by: B. Read

Appendix B

Supporting Information Figures

U.S. Fish and Wildlife Service
National Wetlands Inventory

MITC Survey Area

June 20, 2023

Wetlands_Alaska

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

Appendix C
Site Photographs

Photo P1. Fahrens Creek PD-1, looking northeast. May 2, 2023.

Photo P2. Fahrens Creek PD-1, looking southwest. May 2, 2023.

Photo P3. Bear Creek PD-2, looking south. May 2, 2023.

Photo P4. Bear Creek PD-2, looking west. May 2, 2023.

Photo P5. Upland detention basin at corner of Ashby Road and Cooper Avenue, looking west. May 2, 2023.

Photo P6. Upland detention basin on west side of Cooper Avenue, looking north. June 13, 2023.

Photo P7. Upland detention basin on east side of Cooper Avenue, looking east. May 2, 2023.

Photo P8. Upland detention basin south of Fahrens Creek, looking east. May 2, 2023.

Photo P9. Ruderal grassland, looking southwest. May 2, 2023.

Photo P10. Excavated grassland on north side of Ashby Road, looking east. May 2, 2023.

Photo P11. Upland ditch, looking northwest. June 13, 2023.

Photo P12. SW-1, looking south. June 13, 2023.

Photo P13. SW-2, looking south. June 13, 2023.

Photo P14. FM-1, looking northwest. May 2, 2023.

Photo P15. Fahrens Creek PD-1 confluence with irrigation channel, looking north. May 2, 2023.

Photo P16. Ashby Road Bridge over Fahrens Creek PD-1, looking southwest. June 13, 2023.

Photo P17. Fahrens Creek PD-1, looking southwest. May 2, 2023.

Photo P18. Fahrens Creek PD-1 with marsh fringe, looking north. May 2, 2023.

Photo P19. Fahrens Creek PD-1 with marsh fringe, looking northeast. May 2, 2023.

Appendix D

Wetland Determination and Ordinary High-Water Mark Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MITC City/County: Merced Sampling Date: 6-13-23

Applicant/Owner: San Joaquin Joint Powers Authority State: CA Sampling Point: DP-1

Investigator(s): O'Brien, Webster Section, Township, Range:

Landform (hillslope, terrace, etc.): terraces Local relief (concave, convex, none): none Slope (%): Ø

Subregion (LRR): C Lat: Long: Datum:

Soil Map Unit Name: Wymon clay loam, 0-3% slopes NWI classification:

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: Detention basin, first in a series of three that end in pumping to Bear Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus latifolia	15	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 20')			
1. Typha angustifolia	10	Y	OBL
2.			
3.			
4.			
5.			
	10% = Total Cover		
Herb Stratum (Plot size: 5')			
1. Rumex crispus	25	Y	FAC
2. Cynodon dactylon	30	Y	FACU
3. Convolvulus arvensis	10	N	NL
4. Festuca perennis	15	Y	FAC
5. Sorghum halapense	15	N	FACU
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Biotic crust observed elsewhere in detention basin.

SOIL

Sampling Point: OR-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	60	10YR 2/1	3	C	M	cl	
	10YR 4/6	35	5YR 4/6	2	C	M		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: shovel refusal

Depth (inches): 14"

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- X Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): None@Surface

Water Table Present? Yes ___ No X Depth (inches): none to 14"

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): none to 14"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MITC City/County: Merced Sampling Date: 6-13-23

Applicant/Owner: San Joaquin Joint Powers Authority State: CA Sampling Point: DP-2

Investigator(s): O'Brien, Webber Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): C Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Wyman clay loam, 0-3% slopes NWI classification: _____

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks: Bank of detention basin that was flooded in winter.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus latifolia	15	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5')			
1. Grindelia camporum	20	Y	FACW
2. Festuca perennis	20	Y	FAC
3. Bromus hordeaceus	15	N	NI
4. Lactuca serriola	25	Y	FACU
5. Convolvulus arvensis	5	N	NI
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: DP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	10YR 3/2	60					cl	
	10YR 4/3	40						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): none @ Surface

Water Table Present? Yes ___ No X Depth (inches): none to 18"

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): none to 18"

Wetland Hydrology Present? Yes ___ No X

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

Remarks: No evidence of wetland hydrology observed.

OHWM Delineation Cover Sheet Page 1 of 2

Project: MTTC **Date:** 5-2-23

Location: Merced, CA - Fahrens Ck **Investigator(s):** O'Brien, Webber

Project Description:

Construction of a new railroad track connection between high speed rail and BNSF mainline north of SR 59 in the City of Merced.

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

Urban creek north of a railroad. No instream structures.

Off-site Information

Remotely sensed image(s) acquired? ☒ **Yes** ☐ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

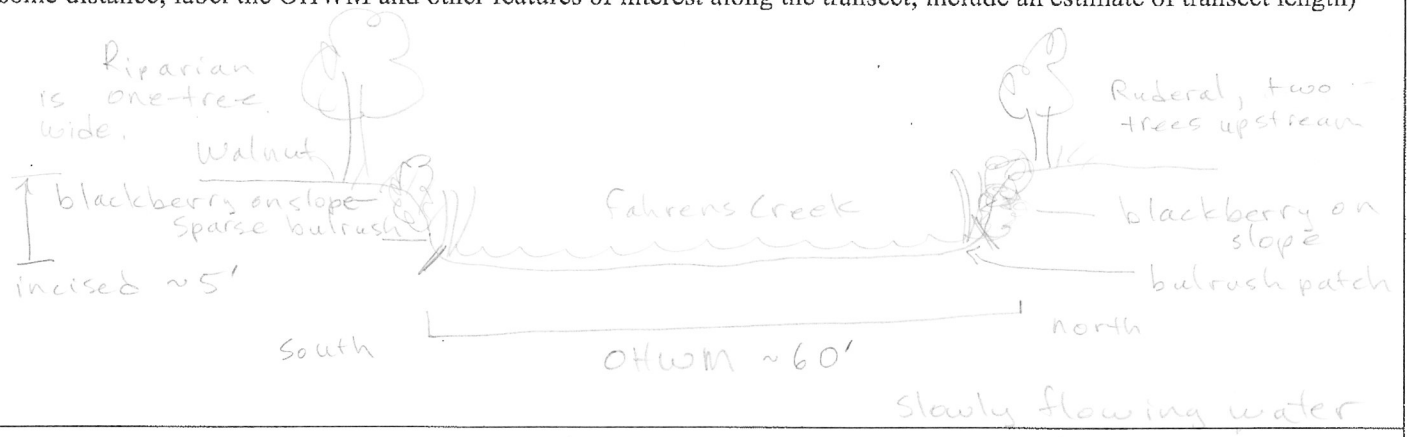
Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Datasheet # _____ **OHWM Delineation Datasheet** Page 2 of 2

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None
Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	90	5	5	<5	Ø	Y
Below OHWM	—	—	—	<5	Ø	unknown

Notes/Description: not visible

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	20	50	40	<5
Below OHWM	Ø	Ø	15	85

Notes/Description:
Bulrush growing below OHWM.

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

OHWM-1 **OHWM Delineation Cover Sheet** Page 1 of 2

Project: MIC **Date:** 5-2-23

Location: Merced, Ct - Bear Creek **Investigator(s):** O'Brien, Webber

Project Description:

Construction of a new railroad track connection between high speed rail and BNSF mainline north of SR 59 in the City of Merced

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

The creek section is between the SR 59 bridge and railroad bridge. The banks are partially rip-rapped. Area supports a few unhoused camps. Bridge piers are the only in-stream structures.

Off-site Information

Remotely sensed image(s) acquired? ☒ **Yes** ☐ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

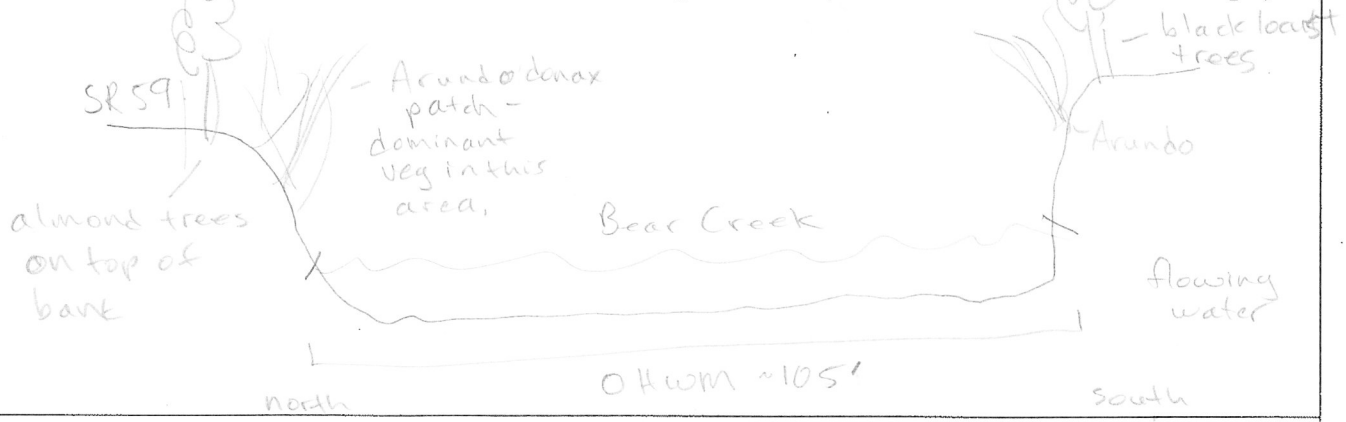
Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Datasheet # OHWM-1 | **OHWM Delineation Datasheet** | Page 2 of 2

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None
Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	70	10	10	5	5	Y
Below OHWM	–	–	–	–	–	–

Notes/Description: not visible

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	20	60	10	10
Below OHWM	Ø	10	Ø	90

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Appendix E

Plant Species Observed in the Survey Area

Scientific Name	Common Name	Origin	Arid West Status[a]
Trees			
Cedrus deodara	Deodar cedar	Introduced	UPL
Eucalyptus camaldulensis	Red gum	Introduced	FAC
Ficus carica	Common fig	Introduced	FACU
Fraxinus latifolia	Oregon ash	Native	FACW
Juglans hindsii	Northern California black walnut	Native	UPL
Juglans regia	English walnut	Introduced	UPL
Olea europaea	Olive	Introduced	UPL
Pinus sp.	Pine	Introduced	UPL
Populus fremontii	Fremont cottonwood	Native	FAC
Prunus dulcis	Almond	Introduced	UPL
Quercus lobata	Valley oak	Native	FACU
Robinia pseudoacacia	Black locust	Introduced	FACU
Salix exigua	Narrowleaf willow	Native	FACW
Salix gooddingii	Gooding's willow	Native	FACW
Sequoia sempervirens	Coast redwood	Native	UPL
Shrubs and Vines			
Cephalanthus occidentalis	Common buttonbush	Native	OBL
Nerium oleander	Oleander	Introduced	UPL
Salix exigua	Narrowleaf willow	Native	FACW
Sambucus mexicana	Elderberry	Native	FACU
Forbs			
Alisma triviale	Northern water plantain	Native	OBL
Amsinckia sp.	Fiddlehead	Native	UPL
Artemisia douglasiana	California mugwort	Native	FAC
Asclepias fascicularis	Narrow leaf milkweed	Native	FAC
Brassica nigra	Black mustard	Introduced	UPL
Capsella bursa-pastoris	Shepherd's purse	Introduced	UPL
Carduus pycnocephalus	Italian thistle	Introduced	UPL
Centaurea solstitialis	Yellow starthistle	Introduced	UPL
Centromadia pungens	Common tarweed	Native	UPL
Cirsium vulgare	Bullthistle	Introduced	FACU
Conium maculatum	Poison hemlock	Introduced	FACW
Convolvulus arvensis	Field bindweed	Introduced	UPL
Croton setiger	Turkey-mullein	Native	UPL
Dittrichia graveolens	Stinkwort	Introduced	UPL
Eichornia crassipes	Water hyacinth	Introduced	OBL
Epilobium brachycarpum	Annual fireweed	Native	FAC
Erigeron canadensis	Canada horseweed	Native	FACU

Scientific Name	Common Name	Origin	Arid West Status[a]
Erodium botrys	Big heron bill	Introduced	FACU
Erodium cicutarium	Red stem filaree	Introduced	UPL
Erodium moschatum	Round leaved filaree	Native	UPL
Euphorbia serpens	Matted sandmat	Introduced	FACU
Grindelia camporum	Gumweed	Native	FACW
Helianthus annuus	Hairy leaved sunflower	Native	FACU
Heterotheca grandiflora	Telegraph weed	Native	UPL
Hirschfeldia incana	Mustard	Introduced	UPL
Lactuca serriola	Prickly lettuce	Introduced	FACU
Leontodon saxatilis	Hawkbit	Introduced	FACU
Lepidium nitidum	Shining pepper grass	Native	UPL
Lotus corniculatus	Bird's foot trefoil	Introduced	FAC
Lysimachia arvensis	Scarlet pimpernel	Introduced	UPL
Malva parviflora	Cheeseweed	Introduced	UPL
Malvella leprosa	Alkali mallow	Native	FACU
Matricaria discoidea	Pineapple weed	Native	FACU
Medicago polymorpha	California burclover	Introduced	FACU
Melilotus indicus	Annual yellow sweetclover	Introduced	FACU
Persicaria hydropiperoides	Smartweed	Native	OBL
Polygonum aviculare	Prostrate knotweed	Introduced	FAC
Ranunculus muricatus	Buttercup	Introduced	FACW
Raphanus sativus	Jointed charlock	Introduced	UPL
Rubus armeniacus	Himalayan blackberry	Introduced	FAC
Rumex crispus	Curly dock	Introduced	FAC
Salsola tragus	Russian thistle	Introduced	FACU
Senecio vulgaris	Common groundsel	Introduced	FACU
Silybum marianum	Milk thistle	Introduced	UPL
Sonchus oleraceus	Sow thistle	Introduced	UPL
Spergularia sp.	Sand spurry	Introduced	FAC/FACW
Tribulus terrestris	Puncture vine	Introduced	UPL
Trifolium dubium	Shamrock	Introduced	UPL
Urtica dioica	Stinging nettle	Native	FAC
Wolffia sp.	Watermeal	Native	OBL
Xanthium strumarium	Cocklebur	Native	FAC
Graminoids			
Arundo donax	Giant reed	Introduced	FACW
Avena barbata	Slim oat	Introduced	UPL
Bromus diandrus	Ripgut brome	Introduced	UPL
Bromus hordeaceus	Soft chess	Introduced	FACU
Bromus rubens	Red brome	Introduced	UPL
Cynodon dactylon	Bermuda grass	Introduced	FACU

Scientific Name	Common Name	Origin	Arid West Status[a]
Cyperus eragrostis	Tall cyperus	Native	FACW
Eleocharis macrostachya	Common spikerush	Native	OBL
Festuca bromoides	Rattail six weeks grass	Introduced	FACU
Festuca perennis	Italian ryegrass	Introduced	FAC
Hordeum murinum	Foxtail barley	Introduced	FACU
Juncus effusus	Common bog rush	Native	FACW
Polypogon monspeliensis	Annual beard grass	Introduced	FACW
Schoenoplectus acutus	Tule	Native	OBL
Sonchus oleraceus	Sow thistle	Introduced	UPL
Sorghum halapense	Johnsongrass	Introduced	FACU
Typha angustifolia	Narrowleaf cattail	Native	OBL

a. 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 F

Soil Map Units in the Survey Area

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 Merced Area, California

Merced Intermodal Track Connection Project

May 10, 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.

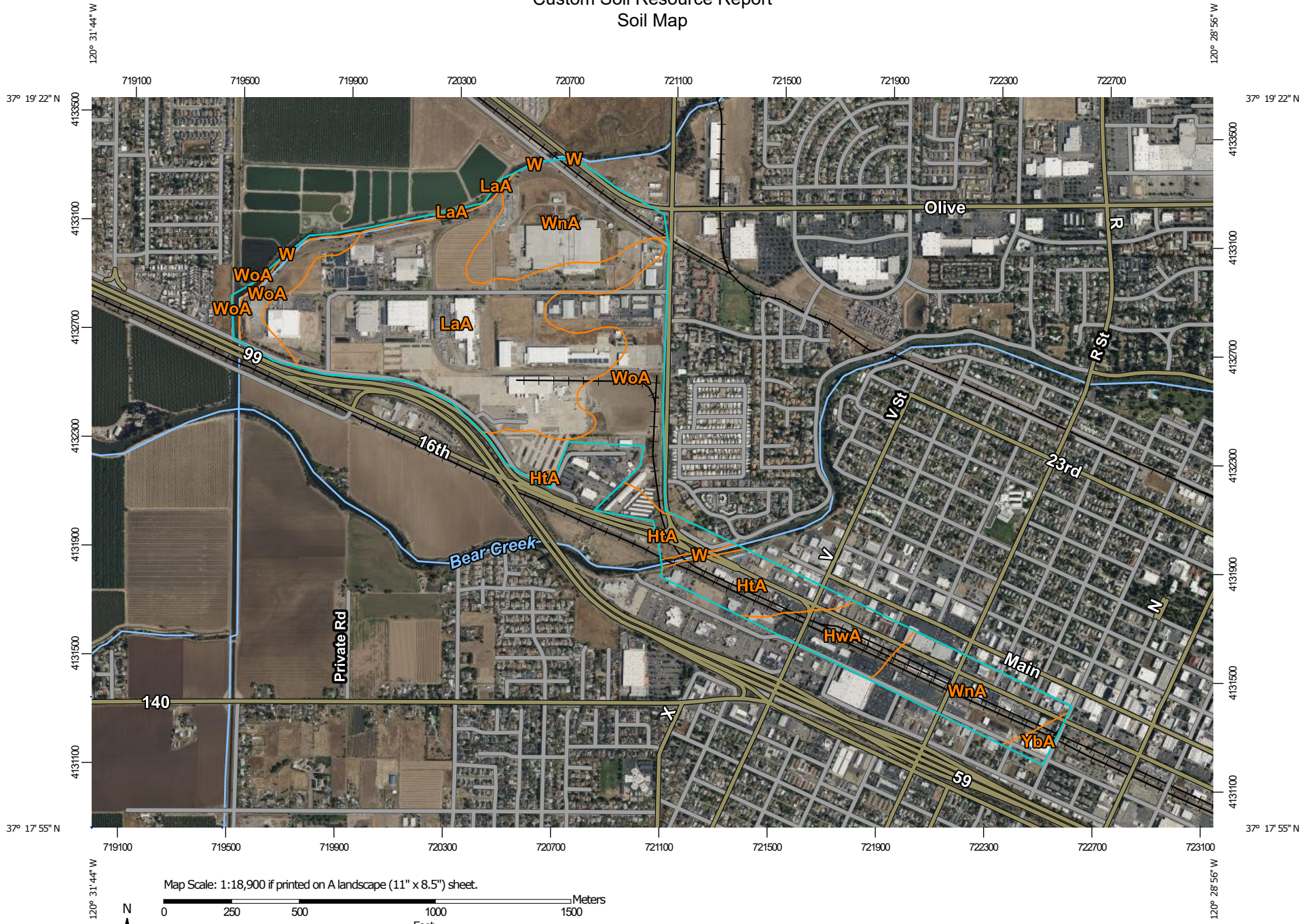
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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: 1:18,900 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 250 500 1000 1500

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 1:20,000.

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: Merced Area, California
Survey Area Data: Version 17, Sep 1, 2022

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

Date(s) aerial images were photographed: Mar 11, 2022—May 30, 2022

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
HtA	Honcut silt loam, 0 to 1 percent slopes	37.4	9.5%
HwA	Honcut silty clay loam, 0 to 1 percent slopes	21.6	5.5%
LaA	Landlow clay, 0 to 1 percent slopes	166.4	42.1%
W	Water	6.3	1.6%
WnA	Wyman clay loam, deep over hardpan, 0 to 1 percent slopes	86.2	21.8%
WoA	Wyman clay loam, 0 to 3 percent slopes	73.2	18.5%
YbA	Yokohl clay loam, 0 to 3 percent slopes	4.4	1.1%
Totals for Area of Interest		**395.5**	**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.

Merced Area, California

HtA—Honcut silt loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hjv8
Elevation: 2,000 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Honcut

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and metamorphic rock

Typical profile

H1 - 0 to 20 inches: silt loam
H2 - 20 to 60 inches: stratified loam to silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Ryer

Percent of map unit: 5 percent
Hydric soil rating: No

Yokohl

Percent of map unit: 5 percent
Hydric soil rating: No

Wyman

Percent of map unit: 5 percent
Hydric soil rating: No

HwA—Honcut silty clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hjvb
Elevation: 2,000 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Honcut

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and metamorphic rock

Typical profile

H1 - 0 to 18 inches: silty clay loam
H2 - 18 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Wyman
Percent of map unit: 5 percent
Hydric soil rating: No

Yokohl
Percent of map unit: 5 percent
Hydric soil rating: No

Ryer
Percent of map unit: 5 percent
Hydric soil rating: No

LaA—Landlow clay, 0 to 1 percent slopes

Map Unit Setting
National map unit symbol: hjvl
Elevation: 200 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 230 to 290 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Landlow and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Landlow

Setting
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile
H1 - 0 to 12 inches: clay
H2 - 12 to 46 inches: clay
H3 - 46 to 60 inches: clay

Properties and qualities
Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat 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 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: R017XY901CA - Clayey Basin Group
Hydric soil rating: No

Minor Components

Lewis

Percent of map unit: 5 percent
Hydric soil rating: No

Yokohl

Percent of map unit: 5 percent
Hydric soil rating: No

Burchell

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

WnA—Wyman clay loam, deep over hardpan, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hk0f
Elevation: 50 to 600 feet
Mean annual precipitation: 10 inches

Mean annual air temperature: 61 degrees F
Frost-free period: 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Wyman

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from volcanic rock

Typical profile

H1 - 0 to 14 inches: clay loam
H2 - 14 to 40 inches: clay loam
H3 - 40 to 60 inches: cemented

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 40 to 60 inches to duripan
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Porterville

Percent of map unit: 5 percent
Hydric soil rating: No

Yokohl

Percent of map unit: 5 percent
Hydric soil rating: No

San joaquin

Percent of map unit: 5 percent
Hydric soil rating: No

WoA—Wyman clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hk0g
Elevation: 30 to 600 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 59 to 63 degrees F
Frost-free period: 260 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Wyman

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from volcanic rock

Typical profile

H1 - 0 to 14 inches: clay loam
H2 - 14 to 41 inches: clay loam
H3 - 41 to 60 inches: stratified silt loam to clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Porterville
Percent of map unit: 5 percent
Hydric soil rating: No

San joaquin
Percent of map unit: 5 percent
Hydric soil rating: No

Yokohl
Percent of map unit: 5 percent
Hydric soil rating: No

YbA—Yokohl clay loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: hk0n
Elevation: 500 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 days
Farmland classification: Not prime farmland

Map Unit Composition
Yokohl and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yokohl

Setting
Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Alluvium derived from igneous rock

Typical profile
H1 - 0 to 10 inches: clay loam
H2 - 10 to 19 inches: clay
H3 - 19 to 48 inches: indurated
H4 - 48 to 60 inches: stratified sandy loam to gravelly loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to duripan
Drainage class: Well 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Porterville

Percent of map unit: 5 percent
Hydric soil rating: No

Wyman

Percent of map unit: 5 percent
Hydric soil rating: No

Honcut

Percent of map unit: 5 percent
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix G

WETS Tables

WETS Table

WETS Station: MERCED, CA

Requested years: 1971 - 2023

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	55.7	37.1	46.4	2.39	1.07	2.88	5	0.0
Feb	62.4	39.0	50.7	2.18	1.08	2.64	5	0.0
Mar	67.7	42.2	54.9	2.07	1.02	2.48	5	0.0
Apr	74.9	45.3	60.1	0.92	0.29	1.05	3	0.0
May	83.7	51.6	67.6	0.47	0.16	0.46	1	0.0
Jun	91.5	57.3	74.4	0.08	0.00	0.04	0	0.0
Jul	96.8	61.5	79.1	0.02	0.00	0.00	0	0.0
Aug	95.3	59.9	77.6	0.02	0.00	0.00	0	0.0
Sep	90.7	56.1	73.4	0.15	0.00	0.12	1	0.0
Oct	80.5	48.5	64.5	0.72	0.29	0.76	2	0.0
Nov	65.8	40.8	53.3	1.33	0.61	1.59	3	0.0
Dec	55.7	36.2	45.9	2.05	0.97	2.51	5	0.0
Annual:					9.83	14.00		
Average	76.7	48.0	62.3	-	-	-	-	-
Total	-	-	-	12.40			31	0.0

GROWING SEASON DATES

Years with missing data:	24 deg = 12	28 deg = 15	32 deg = 13
Years with no occurrence:	24 deg = 33	28 deg = 4	32 deg = 0
Data years used:	24 deg = 41	28 deg = 38	32 deg = 40
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	1/23 to 12/11: 322 days	3/2 to 11/21: 264 days
70 percent *	No occurrence	1/10 to 12/24: 348 days	2/21 to 11/30: 282 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1899						0.60		0.14	0.00			1.80	2.54
1900	1.63	0.05	1.07	1.83	0.97	T					4.16		9.71
1901									0.65	0.25	2.09	0.43	3.42
1902	0.80	2.26	2.25	0.75	0.50		0.00	T	0.00	T	2.25	0.36	9.17
1903	2.24	0.63		T	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.35	4.62
1904	M0.25	2.30	M2.28	M1.12	0.00	0.00	0.00	0.10	1.80		0.29	1.15	9.29
1905	1.30	1.55	2.05	0.25	M1.80	0.00	0.00	0.00	0.00		1.83	0.38	9.16
1906	2.11	2.92	6.62	1.80	2.10	0.00	0.00	0.00	0.00	0.00	0.20	3.90	19.65
1907	4.22	3.16	3.68	1.05	T	0.17	0.00	0.00		0.29		2.66	15.23

1908	2.63	1.11	0.34	0.44	0.94	0.00	0.00	0.00	0.48	0.30	1.32	0.89	8.45
1909	8.00	2.04	1.30	0.00	0.00	0.05	0.00	0.00	0.00	0.39	0.60	M3.42	15.80
1910	2.77	0.95				0.00	0.00	0.00	0.27	0.86	0.43	0.50	5.78
1911	7.99	1.74	4.90	0.43	T			0.00	0.00	0.00	0.26	M1.85	17.17
1912	1.55	0.00	M2.04	1.67	0.35	0.04	T	0.00	0.13	0.20	0.58	0.34	6.90
1913	1.96	1.04	1.01	0.55	0.55	0.18	0.24	T	T	T	2.69	2.09	10.31
1914	5.23	2.09	0.29	1.22	T	0.22	0.00	0.00	0.45	1.18	0.06	3.98	14.72
1915	3.30	3.41	0.83	0.57	1.99						0.19	2.36	12.65
1916	5.88	2.94	2.94	M0.29	0.02			0.25	M0.25	0.87	0.75	M2.28	16.47
1917	1.50	M1.79	1.15	M0.17	0.34				MT		0.14	0.24	5.33
1918	M0.78	4.41	4.89	M0.03	T	T			M0.76	M0.49	2.09	M1.52	14.97
1919	M0.59	M2.11	M1.59	M0.70	M0.05				M1.04	M0.41	M0.04	1.43	7.96
1920	M0.42	1.62	4.88	M0.62		M0.09		M0.06		M1.46	M2.26	2.62	14.03
1921	M3.85	1.43	1.37	M0.02	M1.29				M0.10	T	M0.76	5.57	14.39
1922	3.08	4.02	2.77	M0.87	M1.14	M0.12	MT			M0.55	M2.21	3.66	18.42
1923	M1.60	M0.46	M0.13	M3.70	M0.09				M0.64	M0.21	M0.25	M0.67	7.75
1924	1.93	0.33	1.81	0.09	MT					1.21	M1.47	2.19	9.03
1925	1.05	1.99	0.89	2.74	M1.76		0.00		0.00	0.36	0.64	1.36	10.79
1926	1.67	3.19	0.80	3.66	0.10	0.00	0.00	T	0.00	0.20	3.16	1.28	14.06
1927	0.96	3.57	0.94	1.28	0.07	0.13	0.00	0.00	T	1.56	1.74	1.82	12.07
1928	0.54	1.18	2.24	0.59	0.00	0.00	0.00	0.00	0.00	T	3.18	2.00	9.73
1929	0.92	1.00	1.40	1.31	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.46	6.11
1930	2.35	1.82	1.57	0.91	0.45	0.00	0.00	0.00	0.04	0.06	2.01	0.00	9.21
1931	2.63	1.60	0.51	0.18	0.52	0.07	0.00	0.06	0.00	T	1.83	4.77	12.17
1932	1.72	2.27	0.32	0.20	0.26	0.00	0.00	0.00	0.00	0.00	0.08	1.19	6.04
1933	3.64	0.52	1.31	0.05	0.72	0.02		0.00	0.00	0.42	0.00	2.88	9.56
1934	1.66	2.20	0.00	0.04	0.63	0.68	0.00	0.00	0.16	0.83	3.24	2.04	11.48
1935	3.31	1.44	2.52	3.54	0.00	0.00	0.00	T	T	0.72	1.15	1.19	13.87
1936	1.59	6.77	1.48	0.96	0.16	0.32	T	0.00	0.00	1.47	0.00	2.60	15.35
1937	2.57	3.54	3.60	1.25	0.00	T	0.00	0.00	0.00	0.05	0.58	2.32	13.91
1938	2.76	5.60	4.25	0.96	0.06	T	0.02	T	0.21	0.96	0.29	0.97	16.08
1939	1.51	1.42	2.26	0.21	0.30	0.00	T	T	0.63	0.15	0.12	0.50	7.10
1940	5.14	3.68		0.64	T	T	0.00	0.00	T	0.35	0.01	5.17	14.99
1941	2.31	4.47	2.23	2.83	T	0.10	0.00	0.08	0.00	1.15	0.80	3.17	17.14
1942	2.62	1.62	1.15	2.67	1.45	0.00	0.00	T	0.	0.	1.47	1.40	12.

									00	10			48
1943	2.17	1.30	3.73	0.80	0.00	0.00	0.00	0.00	0.00	0.24	0.33	1.20	9.77
1944	2.05	3.78	0.78	1.28	0.54	0.31	0.00	0.00	0.08	0.72	4.08	1.60	15.22
1945	0.27	2.57	3.12	0.47	0.58	0.04	0.00	0.00	0.04	0.73	1.40	2.47	11.69
1946	0.83	2.19	1.20	0.00	1.06	0.00	0.09	0.00	M0.13	M0.73	2.71	2.24	11.18
1947	0.40	0.76	1.00	0.51	0.11	0.12	0.00	0.00	0.01	1.21	0.91	0.47	5.50
1948	0.06	0.84	2.73	3.23	1.65	T	0.00	0.00	0.00	0.50	0.08	1.89	10.98
1949	M1.22	1.51	2.88	0.00	M0.44	T	T	T	0.00	MT	0.94	1.77	8.76
1950	3.58	1.65	1.17	0.76	M0.14	0.00	T	M0.00	M0.40	M1.49	3.82	2.57	15.58
1951	M0.21	M2.15	0.55	1.03	0.43	0.00	0.00	0.00	0.00	0.93	1.25	4.63	11.18
1952	5.44	0.99	3.71	2.00	0.16	0.00	T	0.00	0.34	0.10	0.95	3.59	17.28
1953	M1.23	0.04	0.68	1.47	0.26	0.33	M0.00	0.00	0.00	M0.00	1.93	1.03	6.97
1954	M1.59	1.98	2.50	M0.85	0.33	M0.17	0.00	0.00	0.00	M0.00	0.75	M0.97	9.14
1955	M3.63	M0.67	M0.18	M0.67	M0.51	M0.00	0.00	0.00	0.00	M0.02	M0.57	M4.73	10.98
1956	M2.41	1.03	T	M2.61	0.52	0.00	0.00	0.00	0.18	0.32	M0.00	M0.19	7.26
1957	2.02	1.45	1.10	0.76	1.32	M0.00	0.00	0.00	0.14	M1.26	0.62	M3.92	12.59
1958	3.20	4.94	6.93	3.65	0.70	0.27	0.02	0.00	0.16	0.02	0.07	0.26	20.22
1959	2.80	2.06	0.30	1.85	0.06	0.00	0.00	0.00	1.40	0.00	0.00	0.72	9.19
1960	1.98	2.40	1.21	1.40	0.00	0.00	0.00	0.00	0.00	0.06	2.27	0.48	9.80
1961	2.14	0.85	1.74	0.55	0.87	0.00	0.03	0.00	0.13	0.00	2.38	1.57	10.26
1962	1.35	5.74	1.30	0.08	0.02	0.00	0.02	0.00	0.00	0.53	0.20	1.98	11.22
1963	1.80	2.95	1.93	2.38	0.46	0.06	0.00	0.00	0.38	1.50	2.81	0.17	14.44
1964	0.91	0.16	1.75	0.40	0.27	0.41	0.00	0.13	0.00	1.67	2.18	3.78	11.66
1965	1.57	0.53	0.67	2.09	0.01	0.00	0.00	0.49	0.00	0.12	4.12	2.12	11.72
1966	1.24	0.38	0.20	0.34	0.19	T	T	0.00	0.07	0.00	1.88	2.85	7.15
1967	2.78	0.38	2.53	4.60	0.73	0.16	0.00	0.00	0.06	0.03	1.34	0.86	13.47
1968	1.39	1.93	1.43	0.49	0.01	0.00	0.00	T	0.00	0.92	3.08	3.12	12.37
1969	7.07	4.74	0.89	2.08	0.00	0.00	0.07	0.00	0.00	1.25	2.24	0.96	19.30
1970	3.94	1.41	2.52	0.13	0.00	0.07	0.00	0.00	0.00	0.66	3.19	2.13	14.05
1971	0.56	0.31	0.92	1.16	1.22	0.00	0.00	0.00	0.06	0.28	1.00	2.33	7.84
1972	0.60	0.56	0.00	0.71	0.00	T	0.00	0.00	0.11	0.69	4.91	1.58	9.16
1973	3.12	4.72	3.16	0.11	0.00	0.00	0.00	0.00	0.00	2.10	1.65	3.15	18.01
1974	1.95	0.50	2.37	1.44	0.00	0.06	0.42	0.00	0.00	1.06	0.66	2.14	10.60
1975	0.50	3.99	3.11	0.95	0.00	0.00	0.10	0.11	0.02	0.92	0.17	0.13	10.00
1976	0.14	2.01	0.41	1.14	0.00	0.07	0.02	0.22	0.	0.	1.06	0.57	6.77

									97	16			
1977	0.66	0.29	1.05	0.02	0.90	0.44	0.00	0.00	0.00	0.00	0.44	2.75	6.55
1978	4.93	3.78	4.22	3.48	0.00	0.00	0.00	0.00	0.74	0.00	2.13	1.06	20.34
1979	4.35	3.02	1.73	0.49	0.19	0.00	0.21	0.00	0.00	0.84	1.09	1.79	13.71
1980	3.83	3.45	1.19	0.77	0.46	0.00	T	0.00	0.00	0.13	T	0.72	10.55
1981	2.83	1.42	3.27	0.75	0.10	0.00	0.00	0.00	0.00	1.13	3.63	0.59	13.72
1982	M1.60	2.08	5.39	1.85		0.05	M0.00	0.00	M1.14	0.98	2.84	2.70	18.63
1983	4.89	3.43	5.47	2.01	M0.44		0.00	0.23	0.58	0.66	3.80	2.67	24.18
1984	0.41	1.55	0.42	0.22	0.00	0.17	0.00	0.00	0.11	1.15	2.61	1.72	8.36
1985	0.56	0.98	1.91	0.06	0.00		0.00	0.00	0.00	0.60	3.28	1.26	8.65
1986	0.92	3.72	3.90	0.64	0.25	0.00	0.00	0.00	0.30	0.00	0.06		9.79
1987	1.70	2.96		0.08		0.00	0.00	0.00	0.00	M0.47	0.89	2.46	8.56
1988	1.60	0.87	0.29	M2.03	0.38	0.01	0.00	0.00	0.00	0.00	1.33	2.43	8.94
1989	0.62	1.57	2.24	0.10		0.00	0.00	0.05	1.34	1.55	0.48	0.10	8.05
1990	2.08	1.64	0.68	0.59	1.65	0.00	0.00	0.00	0.00	0.18	0.36	0.64	7.82
1991	0.16	1.68	5.15	0.34	0.09	0.01	0.00	0.11	0.00	1.59	0.53	1.46	11.12
1992	1.56	3.77	2.02	0.02	0.00	0.06	0.18	0.00	0.00	0.90	0.08	2.44	11.03
1993	5.70	3.44	2.53	0.33	1.06	0.61	0.00	0.00	0.00	0.18	0.68	1.30	15.83
1994	2.29	3.30	0.18	1.10	1.38	0.00	0.00	0.00	0.22	0.58	1.60	0.92	11.57
1995	6.71	0.37	4.31	1.35	1.10	0.59	0.02	0.00	0.00	0.00	0.00	3.25	17.70
1996	3.15	3.43	1.84	0.84	1.03	0.00	0.00	0.00	0.00	1.27	2.37	4.49	18.42
1997	4.58	0.26	0.00	0.14	0.01	0.05	0.00	T	0.07	0.07	2.44	1.63	9.25
1998	4.89	6.10	4.81	0.99	2.13	0.48	0.00	0.00	0.00	0.53	1.02	0.71	21.66
1999	2.45	2.81	1.07	0.98	M0.18	T	0.00	0.00	0.00	0.00	0.78	0.26	8.53
2000	3.40	4.80	0.91	1.90	0.66	0.20	0.00	0.00	0.07	3.78	0.20	0.19	16.11
2001	3.13	2.10	1.35	1.35	0.00	0.00	0.00	0.00	0.15	0.36	2.57	M2.75	13.76
2002	M1.36	0.91	1.20	M0.06	1.35		0.00	0.00	0.00	0.00	1.87	3.95	10.70
2003	0.80	1.03	0.89	1.18	0.94	0.00	0.00	0.11	0.00	0.00	0.83	3.24	9.02
2004	1.00	3.66	0.72	0.00	0.22	0.00	0.00	0.00	0.13	3.59	1.44	4.00	14.76
2005	5.07	2.41	2.53	1.37	M0.11	0.01	0.00	0.07	0.27	0.20	0.20	3.26	15.50
2006	3.03	0.97	4.20	2.96	1.11	0.00	0.00	0.00	0.00	0.39	0.85	2.23	15.74
2007	0.56	M1.38	0.33	0.84	M0.00	0.00	0.00	0.00	0.28	1.26	0.29	M0.97	5.91
2008	4.45	2.18	0.07	0.00	0.09	0.00	0.00	0.00	0.00	0.15	0.95	2.29	10.18
2009	1.91	2.20	1.16	1.08	0.54	0.14	0.00	0.00	0.08	1.61	0.20	M3.10	12.02
2010	3.18	3.23	0.77	3.67	0.47	0.00	0.00	0.00	0.	1.	M2.	3.62	18.

									00	08	23		25
2011	M1.47	M1.87	M4.26	0.26	M0.80	M0.85	0.00	M0.00	M0.02	M1.07	M1.06	M0.10	11.76
2012	M0.87	M0.65	M1.89	M2.23	M0.02	M0.50	M0.00	M0.00	M0.04	M0.20	M1.00	M2.87	10.27
2013	M1.03	M0.42	M0.24	M0.98	M0.08	M0.09	M0.00	M0.00	M0.00	M0.00		M0.00	2.84
2014	M0.39	M1.47	1.96	M0.75	M0.00	0.00	0.00	M0.00	M0.00	M0.02	M1.54	M3.40	9.53
2015	M0.00	M1.05	M0.12	M0.72	M0.61	M0.00	M0.00	M0.00	M0.00	M0.01	M1.62	M2.01	6.14
2016	M3.02	M0.65	M3.90	M1.07	M0.11	M0.00	M0.00	0.00	0.00	1.53	1.02	2.17	13.47
2017	6.13	3.57	1.29	1.13	0.19	0.01	0.00	0.00	0.03	0.16	0.88	0.10	13.49
2018	2.12	0.34	3.36	M1.33	0.12	0.00	0.00	0.00	M0.00	0.13	M2.56	0.97	10.93
2019	2.74	3.39	2.24	0.02	1.64	0.00	0.00	0.00	0.00	0.00	2.18	3.22	15.43
2020	0.74	0.00	2.11	1.52	0.20	0.00	0.00	0.00	0.00	0.00	1.12	M1.17	6.86
2021	3.44	0.28	0.96	0.03	0.00	0.00	0.00	0.00	0.00	1.75	M0.27	4.06	10.79
2022	0.06	M0.05	0.88	0.83	0.00	0.00	0.00	0.00	0.20	0.00	1.03	6.59	9.64
2023	6.84	2.30	4.39	0.04	M1.04								14.61

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2023-05-10

Appendix H

USACE ORM Upload Sheet

OMBIL Regulatory Module (ORM)
Project Upload Template

Version Date: 21-Sep-2023

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: if older versions of Microsoft Office or Excel are utilized with this template, the user *may* experience issues with the functionality and features of this template.

Reminder: when using copy/paste to transfer data from one template to another, you must *not* use the regular paste functionality. This will cause formatting issues. Instead, use the "paste values" functionality.

Change Log

21-September-2023 Current Version
- Changed waters types list on Format worksheet to reflect new Amended_2023RULE AR types
- Changed mappings of subtypes to new waters types on Format worksheet

4-Jun-23
- Added new logic to capture DELINC.CONC as a subtype by itself

9-May-23
- New column added (PM_BIL_Center_Funded) for validation of the 2023Rule_JD, NWP, RGP_PGP worksheets: If the following columns per row are all null, throw an error: WRDA_214_Funded_Corps, Activities_BIL_Funding_Confirmed_in_Writing, BIL_Activities_NOT_BIL_Funded, PM_BIL_Center_Funded.

20-Mar-23
- New waters type added to AqResources worksheet
- New rule: if cowardin_code = 'U', then waters_type must be 'DRY.LAND'.
- Remove columns, Does_Corps_Have_GA & Authority, on RAPANOS_JD worksheet and associated VB code
- Added new column, 'Presence/Absence AJD?,' after the Closure_Method column on the Rapanos_JD worksheet.
- New validation to RAPANOS_JD worksheet: The End Date must be On or After March 20th, 2023.
- New validation to RAPANOS_JD worksheet: The Begin Date must be On or After March 20th, 2023.
- New validation to RAPANOS_JD worksheet: Loop through water types. Figure out of their corresponding subtypes are the same. If not, throw a validation error.
- New validations for the RAPANOS_JD, NWP, RGP_PGP worksheets: If the following columns per row are all null, throw an error: WRDA_214_Funded_Corps, Activities_BIL_Funding_Confirmed_in_Writing, BIL_Activities_NOT_BIL_Funded.

15-May-22
- Took off Red warning fill on waters_name column on Impacts worksheet
- Added yellow fill warning to Name column on Impacts worksheet

25-Feb-22
- Added NWP 29 as a selectable NWP_ID
- Bypassed all 3rd Party Mitigation checks when Closure_Method = "Denied without Prejudice"

30-Jan-22
- At least one Mitigation-Permittee Responsible must exist when any PermitSheet.Mitigation_Permittee_Responsib = "All"
- At least one Mit-PermitteeResp row AND at least one MB_ILF row must exist WHEN a PermitSheet.Mitigation_Permittee_Responsib = "Some"
- At least one MitBank/ILF row must exist WHEN a PermitSheet.Compensatory_Mitigation_Reqd = "YES" AND PermitSheet.Mitigation_Permittee_Responsib = "None"
- Mit-PermitteeResp.Waters_Name must NOT exist WHEN a PermitSheet.Compensatory_Mitigation_Reqd = "YES" AND PermitSheet.Mitigation_Permittee_Responsib = "None"
- MitBank/ILF row must NOT exist when a PermitSheet.Compensatory_Mitigation_Reqd = "YES" AND PermitSheet.Mitigation_Permittee_Responsib = "All"
- MitigationSheet.Waters_Name must NOT exist when a PermitSheet.Compensatory_Mitigation_Reqd = "NO"
- When PermitSheet.Compensatory_Mitigation_Reqd = "NO", PermitSheet.Mitigation_Permittee_Responsib MUST be "None"
- Removed "Not verified by the Corps - 401 process only" from Closure Method list

24-Nov-21
- Workbook contains digitally signed data validation macros

17-Oct-21
- Ensure that the value in the Worksheet column on the Validation worksheet displays "Request Details" instead of "RGP_PGP" when Impact and Mitigation data exists but there is no Permit data.
- Makes waters_name column header on the Rapanos_JD worksheet green.
- Change tooltip text on Waters_name on Rapanos_JD worksheet.
- Throw message, "Finalize Not Specified for RGP_PGP sheet," if Finalize <> YES.
- Do not throw message, "info required to finalize," if end_date is blank on the RGP_PGP worksheet.
- If Load = YES and Finalize <> YES on Request Details don't throw this message: "Finalize Not Specified for AqResources sheet."
- Throw message if Load = YES but no data exists on corresponding worksheet.
- Only compare waters_names between (among) worksheets if Load = YES for both of them.
- If Load = YES but Finalize = NO (or is null), then throw user-friendly warning message asking user if they need to finalize or not.
- If Finalize = NO (or is null), then there is no need to verify that finalize fields are populated (function VerifyFinalizeFieldsPopulated) or throw a validation message.
- Remove "Date Permit Expires" from RGP_PGP worksheet and any references to it in the VBA code.
- Throw message reminding user to validate if they make a change(s).
- Change (correct) closure method value in dropdown on Rapanos_JD worksheet.
- Remove Critical_Habitat_Impacted from NWP and RGP_PGP worksheets and references to it in VBA code.
- Fix logic that prompts user to enter in an action id.

12-Mar-21
- When Closure_Method is "Not verified by the Corps - 401 process only", bypass validating:

Compensatory Mitigation Required
Impact must exist
Mitigation Must Exist
Issued By (only for RGP_PGP)
Worktype_1
Date Permit Expires (only for RGP_PGP)
Mitigation Permittee Responsible
WRDA 214 Funded Corps
CD_Date_App_First_Received
CD_Rcpt_Fed_Complete_App
CD_Determined_Complete_by_PM
Permit Name Number (for RGP_PGP)
NWP_ID (only for NWP)
Evaluation Checklist
All columns beginning with "EVALCKLST_"

- When Closure_Method is "Denied Without Prejudice", bypass validating:

Impact must exist
Mitigation Must Exist
Issued By (only for RGP_PGP)
Worktype_1
Date Permit Expires (only for RGP_PGP)
Mitigation Permittee Responsible

- Removed "Oil_Gas_Ind" column (from NWP)

November 9, 2020

- Rapanos_JD Worksheet - Added two new JD Closure Methods to the Closure_Method list of values
- NWP, RGP_PGP Worksheets - Removed "Provisional Verification" Closure Method from the list of values

23-Dec-2019 Version

- Removed TNWRPW from the Waters_Type list on the Ref_Help worksheet

28-Apr-2019 Version

- NWP and RGP_PGP Worksheets - Added validation: Begin_Date must be before CD_Rcpt_Fed_Complete_App, CD_Rcpt_Fed_Complete_App must be before End_Date
- AqResources Worksheet - If Aquatic Resources shapefile specified, Latitude / Longitude not required
- Request Details Worksheet - Added validation: If Impacts or Mit-PermitteResp and MitBank_IF Worksheets contain data, NWP data or RGP_PGP data or a Permit Action ID must be provided
- Request Details Worksheet - Added validation: a DA# must be provided

10-Dec-2018 Version

- NWP and RGP_PGP Worksheets - Replaced EVALCKLST_Historic_Properties column with EVALCKLST_S106_NHPA
- VBA Code - Added validation of new EVALCKLST_S106_NHPA list selections
- Finalize Worksheet - Replaced tab with new 'Request Details'. Made requisite VBA code changes to enforce entry of Load and Finalize columns
- Mitigation Worksheet - Added validation to ensure that the Proposed and Required amounts are entered.

19-Sep-2018 Current Version

- VBA Code - Corrected Validation VBA code throwing "Object variable or With block variable not set"
- AqResources worksheet - Removed Waters Type 'TNWRPW' from the Waters_Type dropdown menu.

22-May-18

- NWP worksheet - Added 'CD_Date_App_First_Received'
- PGP/RGP worksheet - Added 'CD_Date_App_First_Received'

11-Jan-2018 Version

- NWP worksheet - Updated Closure_Method column values
- RGP_PGP worksheet - Updated Closure_Method column values and removed cascading dependency upon the Permit Type column
- Format worksheet - Consolidated the Closure_Method_NWP, Closure_Method_RGP, and Closure_Method_PGP columns into a single Closure_Method_GP column and updated the list of values
- Format worksheet - Updated the Closure_Method_JD column values
- VBA - Updated VerifyValues calls in ValidateNWP() and ValidateRGP_PGP() to reference the new Closure_Method_GP list of values

30-OCT-2017 Version

- Mitigation worksheet - Added check to allow "0"s in Proposed_Amount and Required_Amount

20-APR-2017 Version

- AqResources worksheet - Limited list of Cowardin Code options to second and third tiers only
- Impacts worksheet - Added Length and Width columns for Initially Proposed, Proposed and Authorized
- Impacts worksheet - Removed Linear columns
- Impacts worksheet - Changed "Area" labels to "Amount"
- Impacts worksheet - Updated Amount_Type to include Fill Volume and Removal Volume
- Impacts worksheet - Updated Amount_Units to include Cubic Yards (volume)
- Impacts worksheet - Added check to ensure Amount_Units is specified if Amount is provided
- Impacts worksheet - Added check to ensure either Length/Width are provided OR Amount is provided but not both
- Impacts worksheet - Added check to ensure that if Length is provided, Width must also be provided (and vice versa)
- Impacts worksheet - Added check to ensure that if Amount_Type is Volume, then Amount must be entered, not Length and Width
- Impacts worksheet - Added check to ensure that if a value is provided for any Stage (P/P/A), then a value must be provided for all Stages
- Mit-PermitteeResp worksheet - Added Length and Width columns for Proposed and Required
- Mit-PermitteeResp worksheet - Removed linear columns
- Mit-PermitteeResp worksheet - Changed "Area" labels to "Amount"
- Mit-PermitteeResp worksheet - Added check to ensure Amount_Units is specified if Amount is provided
- Mit-PermitteeResp worksheet - Added check to ensure either Length/Width are provided OR Amount is provided but not both
- Mit-PermitteeResp worksheet - Added check to ensure that if Length is provided, Width must also be provided (and vice versa)
- Mit-PermitteeResp worksheet - Added check to ensure that if a value is provided for either Proposed or Required, then a value must be provided for both Stages
- NWP worksheet - Updated NWP_ID list and associated Permit_Authority list with the 2017 data
- NWP worksheet - Moved the Permit_Authority column to the left of the NWP_ID column
- NWP worksheet - The NWP_ID values displayed are now dependent upon the selected Permit_Authority value

02-JUN-2016 Version

- Mit-PermitteeResp worksheet - waters that exist on the Mit-PermitteeResp worksheet must also appear on either the NWP worksheet or on the PGP/RGP worksheet
- MitBank_ILF worksheet - waters that exist on the MitBank_ILF worksheet must also appear on either the NWP worksheet or on the PGP/RGP worksheet
- added a validation to check for garbage characters in the Waters Name column values of all worksheets

21-APR-2016 Version

- removed 100K blank rows of data from the Aquatic Resources worksheet of the Consolidated Rapanos template, reducing its size from 9M to 180K.

31-MAR-2016 Version

- added a Version worksheet
- General - removed the dropdowns from the header cells on all user input worksheets
- General - standardized user functionality across all user input worksheets
- AqResources worksheet - changed the format of columns I (Latitude) and J (Longitude) to be decimal formatted numers with 8 significant digits of precision
- AqResources worksheet - added a Validation check to ensure Amount > zero
- AqResources worksheet - add validation check requiring Water Type of Upland (Rapanos)/Dry Land (CWR) when Cowardin Code = U
- NWP worksheet - the Validation process will now verify whether Mitigations are present in the Mit-PermitteeResp or MitBank_ILF worksheets if cells in column S (Compensatory_Mitigation_Reqd) of the NWP worksheet are set to a value of YES
- RGP_PGP worksheet - the Validation process will now verify whether Mitigations are present in the Mit-PermitteeResp or MitBank_ILF worksheets if cells in columns U (Compensatory_Mitigation_Reqd) of the RGP_PGP worksheet are set to a value of YES

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			*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?*	
Amended_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.

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
SW-1	CALIFORNIA	PAB3	DEPRESS	Area	0.36920683	ACRE	DELIN.PJD-404	37.31127283	-120.50586180	Bear Creek
SW-2	CALIFORNIA	PAB3	DEPRESS	Area	0.03470289	ACRE	DELIN.PJD-404	37.30992632	-120.50574230	Bear Creek
FM-1	CALIFORNIA	PEM	DEPRESS	Area	0.07433405	ACRE	DELIN.PJD-404	37.31848148	-120.50716900	Fahrens Creek
PD-1 (Fahrens Creek)	CALIFORNIA	R2UB	RIVERINE	Area	8.94583325	ACRE	DELIN.PJD-404	37.31818031	-120.51936810	Fahrens Creek
PD-2 (Bear Creek)	CALIFORNIA	R2UB	RIVERINE	Area	2.65695114	ACRE	DELIN.PJD-404	37.30751841	-120.50427120	Bear Creek

Waters_Name	Name	Activity	Resource_Type	Permanent_Loss	Impact_Duration	Amount_Type	Amount_Units	Initially_Proposed_Length	Initially_Proposed_Width	Initially_Proposed_Amount	Proposed_Length	Proposed_Width	Proposed_Amount	Authorized_Length	Authorized_Width	Authorized_Amount	Debits	Notes

Waters_Name	Name	Mitigation_Type	Permittee_Responsible_Type	Resource_Type	Proposed_Length	Proposed_Width	Proposed_Amount	Required_Length	Required_Width	Required_Amount	Amount_Units	Mitigation_Kind	Comments

Waters_Name	Name	Mitigation_Type	Bank_OR_Program_Name	Credit_Unit	Proposed_Credits	Required_Credits	Purchased_Credits	Mitigation_Kind

Water Name	CD Date App Fnd Received	CD Rqst Fwd Complete App	Cri Determinat Complete by Fn	EVALOKLST ESA Coordinate	EVALOKLST EFH Coordinate	EVALOKLST S106 NHPA	EVALOKLST Tribal Coord	EVALOKLST Wild Scenic Riv	EVALOKLST WQC	EVALOKLST CZM	EVALOKLST Receptor	Permit Authority	NWP #	Begin Date	Project Descriptio	Pre Construction Notification	After The Fact Permi

Any Work Complete	Compensatory Mitigation Req	Mitigation Permittee Responsible	Permit Post Use	Date Verification Expire	End Date	Date Decision Made	Closure Method	Comments	WRDA 214 Funded Cost	Activities BIL Funding Confirmed in Writing	BIL Activities NOT BIL Funded	PM BIL Center Funded	WorkType 1	WorkType 2	WorkType 3

Waters_Name	Route	Begin_Date	Closure_Method	Presence_Absence_AJD?	End_Date	WRDA_214_Funded_Corps_Activities	BIL_Funding_Confirmed_in_Writing	BIL_Activities_NOT_BIL_Funded	PM_BIL_Center_Funded	Comments	Public_JD_URL

Waters_Name	CD_Date_App_First_Received	CD_Rcpt_Fed_Complete_App	CD_Determined_Complete_by_PM	EVALCKLST_ESA_Coordination	EVALCKLST_EFH_Coordination	EVALCKLST_S106_NHPA	EVALCKLST_Tribal_Consult	EVALCKLST_Wild_Scenic_River	EVALCKLST_WQC	EVALCKLST_CZM	EVALCKLST_Recapture	Permit_Type

Permit_Name_Number	Issued_By	Begin_Date	Project_Description	Pre_Construction_Notification	After_The_Fact_Permit	Any_Work_Complete	Permit_Authority	Compensatory_Mitigation_Reqd

Mitigation_Permittee_Responsib	Permit_Past_Use	Date_Verification_Expires	End_Date	Date_Decision_Mailed	Closure_Method	Comments	WRDA_214_Funded_Corps	Activities_BIL_Funding_Confirmed_in_Writing	BIL_Activities_NOT_BIL_Funded	PM_BIL_Center_Funded

WorkType_1
WorkType_2
WorkType_3

Worksheet	Column	Cell	Warning
Request Details	DA#	B2	DA# Not Entered
Request Details	Load	B7	Load for Aquatic Resource on the Request Details worksheet is not "YES" but data exists on the AqResources worksheet. Are you sure you do not want to load this data?

Column Headers in GREEN on UPLOAD Tab are Required or are Required to Finalize

AQUATIC RESOURCES VALIDATION

"Waters_Name" is required.
"Waters_Name" must contain unique values.
"State" is required.
"Cowardin Code" is required.
"Meas_Type" is required.
"Amount" is required.
"Amount" must be greater than zero
"Units" is required
"Waters Type" is required
"Latitude" is required, except when Aquatic Resource Shapefile Filename provided
"Longitude" is required (negative value in western hemisphere), except when Aquatic Resource Shapefile Filename provided
"Waters_Name" must correspond to "Waters_Name" provided within the NWP, Impact and Mitigation fields when also uploaded.
"Cowardin Code" of U (Uplands) must have associated "Waters Type" of DRY.LAND
The jd subtype of the "Waters Type" must be unique. If not, throw a validation error.

IMPACT VALIDATION

VALID MEASUREMENT SETS	Amount Type
Conversion of waters type (forested wetland to emergent wetland, stream to lake)	Fill Area
Discharge of dredged material	Fill Area
Discharge of fill material	Fill Area
Dredging (Section 10)	Removal Area\Removal Volume
Ecological restoration	Fill Area
Other (Aquaculture, Work, Aerial or Submarine cable crossings)	Fill Area\Removal Area\Structure Area
Removal (Sec 10 structures)	Removal Area
Structure (Sec 10 only)	Structure Area
Transport of dredged material (Sec 103)	Fill Volume

OTHER VALIDATIONS

"Waters_Name" is required.
"Waters_Name" must correspond to "Waters_Name" provided within the aquatic resource shapefiles.
"Waters_Name" must correspond to "nwp.xls"."Upload"."Waters_Name" when permits are also uploaded
"Name" is required
"Activity Type" is required
"Resource Type" is required
"Permanent Loss" is required
"Impact Duration" is required
Area or Linear "Amounts" (initialy proposed, proposed, authorized) are required
"Area Type" is required when Area Amounts are entered
"Area Type" can only be structure when Activity = Structure.
"Units of Measure" is required
When Impact data present, either NWP data or RGP_PGP data or Action ID must be provided
Aquatic Resources Filename must be provided (Request Details Worksheet, B25). Otherwise, All Lat/Long must be provided

MITIGATION - PERMITTEE RESPONSIBLE VALIDATION

"Waters_Name" is required.
~~"Waters_Name" must contain unique values.~~
"Waters_Name" must correspond to "Waters_Name" provided within the aquatic resource shapefiles.
"Waters_Name" must correspond to "nwp.xls"."Upload"."Waters_Name" when a permit is also uploaded
"Name" is required
"Mitigation Type" is required
"Permittee Responsible Type" is required
"Resource Type" is required
"Proposed Length" and "Proposed Width" must both be entered if either is provided.
"Required Length" and "Required Width" must both be entered if either is provided.
Proposed must have either Length and Width values OR an Amount value
Required must have either Length and Width values OR an Amount value
"Amount_Units" must be specified when "Proposed Amount" is entered
"Amount_Units" must be specified when "Required Amount" is entered
When Mit-PermitteeResp data present, either NWP data or RGP_PGP data or Action ID must be provided
At least one Mitigation-Permittee Responsible must exist when any PermitSheet.Mitigation_Permittee_Responsib = "All"
At least one Mit-PermitteeResp row AND at least one MB_ILF row must exist WHEN a PermitSheet.Mitigation_Permittee_Responsib = "Some"
Mit-PermitteeResp.Waters_Name must NOT exist WHEN a PermitSheet.Compensatory_Mitigation_Reqd = "YES" AND PermitSheet.Mitigation_Permittee_Responsib = "None"
MitigationSheet.Waters_Name must NOT exist when a PermitSheet.Compensatory_Mitigation_Reqd = "NO"

MITIGATION - MITIGATION BANK/IN-LIEU FEE PROGRAM VALIDATION

"Waters_Name" is required.
~~"Waters_Name" must contain unique values.~~
"Waters_Name" must correspond to "Waters_Name" provided within the aquatic resource shapefiles.
"Waters_Name" must correspond to "nwp.xls"."Upload"."Waters_Name" when a permit is also uploaded
"Name" is required
"Mitigation Type" is required
"Bank Name or Program Name" is required
"Credit Unit" is required
"Proposed Credits" is required
"Required Credits" is required
When MitBank_ILF data present, either NWP data or RGP_PGP data or Action ID must be provided
At least one Mit-PermitteeResp row AND at least one MB_ILF row must exist WHEN a PermitSheet.Mitigation_Permittee_Responsib = "Some"
At least one MitBank/ILF row must exist WHEN a PermitSheet.Compensatory_Mitigation_Reqd = "YES" AND PermitSheet.Mitigation_Permittee_Responsib = "None"
MitBank/ILF row must NOT exist when a PermitSheet.Compensatory_Mitigation_Reqd = "YES" AND PermitSheet.Mitigation_Permittee_Responsib = "All"
MitigationSheet.Waters_Name must NOT exist when a PermitSheet.Compensatory_Mitigation_Reqd = "NO"

NWP VALIDATION

VALIDATIONS
"Waters_Name" is required.
"Waters_Name" must contain unique values.
"Waters_Name" must correspond to "Waters_Name" provided within the aquatic resource shapefiles.
"Waters_Name" must correspond to "impact.xls"."Upload"."Waters_Name" if impacts will also be uploaded.
"Waters_Name" must correspond to "mitigation.xls"."Upload"."Waters_Name" if mitigation will also be uploaded.
CD_Date_App_First_Received is required.
CD_Date_App_First_Received <= Begin Date
Begin_Date < CD_Rcpt_Fed_Complete_App
CD_Rcpt_Fed_Complete_App < End_Date
CD Receipt of Fed Complete Application is required.
CD Determined Complete by PM is required.
EVALCKLST ESA Coordination is required.
EVALCKLST EFH Coordination is required.
EVALCKLST_S106_NHPA is required.
EVALCKLST Tribal Consulation is required.
EVALCKLST Wild & Scenic River is required.
EVALCKLST WQC is required.

EVALCKLST CZM is required.
EVALCKLST Recapture is required
NWP ID is required.
Begin Date is required.
Is this a Pre-Construction Notification? is required.
Permit_Authority is required.
Is Compensatory Mitigation Required? is required.
Is the Mitigation Permittee Responsible? is required.
Date Permit Expires is required.
End Date is required.
Closure Method is required.
WRDA 214, Regulator Funded (Corps) is required.
WorkType 1 is required.
Columns WRDA_214_Funded_Corps,Activities_BIL_Funding_Confirmed_in_Writing,BIL_Activities_NOT_BIL_Funded, PM_BIL_Center_Funded cannot all be BLANK.
When PermitSheet.Compensatory Mitigation Reqd = "NO", PermitSheet.Mitigation Permittee Responsib MUST be "None"
Bypassed all 3rd Party Mitigation checks (Rule0 - Rule6) when Closure_Method = "Denied without Prejudice"
One Yes/No value must exist for at least one funding field: WRDA_214_Funded_Corps, Activities_BIL_Funding_Confirmed_in_Writing, BIL_Activities_NOT_BIL_Funded, PM BIL Center Funded

Amended_2023Rule_JD Validation
VALIDATION
"Waters Name" is required.
"Waters_Name" must contain unique values.

"Waters_Name" must correspond to "Waters_Name" provided within the aquatic resource shapefiles.

Only a single JD is expected for all aquatic resources - However if 1 JD is used per permit, enter a unique waters name per row
"Begin Date" is required.
"Closure Method" is required.
"End Date" is required.
"WRDA 214, Regulator Funded (Corps)" is required.
Begin Date must be on or after September 08, 2023.
End Date must be on or after September 08, 2023.
Columns WRDA_214_Funded_Corps,Activities_BIL_Funding_Confirmed_in_Writing,BIL_Activities_NOT_BIL_Funded, PM_BIL_Center_Funded cannot all be BLANK.
One Yes/No value must exist for at least one funding field: WRDA_214_Funded_Corps, Activities_BIL_Funding_Confirmed_in_Writing, BIL_Activities_NOT_BIL_Funded, PM BIL Center Funded

RGP_PGP VALIDATION
VALIDATIONS
"Waters_Name" is required.
"Waters Name" must contain unique values.
"Waters_Name" must correspond to "Waters_Name" provided within the aquatic resource shapefiles.
"Waters_Name" must correspond to "impact.xls"."Upload"."Waters_Name" if impacts will also be uploaded.
"Waters Name" must correspond to "mitigation.xls"."Upload"."Waters Name" if mitigation will also be uploaded.
CD_Date_App_First_Received is required.
CD Date App First Received <= Begin Date
Begin_Date < CD_Rcpt_Fed_Complete_App
CD_Rcpt_Fed_Complete_App < End_Date
CD Receipt of Fed Complete Application is required.
CD Determined Complete by PM is required.
EVALCKLST ESA Coordination is required.
EVALCKLST EFH Coordination is required.
EVALCKLST_S106_NHPA is required.
EVALCKLST Tribal Consulation is required.
EVALCKLST Wild & Scenic River is required.
EVALCKLST WQC is required.
EVALCKLST CZM is required.
EVALCKLST Recapture is required
PERMIT TYPE is required.
PERMIT_NAME_NUMBER is required.
Issued By is required.
Begin Date is required.
Is this a Pre-Construction Notification? is required.
Permit Authority is required.
Is Compensatory Mitigation Required? is required.
Is the Mitigation Permittee Responsible? is required.
Date Permit Expires is required (but is based on the Permit Name Number selected).
Date Verification Expires is required.
End Date is required.
Closure Method is required.
WRDA 214, Regulator Funded (Corps) is required.
Columns WRDA_214_Funded_Corps, Activities_BIL_Funding_Confirmed_in_Writing, BIL_Activities_NOT_BIL_Funded, PM_BIL_Center_Funded cannot all be BLANK.
WorkType 1 is required.
When PermitSheet.Compensatory Mitigation Reqd = "NO", PermitSheet.Mitigation Permittee Responsib MUST be "None"
Bypassed all 3rd Party Mitigation checks (Rule0 - Rule6) when Closure_Method = "Denied without Prejudice"
One Yes/No value must exist for at least one funding field: WRDA_214_Funded_Corps, Activities_BIL_Funding_Confirmed_in_Writing, BIL_Activities_NOT_BIL_Funded, PM BIL Center Funded

Waters_Type	Description
DRY.LAND	Dry Land - The review area is comprised entirely of dry land (i.e. there are no aquatic features, including wetlands, of any kind in the entire review area)
DELIN.CONC	Delineation Concurrence - No determination of jurisdiction made
DELIN.PJD-404	PJD - Section 404
DELIN.PJD-404.10	PJD - Section 10/404
DELIN.NOJD-404	No JD Required - Section 404
DELIN.NOJD-404.10	No JD Required - Section 10/404
RHA-10NAV	RHA - Non-tidal water is on the district's Section 10 waters list (Section 10 Only)
RHA-OUT.CON.SHLF	RHA - Seabed on the outer continental shelf (not in Territoral Seas), to the seaward limit of the outer continental shelf - Section 4(f) of the OCSLA (as amended).
A1-1.TNW-404	(a)(1)(i) Traditional Navigable Water (Section 404 Only)
A1-1.TNW-404.10	(a)(1)(i) Traditional Navigable Water, also subject to Sections 9 or 10 of the Rivers and Harbors Act (Section 10/404)
A1-2.TERSEAS-404.10	(a)(1)(ii) Territorial Seas, also subject to Sections 9 or 10 of the Rivers and Harbors Act (Section 10/404)
A1-3.INTSTATE-404	(a)(1)(iii) Interstate Waters (Section 404 Only)
A2.IMPDT-404	(a)(2) Jurisdictional Impoundment (Section 404 Only)
A3.TRIB-404	(a)(3) Tributary (Section 404 Only)
A4-1.ADJ.WET.A1-TNW-404	(a)(4)(i) Adjacent Wetland, adjacent to (a)(1)(i) TNW
A4-1.ADJ.WET.A1-TERSEAS-404	(a)(4)(i) Adjacent Wetland, adjacent to (a)(1)(ii) Territorial Sea
A4-1.ADJ.WET.A1-INTSTATE-404	(a)(4)(i) Adjacent Wetland, adjacent to (a)(1))(iii) Interstate Water
A4-2.ADJ.WET.A2&A3-404	(a)(4)(ii) Adjacent Wetland, adjacent to a relatively permanent paragraph (a)(2) Impoundment or (a)(3) Tributary (Section 404 Only)
A5.INTSTATE.LKPND-404	(a)(5) Intrastate Lake or Pond not Identified in Paragraphs (a)(1) through (4), that is a relatively permanent, standing or continuously flowing body of water (Section 404 Only)
NON-WOTUS-TRIB.NEGATIVE.A3	NON-WOTUS - Tributary evaluated under (a)(3) and determined to not be a relatively permanent water with a continuous surface connection to paragraph (a)(1) or (a)(3) water
NON-WOTUS-WET.NEGATIVE.A4	NON-WOTUS - Wetland that does not have a continuous surface connection to a paragraph (a)(1) water or to a relatively permanent paragraph (a)(2) impoundment or paragraph (a)(3) tributary
NON-WOTUS-INTSTATE-LKPND.NEGATIVE.A5	NON-WOTUS - Intrastate lake or pond not identified in paragraphs (a)(1 - 4) that is not relatively permanent or does not have a continuous surface connection to (a)(1) or (3) water
NON-WOTUS-INTSTATE-STRM.NEGATIVE.A3	NON-WOTUS - Intrastate stream that does not connect to a paragraph (a)(1) or (a)(2) water
B1-EXCL-WTS	(b)(1) Waste Treatment System (Excluded)
B2-EXCL-PCC	(b)(2) Wetland Excluded as Prior Converted Cropland designated by USDA (Excluded)
B3-EXCL-DITCH	(b)(3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water (Excluded)
B4-EXCL-ART.IRR	(b)(4) Artificially irrigated areas that would revert to dry land if the irrigation ceased (Excluded)
B5-EXCL-ART.LK	(b)(5) Artificial lakes or ponds created in dry land, used exclusively for specific purposes (Excluded)
B6-EXCL-ART.REF	(b)(6) Artificial reflecting/swimming/ornamental pools; created by excavating or diking dry land to retain water for primarily aesthetic reasons (Excluded)
B7-EXCL-WTF.DEP	(b)(7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land, until abandoned (Excluded)
B8-EXCL-SWAL.EROS	(b)(8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow (Excluded)

HGM_Code	Name	Description
DEPRESS	Depressional	Depressional is characterized by a water source consisting of return flow from groundwater and interflow with primarily vertical hydrodynamics.
ESTUARINEF	Estuarine Fringed	The water source of the estuarine fringe consists of overbank flow from estuaries, with bidirectional and horizontal hydrodynamics being dominant.
LACUSTRINF	Lacustrine Fringe	A Lacustrine fringe has a dominant water source of lake overbank flow, and the dominant hydrodynamics are bidirectional and horizontal.
MINSOILFLT	Mineral Soil Flats	Mineral soil flats have a water source of precipitation, and vertical hydrodynamics are dominant.
ORGSOILFLT	Organic Soil Flats	Organic soil flats have precipitation as the water source, and its dominant hydrodynamic is vertical.
RIVERINE	Riverine	Riverine is characterized by a water source of overbank flow from a channel, and hydrodynamics which are predominantly unidirectional and horizontal.
SLOPE	Slope	The Slope wetland class is characterized by a water source of return flow from groundwater, with principally unidirectional and horizontal hydrodynamics.

Cowardin_Code	Category	Description	Name
E1	Estuarine	Subtidal, Estuarine	E1-ESTUARINE, SUBTIDAL
E1AB	Estuarine	Aquatic Bed, Estuarine	E1AB-ESTUARINE, SUBTIDAL, AQUATIC BED
E1OW	Estuarine	Open Water, Subtidal, Estuarine (used on older maps)	E1OW-ESTUARINE, SUBTIDAL, OPEN WATER
E1RB	Estuarine	Rock Bottom, Subtidal, Estuarine	E1RB-ESTUARINE, SUBTIDAL, ROCK BOTTOM
E1RF	Estuarine	Reef, Subtidal, Estuarine	E1RF-ESTUARINE, SUBTIDAL, REEF
E1UB	Estuarine	Unconsolidated Bottom, Subtidal, Estuarine	E1UB-ESTUARINE, SUBTIDAL UNCONSOLIDATED BOTTM
E2	Estuarine	Intertidal, Estuarine	E2-ESTUARINE, INTERTIDAL
E2AB	Estuarine	Aquatic Bed, Intertidal, Estuarine	E2AB-ESTUARINE, INTERTIDAL, AQUATIC BED
E2EM	Estuarine	Emergent, Intertidal, Estuarine	E2EM-ESTUARINE, INTERTIDAL, EMERGENT
E2FO	Estuarine	Forested, Intertidal, Estuarine	E2FO-ESTUARINE, INTERTIDAL, FORESTED
E2RF	Estuarine	Reef, Intertidal, Estuarine	E2RF-ESTUARINE, INTERTIDAL, REEF
E2RS	Estuarine	Rocky Shore, Intertidal, Estuarine	E2RS-ESTUARINE, INTERTIDAL, ROCKY SHORE
E2SB	Estuarine	Stream Bed, Intertidal, Estuarine	E2SB-ESTUARINE, INTERTIDAL, STREAM BED
E2SS	Estuarine	Scrub-Shrub, Intertidal, Estuarine	E2SS-ESTUARINE, INTERTIDAL, SCRUB-SHRUB
E2US	Estuarine	Unconsolidated Shore, Intertidal, Estuarine	E2US-ESTUARINE, INTERTIDAL, UNCONSOL SHORE
L1	Lacustrine	Lacustrine - Includes wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topogr	L1-LACUSTRINE, LIMNETIC
L1AB	Lacustrine	Aquatic Bed, Limnetic, Lacustrine	L1AB-LACUSTRINE, LIMNETIC, AQUA BED
L1OW	Lacustrine	Open Water/Unknown Bottom, Limnetic, Lacustrine (used on older maps)	L1OW-LACUSTRINE, LIMNETIC, OPEN WATER/UNK BOT
L1RB	Lacustrine	Rock Bottom, Limnetic, Lacustrine	L1RB-LACUSTRINE, LIMNETIC, ROCK BOTTOM
L1UB	Lacustrine	Unconsolidated Bottom, Limnetic, Lacustrine	L1UB-LACUSTRINE, LIMNETIC, UNCONSOL BOTTOM
L2	Lacustrine	Littoral, Lacustrine	L2-LACUSTRINE, LITTORAL
L2AB	Lacustrine	Aquatic Bed, Littoral, Lacustrine	L2AB-LACUSTRINE, LITTORAL, AQUA BED
L2EM	Lacustrine	Emergent, Littoral, Lacustrine	L2EM-LACUSTRINE, LITTORAL, EMERGENT
L2OW	Lacustrine	Open Water/Unknown Bottom, Littoral, Lacustrine	L2OW-LACUSTRINE, LITTORAL, OPEN WATER
L2RB	Lacustrine	Rock Bottom, Littoral, Lacustrine	L2RB-LACUSTRINE, LITTORAL, ROCK BOTTOM
L2RS	Lacustrine	Rocky Shore, Littoral, Lacustrine	L2RS-LACUSTRINE, LITTORAL, ROCKY SHORE
L2UB	Lacustrine	Unconsolidated Bottom, Littoral, Lacustrine	L2UB-LACUSTRINE, LITTORAL, UNCONSOL BOT
L2US	Lacustrine	Unconsolidated Shore, Littoral, Lacustrine	L2US-LACUSTRINE, LITTORAL, UNCONSOL SHORE
M1	Marine	Subtidal Marine	M1-MARINE, SUBTIDAL
M1AB	Marine	Aquatic Bed, Subtidal, Marine	M1AB-MARINE, SUBTIDAL, AQUATIC BED
M1OW	Marine	Open Water, Subtidal, Marine (Used on older maps)	M1OW-MARINE, SUBTIDAL, OPEN WATER
M1RB	Marine	Rock Bottom Subtidal Marine	M1RB-MARINE, SUBTIDAL, ROCK BOTTOM
M1RF	Marine	Reef, Subtidal, Marine	M1RF-MARINE, SUBTIDAL, REEF
M1UB	Marine	Unconsolidated Bottom, Subtidal, Marine	M1UB-MARINE, SUBTIDAL, UNCONSOLIDATED BOTTOM
M2	Marine	Intertidal, Marine	M2-MARINE, INTERTIDAL
M2AB	Marine	Aquatic Bed, Intertidal, Marine	M2AB-MARINE, INTERTIDAL, AQUATIC BED
M2RF	Marine	Reef, Intertidal, Marine	M2RF-MARINE, INTERTIDAL, REEF
M2RS	Marine	Rocky Shore, Intertidal, Marine	M2RS-MARINE, INTERTIDAL, ROCKY SHORE
M2US	Marine	Unconsolidated Shore, Intertidal, Marine	M2US-MARINE, INTERTIDAL, UNCONSOLIDATED SHORE
PAB	Palustrine	Aquatic Bed, Palustrine	PAB-PALUSTRINE, AQUA BED
PAB1	Palustrine	Algal, Aquatic Bed, Palustrine	PAB1-PALUSTRINE, AQUA BED, ALGAL
PAB2	Palustrine	Aquatic Moss, Aquatic Bed, Palustrine	PAB2-PALUSTRINE, AQUA BED, AQUATIC MOSS
PAB3	Palustrine	Rooted Vascular, Aquatic Bed, Palustrine	PAB3-PALUSTRINE, AQUA BED, ROOTED VASC
PAB4	Palustrine	Floating Vascular, Aquatic Bed, Palustrine	PAB4-PALUSTRINE, AQUA BED, FLOAT VASC
PAB5	Palustrine	Unknown Submergent, Aquatic Bed, Palustrine	PAB5-PALUSTRINE, AQUA BED, UNK SUB
PAB6	Palustrine	Unknown Surface, Aquatic Bed, Palustrine	PAB6-PALUSTRINE, AQUA BED, UNK SURF
PEM	Palustrine	Emergent, Palustrine	PEM-PALUSTRINE, EMERGENT
PFO	Palustrine	Forested, Palustrine	PFO-PALUSTRINE, FORESTED
PML	Palustrine	Moss-Lichens, Palustrine	PML-PALUSTRINE, MOSS-LICHENS
POW	Palustrine	POW-PALUSTRINE, OPEN WATER	POW-PALUSTRINE, OPEN WATER
PRB	Palustrine	Rock Bottom, Palustrine	PRB-PALUSTRINE, ROCK BOTTOM
PSS	Palustrine	Scrub-Shrub, Palustrine	PSS-PALUSTRINE, SCRUB-SHRUB
PUB	Palustrine	Unconsolidated Bottom, Palustrine	PUB-PALUSTRINE, UNCONSOL BOT
R1	Riverine	Tidal, Riverine	R1-RIVERINE, TIDAL
R1AB	Riverine	Aquatic Bed, Tidal, Riverine	R1AB-RIVERINE, TIDAL, AQUATIC BED
R1EM	Riverine	Emergent, Tidal, Riverine	R1EM-RIVERINE, TIDAL, EMERGENT
R1RB	Riverine	Rock Bottom, Tidal, Riverine	R1RB-RIVERINE, TIDAL, ROCK BOTTOM
R1RS	Riverine	Rocky Shore, Tidal, Riverine	R1RS-RIVERINE, TIDAL, ROCKY SHORE
R1SB	Riverine	Streambed, Tidal, Riverine	R1SB-RIVERINE, TIDAL, STREAMBED
R1UB	Riverine	Unconsolidated Bottom, Tidal, Riverine	R1UB-RIVERINE, TIDAL, UNCONSOLIDATED BOTTOM
R1US	Riverine	Unconsolidated Shore, Tidal, Riverine	R1US-RIVERINE, TIDAL, UNCONSOL SHORE
R2	Riverine	Lower Perennial, Riverine	R2-RIVERINE, LOWER PERENNIAL
R2AB	Riverine	Aquatic Bed, Lower Tidal, Riverine	R2AB-RIVERINE, LOWER PEREN, AQUA BED
R2EM	Riverine	Emergent, Lower Tidal, Riverine	R2EM-RIVERINE, LOWER PEREN, EMERGENT
R2RB	Riverine	Rock Bottom, Lower Perennial, Riverine	R2RB-RIVERINE, LOWER PEREN, ROCK BOTTOM
R2RS	Riverine	Rocky Shore, Lower Tidal, Riverine	R2RS-RIVERINE, LOWER PEREN, ROCKY SHORE
R2UB	Riverine	Unconcolidated Bottom, Lower Perennial, Riverine	R2UB-RIVERINE, LOWER PEREN, UNCONSOL BOT
R2US	Riverine	Unconsolidated Shore, Lower Tidal, Riverine	R2US-RIVERINE, LOWER PEREN, UNCONSOL SHORE
R3	Riverine	Upper Perennial, Riverine	R3-RIVERINE, UPPER PERENNIAL
R3AB	Riverine	Aquatic Bed, Upper Perennial, Riverine	R3AB-RIVERINE, UPPER PEREN, AQUA BED
R3RB	Riverine	Rock Bottom, Upper Perennial, Riverine	R3RB-RIVERINE, UPPER PEREN, ROCK BOTTOM
R3RS	Riverine	Rocky Shore, Upper Perennial, Riverine	R3RS-RIVERINE, UPPER PEREN, ROCKY SHORE
R3UB	Riverine	Unconsolidated Bottom, Upper Perennial, Riverine	R3UB-RIVERINE, UPPER PEREN, UNCONSOL BOT
R3US	Riverine	Unconsolidated Shore, Upper Perennial, Riverine	R3US-RIVERINE, UPPER PEREN, UNCONSOL SHR
R4	Riverine	Intermittent, Riverine	R4-RIVERINE, INTERMIT

R4SB	Riverine	Streambed, Intermittent, Riverine	R4SB-RIVERINE, INTERMIT, STREAMBED
R5	Riverine	Unknown Perennial, Riverine	R5-RIVERINE, UNKNOWN PERENNIAL
R5AB	Riverine	Aquatic Bed, Unknown Perennial, Riverine	R5AB-RIVERINE, UNK PEREN, AQUA BED
R5RB	Riverine	Rock Bottom, Unknown Perennial, Riverine	R5RB-RIVERINE, UNK PEREN, ROCK BOTTOM
R5RS	Riverine	Rocky Shore, Unknown Perennial, Riverine	R5RS-RIVERINE, UNK PEREN, ROCKY SHORE
R5UB	Riverine	Unconsolidated Bottom, Unknown Perennial, Riverine	R5UB-RIVERINE, UNK PEREN, UNCONSOLIDATED BOTTOM
R5US	Riverine	Unconsolidated Shore, Unknown Perennial, Riverine	R5US-RIVERINE, UNK PEREN, UNCONCOL SHORE
R6	Riverine	A wetland, spring, stream, river, pond or lake that only exists for a short period	R6 - RIVERINE, EPHEMERAL
RP	Riparian	Riparian - Plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial o	RP-RIPARIAN
RP1	Riparian	Lotic, Riparian	RP1-RIPARIAN, LOTIC
RP1EM	Riparian	Emergent, Lotic, Riparian	RP1EM-RIPARIAN, LOTIC, EMERGENT
RP1FO	Riparian	Forested, Lotic, Riparian	RP1FO-RIPARIAN, LOTIC, FORESTED
RP1SS	Riparian	Scrub-Shrub, Lotic, Riparian	RP1SS-RIPARIAN, LOTIC, SCRUB-SHRUB
RP2	Riparian	Lentic, Riparian	RP2-RIPARIAN, LENTIC
RP2EM	Riparian	Emergent, Lentic, Riparian	RP2EM-RIPARIAN, LENTIC, EMERGENT
RP2FO	Riparian	Forested, Lentic. Riparian	RP2FO-RIPARIAN, LENTIC, FORESTED
RP2SS	Riparian	Scrub-Shrub, Lentic, Riparian	RP2SS-RIPARIAN, LENTIC, SCRUB-SHRUB
U	Uplands	Upland - Not a wetland or deepwater habitat of the United States as described by Cowardin.	U-UPLANDS

OID	Name	FolderPath	PopupInfo	Received From	Received Date	Publish Date	Received Projection	File Name
1	Detention Basin	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Detention Basins		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polygons
2	Detention Basin	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Detention Basins		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polygons
3	Detention Basin	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Detention Basins		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polygons
4	Detention Basin	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Detention Basins		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polygons
5	Detention Basin	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Detention Basins		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polygons
6	Detention Basin	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Detention Basins		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polygons
7	Roadside Ditch centerline, 2 ft wide	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Ditches/Roadside Ditch		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
8	Ditch centerline, 1 ft wide ditch	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Ditches/Roadside Ditch		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
9	Ditch centerline, 1 ft wide ditch	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Ditches/Roadside Ditch		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
10	Ditch centerline, 1 ft wide ditch	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Upland Ditches/Roadside Ditch		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
13	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
20	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
21	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
23	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
24	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
25	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
26	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
27	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines
28	Water Treatment Pond	Aquatic Resources Delineation.kmz/Aquatic Resources Delineation/Wastewater Treatment Ponds		ICF - Lisa Webber	2023-06-23	2023-06-23	GCS - WGS84	Polylines

File Path	Website	FeatType	FeatName	SubType	Waters of the U.S.	Shape_Length	Shape_Area	Value	Units	Lat_GCS_83	Long_GCS_83
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polygons	Email	Detention Basin		Upland		426.3720477	8277.69269	0.19003044	Acres	37.3147589	-120.5186663
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polygons	Email	Detention Basin		Upland		780.842473	13729.5497	0.31518835	Acres	37.3147644	-120.5162482
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polygons	Email	Detention Basin		Upland		783.7211886	15979.5968	0.36684253	Acres	37.3155995	-120.5195907
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polygons	Email	Detention Basin		Upland		1124.231631	53817.9907	1.235496	Acres	37.3143599	-120.5201083
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polygons	Email	Detention Basin		Upland		773.13589	10713.7847	0.24595564	Acres	37.3180533	-120.5161257
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polygons	Email	Detention Basin		Upland		85.6062835	401.983518	0.00922831	Acres	37.3085913	-120.505385
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Roadside Ditch		Upland		554.934234	551.784909	0.01266729	Acres	37.3090307	-120.5052364
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Roadside Ditch		Upland		578.8125793	288.646185	0.00662643	Acres	37.3103327	-120.5110692
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Roadside Ditch		Upland		1285.464148	641.927314	0.01473668	Acres	37.3115242	-120.5122382
\\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber\20230623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Roadside Ditch		Upland		119.1293493	58.78213	0.00134946	Acres	37.312316	-120.5131983
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				1091.786983	43257.8077	0.99306659	Acres	37.3185135	-120.519513
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				1443.074843	77372.558	1.77623663	Acres	37.3172669	-120.5220688
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				765.2595683	29295.2136	0.67252825	Acres	37.3181491	-120.5209092
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				841.1275324	31661.6298	0.72685391	Acres	37.3187178	-120.5180219
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				613.4487725	21925.6768	0.50334629	Acres	37.3188886	-120.5171045
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				603.9710665	20533.3892	0.47138364	Acres	37.3190246	-120.5162858
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				1523.53135	69452.7999	1.59442327	Acres	37.3192548	-120.5146112
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				1339.619542	69122.1096	1.58683164	Acres	37.3200637	-120.5125644
\PDCCITRDSGIS01\Projects_1\AECOM\MercedIntegratedConnectorProject_EIR_EA\Transfer\Incoming\ICF\LisaWebber30623_Wetlands\Aquatic Resources Delineation.gdb\Placemarks\Polylines	Email	Wastewater Treatment Pond				419.5800645	7683.11814	0.17638083	Acres	37.3187226	-120.5186719