



Wetland Delineation

Manila Drainage Project

Manila Community Services District

November 16, 2022



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1. Introduction

GHD prepared this wetland delineation report of wetlands and Other Waters of the U.S. and/or State and accompanying appendices on behalf of the Manila Community Services District (MCSD or District), in support of the proposed Manila Flood Reduction and Drainage Enhancement Project (Project) to improve drainage and reduce flooding in Manila, California (**Appendix A; Figure 1**). This report supports the Project's environmental documentation and permitting. The proposed Project Area includes several locations in the unincorporated community of Manila (**Appendix A; Figure 2**). This report is subject to, and must be read in conjunction with, the limitations set out in Section 5, Special Terms and Conditions, and the assumptions and qualifications contained throughout the report.

1.1 Project Description

The MCSD proposes to make drainage improvements (hereafter Project) throughout the community of Manila, California (**Appendix A; Figure 1**). The Project will apply a community-wide approach to address persistent flooding and drainage problems caused by undersized, disconnected, and failing infrastructure. Simple solutions, consisting of vegetated bioswales, rain gardens, replacement of undersized and failing culverts, and new culverts in select locations are proposed. The Project, led by the MCSD, will incorporate multi-objective, multi-benefit project components that address flood reduction, ecosystem services, and resiliency to sea level rise and climate change. Existing bioswales will be restored to historical grades by removal of accumulated debris and sediment, new bioswales will be graded and planted with native species to connect existing drainage paths. Existing undersized and or failing culverts will be replaced with new, larger capacity culverts ranging from 12 to 36 inches in diameter. New culverts will be installed in select locations, ranging from 18 to 24 inches in diameter. Rain gardens will be implemented along roadsides as well at the Manila Community Center to replace a concrete courtyard.

To assist with preparation of the Project's California Environmental Quality Act (CEQA) document and the Project permitting, GHD delineated wetlands within the Project's Study Boundary (PSB); (**Appendix A; Figure 2**). The purpose of this report is to document the results of the July 21-22 and August 23, 2022 delineations and to provide information to support the Project's CEQA document.

1.2 Summary

GHD conducted the wetland delineation fieldwork on July 21-22 and August 23, 2022. The delineation was conducted within the Project Area (or Project Study Boundary [PSB]), as shown in **Appendix A; Figures 2 and 3**. Two private property parcels (APNs: 400-031-012 and 400-031-013) near the center of the PSB were delineated separately by O'Brien Biological Consultants on July 4, 2022 (OBC 2022). The results of that delineation have been included in this report.

The Project is in the Coastal Zone within the State jurisdiction of the California Coastal Commission (CCC), and within the Appeal and Local Jurisdiction, which is regulated by the Humboldt County Local Coastal Program under the Humboldt Bay Area Plan. The wetland delineation included the delineation of both United States Army Corps of Engineers (USACE) three-parameter wetlands and Coastal Act one-parameter wetlands based on the presence of wetland indicative vegetation, hydric soils, and/or wetland hydrology (either one of those parameters, or all three).

The wetland delineation identified four types of three-parameter wetlands with hydric soil, hydrophytic vegetation, and hydrology, and one-parameter wetlands throughout the PSB. Wetlands were mapped as shown in **Appendix A; Figure 3**. The total area of one-parameter wetland (Wetland 1) within the Project Area is 128,550 ft² (2.95 acres), and three-parameter wetlands (Wetlands 2-5) total 44,900 ft² (1.03 acre) (**Appendix A; Figure 3**).

1.3 Regulatory Background

1.3.1 Federal

Waters of the United States

The Code of Federal Regulations (CFR), 40 CFR § 230.3 states the following:

The term waters of the United States means:

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
- (2) All interstate waters including interstate wetlands;*
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:*
 - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
 - (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;*
- (4) All impoundments of waters otherwise defined as waters of the United States under this definition;*
- (5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;*
- (6) The territorial sea;*
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. (40 CFR § 230.3).*

Wetlands Definition

40 CFR § 230.3 continues and defines, “(t) The term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas” (40 CFR § 230.3).

Wetlands Delineation Manual

The 1987 USACE Wetland Delineation Manual provides guidelines and methods to determine whether an area is a wetland subject to federal regulation under Section 404 of the Clean Water Act. The manual specifies that wetland hydrology, soil, and vegetation indicators must be present to identify a wetland (USACE 1987, p. 10). In addition, the Wetlands Delineation Manual states, “If hydrophytic vegetation is being maintained only because of man-induced wetland hydrology that would no longer exist if the activity (e.g., irrigation) were to be terminated, the area should not be considered a wetland,” (USACE, 1987).

Federal Geographic Data Committee (FGDC) Wetland Classification Standard

The Classification of Wetlands and Deepwater Habitats of the United States (FGDC 2013), based on Cowardin et al. (1979), states that wetlands must have at least one of the three wetland attributes: predominantly hydrophytic vegetation, predominantly hydric soil, and hydrology. However, they state that all available information should be used, and all three attributes should be considered if they are present (FGDC 2013).

1.3.2 State

The State Water Resources Control Board's (SWRCB) April 2019 *Procedures for Discharges of Dredged or Fill Material to Waters of the State* says the following:

An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The Water Code defines "waters of the state" broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the state" includes all "waters of the U.S." The following wetlands are waters of the state:

- 1) *Natural wetlands,*
- 2) *Wetlands created by modification of a surface water of the state, and*
- 3) *Artificial wetlands that meet any of the following criteria:*
 - a) *Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;*
 - b) *Specifically identified in a water quality control plan as a wetland or other water of the state;*
 - c) *Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or*
 - d) *Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):*
 - i) *Industrial or municipal wastewater treatment or disposal,*
 - ii) *Settling of sediment,*
 - iii) *Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,*
 - iv) *Treatment of surface waters,*
 - v) *Agricultural crop irrigation or stock watering,*
 - vi) *Fire suppression,*
 - vii) *Industrial processing or cooling,*
 - viii) *Active surface mining – even if the site is managed for interim wetlands functions and values,*
 - ix) *Log storage,*
 - x) *Treatment, storage, or distribution of recycled water, or*
 - xi) *Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or*
 - xii) *Fields flooded for rice growing.*

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state" (SWRCB, 2021).

The February 2020 Draft Guidance State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State further clarifies as follows:

Human activity can cause changes to the surrounding landscape (e.g., grading activities, road construction, direct hydromodification) such that wetlands form where wetlands did not previously exist. Where such artificial wetlands are now a relatively permanent part of the natural landscape, and are not subject to ongoing operation and maintenance, they are waters of the state. By requiring that the wetlands are relatively permanent, the framework excludes wetlands that are temporary or transitory. That they are part of the natural

landscape also indicates the relative permanence of the wetlands and suggests that the wetland is self-sustaining without ongoing operation and maintenance activities, and provides similar ecosystem services as natural wetlands. By way of example, this category of wetlands includes situations where water flow is permanently redirected as the result of human activity, such as grading in another area, such that new wetlands form in areas that were previously dry. These wetlands may not be natural wetlands because they result from human activity and they were not formed by modifying a water of the state (rather they were an indirect result), but nevertheless they take on the function of natural wetlands such that they should be considered waters of the state. This category would not include artificial wetlands constructed for specific purposes listed in section II.3.d because the construction of the artificial wetlands would be too recent to be deemed "historic" and the artificial wetland would likely require ongoing maintenance such that they would not be deemed "relatively permanent," and/or the artificial wetland is not part of the "natural landscape" (SWRCB, 2020).

1.3.3 Coastal Zone – Local Coastal Program

The Project Area is within the County Jurisdiction of the Coastal Zone, which is regulated by Humboldt County under the Humboldt Bay Area Plan (HBAP) of the Humboldt County Local Coastal Program (HCPD 2022). The County will rely on the HBAP for issuance of a coastal development permit.

The HBAP (certified in 1982) uses the Coastal Act definition of wetlands (Ch.3, p.48), and states "No land use or development shall be permitted in areas adjacent to coastal wetlands, called Wetland Buffer Areas, which degrade the wetland or detract from the natural resource value. Wetland Buffer Areas shall be defined as:

- (1) The area between a wetland and the nearest paved road, or the 40 foot contour line (as determined from the 7.5' USGS contour maps), whichever is the shortest distance, or,
- (2) 250 feet from the wetland, where the nearest paved road or 40 foot contour exceed this distance, or
- (3) Transitional Agricultural lands designated Agriculture Exclusive shall be excluded from the wetland buffer."

The HBAP provides specific examples of ESHA within the Humboldt Bay Area coastal zone (Ch.3, p.44):

1) Identification of Environmentally Sensitive Habitats

a) Environmentally sensitive habitats within the Humboldt Bay Planning Area include:

- (1) Wetlands and estuaries, including Humboldt Bay and the mouth of the Mad River.
- (2) Vegetated dunes along the North Spit to the Mad River and along the South Spit.
- (3) Rivers, creeks, gulches, sloughs and associated riparian habitats, including Mad River Slough, Ryan Slough, Eureka Slough, Freshwater Slough, Liscom Slough, Fay Slough, Elk River, Salmon Creek, and other streams.
- (4) Critical habitats for rare and endangered species listed on state or federal lists.

2. Methodology

2.1 Wetland Delineation Approach

GHD environmental scientists conducted the wetland delineation on July 21-22 and August 23, 2022. To define a wetland, the USACE requires that vegetation, soil, and hydrology (three-parameters) all show wetland attributes (USACE 1987; USACE 2010). The CCC requires only one parameter of the three (hydric soils, wetlands vegetation or wetlands hydrology) to be present in order to define the site as a wetland (14 CCR 13577; CCC 2011). The wetland delineation used USACE criteria from the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (USACE 2010). The current standard field forms provided by the USACE (2010) were used to collect vegetation, soils, and hydrology data (**Appendix B**).

In potential three-parameter wetland areas, vegetation, soil, and hydrology data were generally collected in a transect across the upland/wetland boundary with two plots (upland/wetland) per transect. The naming convention used on datasheets to designate upland or wetland plots associated with a transect is -U or -W, respectively.

Wetland/upland boundaries and plots were mapped in the field with an Eos Arrow 100 Submeter Global Positioning System (GPS) Receiver with Global Navigation Satellite System (GNSS) and an iPad running ArcGIS Collector software. The wetland/upland boundary was recorded with the GPS unit as needed to map the wetland's spatial extent. The points were then connected in the office using ArcMap software for figure creation and the boundaries were clipped to the extent of the Project Area.

Due to the complexity of the PSB and the separation of survey teams, wetlands as identified in this report were not numbered in the field. Data sheet numbers were used to differentiate survey locations as follows: transects were labelled with a W#, transect number, and paired wetland and upland designations (e.g., W1-T1-W and W1-T1-U). When mapping a three-parameter wetland within a one-parameter wetland, the paired transect points would be labelled W#-T#-**W3** and W#-T#-**W1** to indicate the boundary from three-parameter (**W3**) to one-parameter wetlands (**W1**), in lieu of the upland/wetland boundary. Data sheets were not recorded for areas that were upland or one-parameter wetland with no transition to three-parameter wetlands. Appendix B contains all datasheets recorded during the delineation.

Two private property parcels (APNs: 400-031-012 and 400-031-013) near the center of the PSB were delineated separately by O'Brien Biological Consultants on July 4, 2022 (OBC 2022). The results of that delineation have been included in this report.

2.2 Vegetation

Vegetation data collection consisted of listing the dominant species in the herbaceous, shrub, and tree layer within a standard-sized plot determined by the strata layer. Nomenclature follows The Jepson Manual (Baldwin et al. 2012), which was cross-walked to federal standard nomenclature to identify the indicator status. The species' wetland indicator status for the Western Mountains, Valleys, and Coast Region was noted in the respective column, using the standard reference: National USACE 2020 Wetland Plant List (USACE 2020a). This list classifies species based on the probability that they are found in wetlands (USACE 1987) as follows:

- Obligate (OBL): almost always in wetlands (99% probability)
- Facultative Wetland (FACW): usually occurring in wetlands (67% to 99% probability)
- Facultative (FAC): commonly occurring in wetlands and uplands (34% to 66% probability of occurring in wetlands)
- Facultative Upland (FACU): usually occurring in uplands (1% to 33% probability of occurring in wetlands)
- Upland (UPL): upland obligate, rarely in wetlands (1% in wetlands)

Species that do not appear on the list are considered to be in the upland category (Lichvar et al. 2012). Standard procedures for documenting hydrophytic vegetation indicators were used per the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010). A complete list of plants documented at the site with respective wetland indicator status is included as **Appendix C**. photographs have been included as **Appendix D**. The separate Biological Resources Report prepared by GHD will contain the location and extent of mapped vegetation alliances and Sensitive Natural Communities within the Project Area.

2.3 Soils

Hydric soils were defined based on the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010) procedures in combination with the Natural Resources Conservation Service's (NRCS) definitions presented in Field Indicators of Hydric Soils in the United States (USDA/NRCS 2018). Soil pits were dug to an approximate depth of 14 inches. Data on soil color, texture, and redoximorphic features were recorded. Any observed redoximorphic features (iron concentrations) were noted along with their percentage within the soil matrix, and care was taken to distinguish chromas of 1 and 2 indicative of an iron-depleted soil within 12 inches of the soil surface (USACE 2010; USDA/NRCS 2016).

The Munsell Soil Color Book (COLOR 2000) was used to describe the soil colors for the entire depth of the test pit. Moist, natural soil aggregate (ped) surfaces, which had not been crushed, were used to determine the soil's color. Soils with low chroma were verified as being hydric or upland with Field Indicators of Hydric Soils in the United States (Version 8.2 2018).

2.3.1 Existing Soils Information

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) identifies three soil units within the Project Area (**Appendix A; Figure 4** and NRCS report in **Appendix E**). A brief map unit description, as generated by the NRCS, is provided for each soil unit below (NRCS 2022). Although NRCS soil mapping is informative, the scale is generally too broad to definitively characterize potential wetlands. Please see the full report included as **Appendix E** for complete details.

Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes

The Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes map unit composition contains: 80% urban land, industrial, and 20% Anthraltic Xerorthents and similar soils. This soil type comprises 98% (**Appendix A; Figure 4 and Appendix E**).

The Urban land-Anthraltic Xerorthents association can be found on fluvio-marine terraces and the parent material is coarse-loamy fluvio-marine deposits and/or coarse-loamy dredge spoils. Urban land-Anthraltic Xerorthents association consists of slightly gravelly loamy fine sand in the top horizon above sandy loam to 31 inches, with gravelly sand and sand in the deepest horizons. Urban land-Anthraltic Xerorthents association has a Land Capability Classification (LCC) of 8 without irrigation (with irrigation is unspecified), and is not rated as a hydric soil. Urban land does not have a drainage class, but the depth to water table is about 24 inches. The Anthraltic Xerorthents is moderately well drained and the depth to water table is 0-6 inches.

Lanphere, 2 to 75 percent slopes

The Lanphere, 2 to 75 percent slopes map unit composition contains: 85% Lanphere and similar soils, and 15% minor components (consisting of 10% Clambeach and 5% Samoa). This soil type comprises 1.9% of the PSB (**Appendix A; Figure 4 and Appendix E**).

Lanphere soils can be found on longitudinal coastal dunes and the parent material is mixed eolian sands. Lanphere consists of slightly decomposed plant material in the top horizon above sand on all other horizons. Lanphere has a LCC of 7e without irrigation (with irrigation is unspecified), and is not rated as a hydric soil. Lanphere is somewhat excessively drained and the depth to water table is more than 80 inches.

Hydraquents-Wassents mucky silt loam, strongly saline, 0-3 percent slopes, very frequently flooded

The Hydraquents-Wassents mucky silt loam, strongly saline, 0-3 percent slopes map unit composition contains: 50% low tidal Hydraquents and similar soils, 40% Wassents and similar soils, and 10% minor components (consisting of marine water and high tidal Hydraquents). This soil type is on the shore of Humboldt Bay and comprises 0.01% of the PSB (**Appendix A; Figure 4 and Appendix E**).

Hydraquents-Wassents mucky silt loam can be found on tidal flats and the parent material is mucky, silty, and clayey estuarine deposits. This soil type consists of mucky silty clay loam on all horizons. Hydraquents-Wassents has an LCC of 8 without irrigation (with irrigation is unspecified), and is rated as a hydric soil. Hydraquents-Wassents is very poorly drained and the depth to water table is 0 inches.

2.4 Hydrology

GHD delineated wetlands within the PSB on July 21-22 and August 16, 2022. Rainfall for the entire 2022 Water Year was below normal totaling 25.66 inches at the end of July 2022. Precipitation in July was also below normal: 0.76 inch. A WETS table showing climate data for the Arcata Eureka Airport in McKinleyville, California is provided in **Appendix F**. Aerial photography and the National Wetland Inventory Mapper were referenced before conducting fieldwork (**Appendix A; Figure 5**) (NWI 2022). The flood hazard map is also included in **Appendix A; Figure 6** (FEMA 2022). Wetland hydrology indicators, such as drainage patterns, material deposits, soil saturation, high water table, or surface water presence, were recorded in the field.

3. Results

The PSB broadly contains four types of three-parameter wetlands, and one-parameter wetland (Wetland 1) consisting of stands of willow trees, wax myrtles, alders, and hydrophytic herbs. All wetlands in the PSB are within the jurisdiction of the CCC (**Table 1**). All three-parameter wetlands are jurisdictional to the USACE either through direct surficial connection to Humboldt Bay and ocean, or by sub-surface connection through the porous substrate and close proximity to the Bay. Additionally, all three-parameter wetlands meet the definition of Waters of the State and therefore are also under the jurisdiction of the North Coast Regional Water Quality Control Board (NCRWQCB). **Appendix A; Figure 3** show the results of the wetland delineations, and summaries of each wetland are presented in **Table 1** below.

Table 1 Wetlands within the Delineated Area and Potential Jurisdiction

Aquatic Resource Name	Wetland Type	Location	Aquatic Resource Size (ft ²)	Jurisdiction		
				USACE	NCRWQCB	CCC
Wetland 1	1-parameter	Scattered stands of willows, wax myrtle, red alder and hydrophytic herbs throughout Manila	128,550 ft² (2.95 acres)	No	No	Yes
Wetland 2	3-par Palustrine emergent ditches	Along Peninsula Road	14,885 ft² (0.34 acre)	Yes	Yes	Yes
Wetland 3	3-par Palustrine emergent wetlands	Between Victor Blvd. and shore, between Young Lane and shore.	15,050 ft² (0.34 acre)	Yes	Yes	Yes
Wetland 4	3-par Freshwater forested shrub wetland	Gully	7,170 ft² (0.16 acre)	Yes	Yes	Yes
Wetland 5	3-par Estuarine and marine wetland	Shore of Humboldt Bay	7,795 ft² (0.18 acre)	Yes	Yes	Yes
		Total Wetlands in Project Area	173,450 ft² (3.98 acres)			

3.1 One-parameter Wetlands

The majority of wetlands in the PSB were identified as one-parameter wetlands based on the presence of hydrophytic vegetation. Due to the lack of wetlands hydrology and hydric soils, these were determined to be one-parameter wetlands.

3.1.1 Wetland 1 (“W1”)

One-parameter wetlands are scattered throughout the community of Manila around and juxtaposed next to palustrine emergent ditches, railroad tracks, drainage gullies, and natural habitat. These scattered and separate stands are all designated as Wetland 1 for quantification and mitigation purposes. The hydrophytic vegetation in these wetlands is generally characterized by Hooker’s willow (*Salix hookeriana*), wax myrtle (*Morella californica*), and red alder (*Alnus rubra*) with various hydrophytic herbs in the understory and blackberry vines (*Rubus spp.*) in the vine layer. Wetland 1 comprises 128,550 ft² (2.95 acres) of the PSB. See **Table 2** below and attached data sheets in **Appendix B** for additional details.

Table 2 Summary of one-parameter wetland datasheets

Datasheet	Lat/Long	Dominant Tree/Shrub	Dominant Herbs	Dominant Vines
W2-T1-W1	40.850465, -124.161917	Hooker’s willow (FACW)	Great horsetail (FACW), creeping buttercup (FAC)	N/A
W2-T3-W1	40.850815, -124.162653	Hooker’s willow (FACW)	Great horsetail (FACW), bird’s-foot trefoil (FAC)	N/A
W2-T4-W1	40.850030, -124.161096	Hooker’s willow (FACW)	Hedge bindweed (FAC)	Himalayan blackberry (FAC)
W3-T1-W1	40.852930, -124.160454	Red alder (FAC), wax myrtle (FACW)	Hedge bindweed (FAC)	Himalayan blackberry (FAC)

Datasheet	Lat/Long	Dominant Tree/Shrub	Dominant Herbs	Dominant Vines
W4-T1-W1a	40.847115, -124.165926	Hooker's willow (FACW)	Slough sedge (OBL), great horsetail (FACW)	California blackberry (FACU), Himalayan blackberry (FAC)
W4-T1-W1b	40.847202, -124.166012	none	Velvet grass (FAC), ribwort plantain (FACU), bird's-foot trefoil (FAC)	Himalayan blackberry (FAC)
W4-T2-W1	40.851598, -124.162892	Hooker's willow (FACW)	Velvet grass (FAC), vernal sweet grass (FACU), rye grass (FAC), white clover (FAC)	California blackberry (FACU), Himalayan blackberry (FAC)
W5-T1-W1	40.853930, -124.161869	Hooker's willow (FACW)	Smallfruit bulrush (OBL)	California blackberry (FACU)
W5-T2-W1	40.853974, -124.161686	Sitka spruce (FAC)	California figwort (FAC)	California blackberry (FACU)

3.2 Three-parameter Wetlands

Four types of wetlands in the PSB met the criteria for three-parameter wetlands: palustrine emergent ditches, palustrine emergent wetlands, freshwater forested shrub wetland, and estuarine and marine wetland. Summaries of each three-parameter wetland are provided below, and area is provided in **Table 1**. Please see the USACE Data Forms in **Appendix B** for more details. The PSB contains a total of 44,900 ft² (1.03 acres) of three-parameter wetlands.

3.2.1 Wetland 2 (“W2”)

Wetland 2 is a loosely connected series of three-parameter wetlands classified according to the Cowardin system as palustrine emergent ditches (FGDC 2013) alongside Peninsula Drive and the railroad tracks that run northeast/southwest through the community of Manila (**Appendix A; Figure 3**). The surficial connection of these ditches to Humboldt Bay was not observed, but they are likely hydrologically linked to Humboldt Bay either surficially or subsurface through the porous substrate and proximity to the Bay. Wetland 2 occupies 14,885 ft² (0.34 acre) of the PSB.

Five plots were dug in ditches and wetlands collectively identified as Wetland 2. In general the tree or shrub stratum was dominated by Hooker's willow (FACW), the vine stratum was dominated by Himalayan blackberry (*Rubus armeniacus*, FAC) and/or California blackberry (*Rubus ursinus*, FACU), and the herb stratum was dominated by various hydrophytes including silverweed (*Argentina anserina*, OBL), slough sedge (*Carex obnupta*, OBL), water parsley (*Oenanthe sarmentosa*, OBL), and hedge bindweed (*Calystegia sepium*, FAC). Hydric soil indicators included hydrogen sulfide (A4), sandy redox (S5), and sandy gleyed matrix (S4). Wetland/hydrology indicators included high water table (A2), saturation (A3), water stained leaves (B9), drainage patterns (B10), and presence of reduced iron (C4). Please see **Table 3** below and attached data sheets in **Appendix B** for additional details.

Table 3 Data summary for soil pits in Wetland 2.

Datasheet	Lat/Long	Dominant Vegetation		Hydric Soil	Hydrology	Notes
W2-T4-W3	40.850022, -124.161046	Tree	Hooker's willow (FACW)	Depleted matrix	High water table, saturation	Soil wet to the touch, redox present. Organic matter decomposition also present independent of redox.
		Herb	Creeping buttercup (FAC)			
		Vine	N/A			
W4-T1-W3	40.847186, -124.165987	Shrub	Hooker's willow (FACW)	Hydrogen sulfide, Sandy gleyed matrix	High water table, water stained leaves, present of reduced iron	Thin layer of muck on top.
		Herb	Slough sedge (OBL)			
		Vine	N/A			
W4-T2-W3	40.851594, -124.162881	Shrub	Hooker's willow (FACW)	Hydrogen sulfide, Sandy redox	Presence of reduced iron	
		Herb	Slough sedge (OBL)			
		Vine	Him. blackberry (FAC)			
W5-T1-W3	40.853966, -124.161862	Tree	Hooker's willow (FACW)	Hydrogen sulfide	High water table, saturation	Strong sulphur odor, bright grey lower horizon.
		Herb	Water parsley (OBL)			
		Vine	Cal. blackberry (FACU)			
W5-T2-W3	40.853997, -124.161687	Tree	Sitka spruce (FAC)	Hydrogen sulfide	High water table, saturation	Soil predominantly sandy with gray coloring, some sulphur smell.
		Herb	Hedge bindweed (FAC)			
		Vine	Cal. blackberry (FACU)			

The surficial connection of the ditches in Wetland 2 to Humboldt Bay was not directly observed, but likely exists. If there is not direct surficial connection, three-parameter wetlands in sandy areas along the coast are typically considered to be jurisdictional by the USACE with the reasoning that the porous substrate enables subsurface hydrological connection with the ocean. Additionally, Wetland 2 meets the definition of Waters of the State and therefore is also under the jurisdiction of the NCRWQCB. Wetland 2 is within the jurisdiction of the CCC because it is within the Coastal Zone (**Table 1**).

3.2.2 Wetland 3 ("W3")

Wetland 3 includes two areas classified according to the Cowardin system as palustrine emergent wetlands that are adjacent to the wetlands on the shore of Humboldt Bay (FGDC 2013). Only one plot (investigating vegetation, soils and hydrology) was conducted in Wetland 3, in the coastal wetland off of Victor boulevard. At this location (W2-T4-W3) the tree stratum was dominated by Hooker's willow (FACW), and the herb stratum was dominated by creeping buttercup (*Ranunculus repens*, FAC). Hydric soil indicators included depleted matrix (F3), Wetland/hydrology indicators included high water table (A2), and saturation (A3). Wetland 3 occupies 15,050 ft² (0.34 acre) of the PSB. Please see **Table 4** below and attached data sheets in **Appendix B** for additional details.

No wetland transects were placed in the northern palustrine emergent wetland off of Young Lane at the north end of Manila. The vegetation in this wetland is dominated by hard-stem tule (*Schoenoplectus acutus*, OBL), and water parsley (OBL) with Hooker's willow (FACW) at the edges. The wetland areas on either side of Young Lane contain human-dug ditches, but these wetlands were likely present before the construction of the road and ditches and are not themselves artificial.

Table 4 Data summary for Wetland 3 transect.

Datasheet	Lat/Long	Dominant Vegetation		Hydric Soil	Hydrology	Notes
W2-T4-W3	40.850022, -124.161046	Tree	Hooker's willow (FACW)	Depleted matrix	High water table, saturation	Soil wet to the touch, redox present. Organic matter decomposition also present independent of redox.
		Herb	Creeping buttercup (FAC)			
		Vine	N/A			

Both areas in Wetland 3 are surficially hydrologically connected to Humboldt Bay and are jurisdictional to the USACE, the NCRWQCB, and the CCC (**Table 1**).

3.2.3 Wetland 4 ("W4")

Wetland 4 is a forested gully between the Manila Community Park and Mill Street that flows into Humboldt Bay. This wetland is classified according to the Cowardin classification system as a freshwater forested shrub wetland until it reaches Wetland 5 on the shore of Humboldt Bay (FGDC 2013). One plot labelled W3-T1-W3 was conducted at the northwest end of the gully and is summarized below. Wetland 4 occupies 7,170 ft² (0.16 acre) of the PSB. This total area includes the 1,290 ft² that was delineated by O'Brien Biological Consultants on July 4, 2022. Please see attached data sheets in **Appendix B** for additional details.

Table 5 Data summary for Wetland 4 transect.

Datasheet	Lat/Long	Vegetation		Hydric Soil	Hydrology	Notes
W3-T1-W3	40.852910, -124.160424	Tree	Red alder (FAC)	Redox dark surface	Water stained leaves, presence of reduced iron, drainage patterns, geomorphic position	Lower horizon mucky and wet.
		Herbs	Hedge bindweed (FAC)			
		Vines	Himalayan blackberry (FAC)			

Wetland 4 is surficially hydrologically connected to Humboldt Bay and is jurisdictional to the USACE, the NCRWQCB, and the CCC (**Table 1**).

3.2.4 Wetland 5 ("W5")

Wetland 5 includes four disjunct areas of the PSB that are located on the shore of Humboldt Bay. All wetlands within the PSB grouped in Wetland 5 are below the High Tide Line of 9.3 feet (NAVD 88). No transects or soil pits were placed in Wetland 5. Shoreline locations in Wetland 5 are classified according to the Cowardin classification system as estuarine and marine wetlands (FGDC 2013). Wetland 5 includes two culverts on the shore of the Bay south of Manila, one culvert on the shore of the Bay near Young Lane north of Manila, and the shoreline portions of the PSB off of Victor Boulevard and Peerless Avenue. Wetland 5 occupies 7,795 ft² (0.18 acre) of the PSB.

Vegetation in Wetland 5 generally included Lyngbye's sedge (*Carex lyngbyei*, OBL), salt grass (*Distichlis spicata*, FACW), hard-stem tule (*Schoenoplectus acutus*, OBL), and pickleweed (*Salicornia pacifica*, OBL). All areas in Wetland 5 are within Humboldt Bay and are jurisdictional to the USACE, the NCRWQCB, and the CCC (**Table 1**).

4. Conclusions

The wetland delineation for the Manila Flood Reduction and Drainage Enhancement Project, completed on July 21-22 and August 23, 2022, determined the extent of wetlands within the Project Area based on hydrophytic vegetation, hydric soils, and wetland hydrology using methods and indicators outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (USACE 2010). A total of 1.03 acres of three-parameter wetlands (Wetlands 2-5) are jurisdictional by the USACE either through direct surficial connection to Humboldt Bay and the ocean, or by sub-surface connection through the porous substrate and close proximity to the Bay. Additionally, all three-parameter wetlands meet the definition of Waters of the State and therefore are also under the jurisdiction of the North Coast Regional Water Quality Control Board (NCRWQCB). All wetlands in the PSB (6.93 acres) are within the Coastal Zone and within the jurisdiction of the CCC. (**Appendix A; Figures 4, 5**). Data forms are attached showing sample plot data collected in transects across wetland boundaries (**Appendix B**).

5. Special Terms and Conditions

5.1 Purpose of this Report

GHD prepared this report for the Manila Community Services District (District), and the District may only use and rely on this report for the purpose agreed upon between GHD and the District, as set out in the scope and contract for work effort reported herein. GHD Inc. is not liable for any action arising out of the reliance of any third party on the information contained within this report. GHD otherwise disclaims responsibility to any entity other than the District arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

5.2 Scope and Limitations

This report does not authorize any individuals to develop, fill, or alter the delineated wetlands. Verification of the delineation by jurisdictional agencies is necessary prior to the use of this report for planning and development purposes. A USACE, agency-stamped, delineation map, and a jurisdictional approval letter are required to signify confirmation of delineation results. In situations where a field investigation determines that no jurisdictional wetlands occur, jurisdictional concurrence with these findings is recommended.

The delineation conclusions were based on the information available during the period of the investigation, which took place June 15 and 16, 2022. The opinions, conclusions, and any recommendations in this report are based on conditions encountered and information reviewed by the date of preparation of the report. Site conditions may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change unless contracted to do so.

This report: has been prepared by GHD for Manila Community Services District and may only be used and relied on by Manila Community Services District for the purpose agreed between GHD and Manila Community Services District as set out in section 5.1 of this report.

GHD otherwise disclaims responsibility to any person other than Manila Community Services District arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 5.1 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

6. References

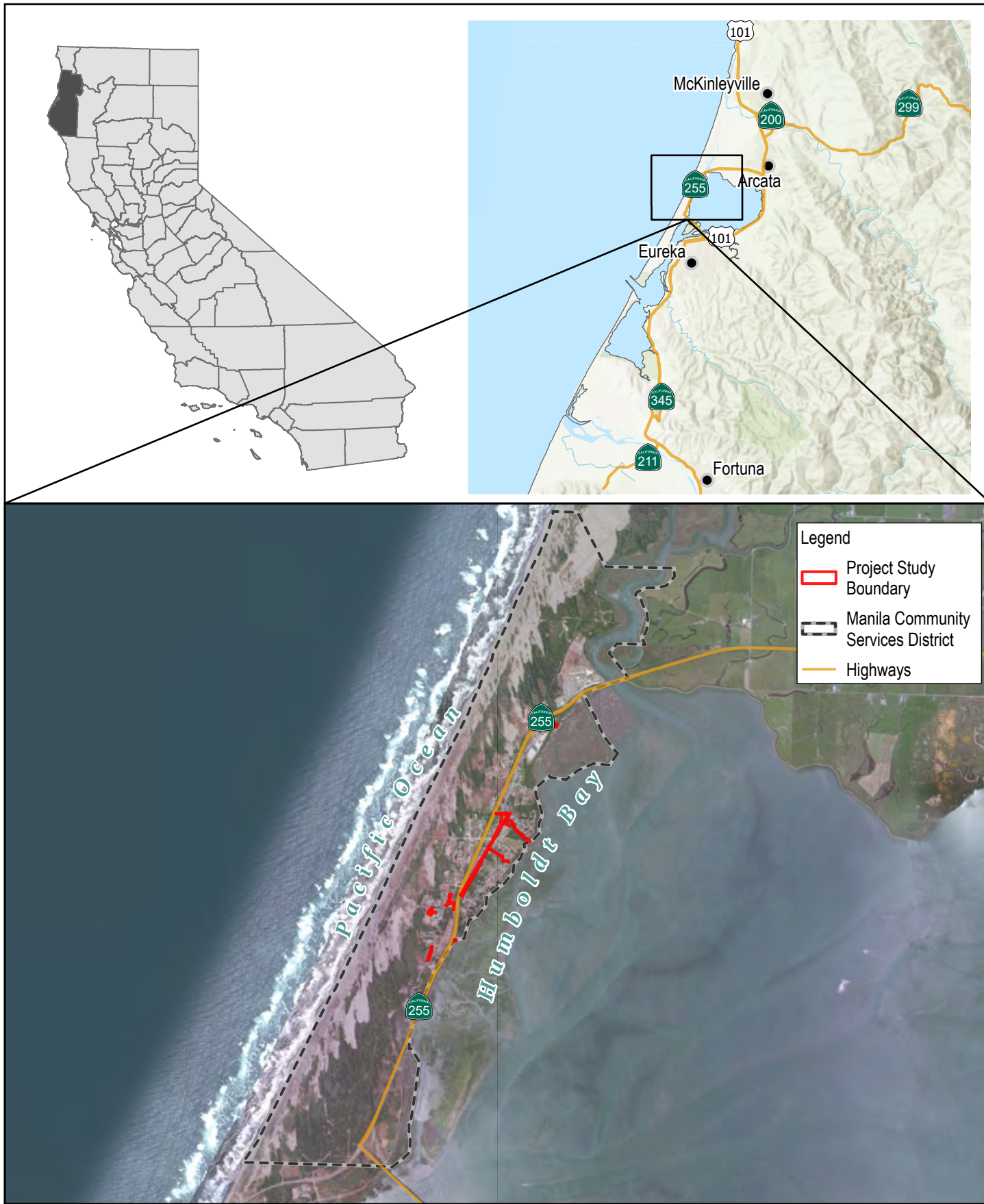
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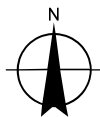
Appendices

Appendix A

Figures



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 Miles
 Map Projection: Mercator Auxiliary Sphere
 Horizontal Datum: WGS 1984
 Grid: WGS 1984 Web Mercator Auxiliary Sphere



**Manila Community Services District
 Manila Flood Reduction &
 Drainage Enhancement Project**

Project No. 12572691
 Revision No. -
 Date Nov 2022

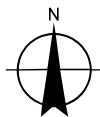
Vicinity Map

FIGURE 1



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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



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Project Study Boundary

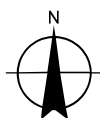
FIGURE 2

Legend

- Project Study Boundary
- W3: Palustrine emergent wetlands (15,050 ft²)
- W5: Estuarine and marine wetland (7,795 ft²)
- 1ft Contours (NAVD88)
- Control Points



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Feet



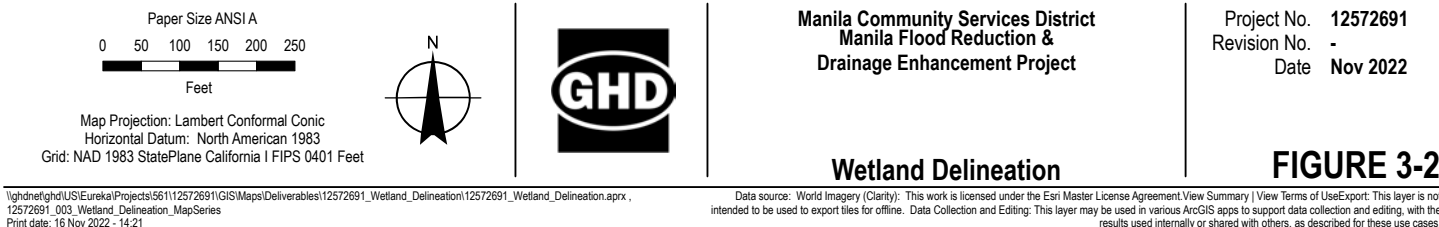
Manila Community Services District
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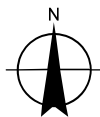
Wetland Delineation

FIGURE 3-1





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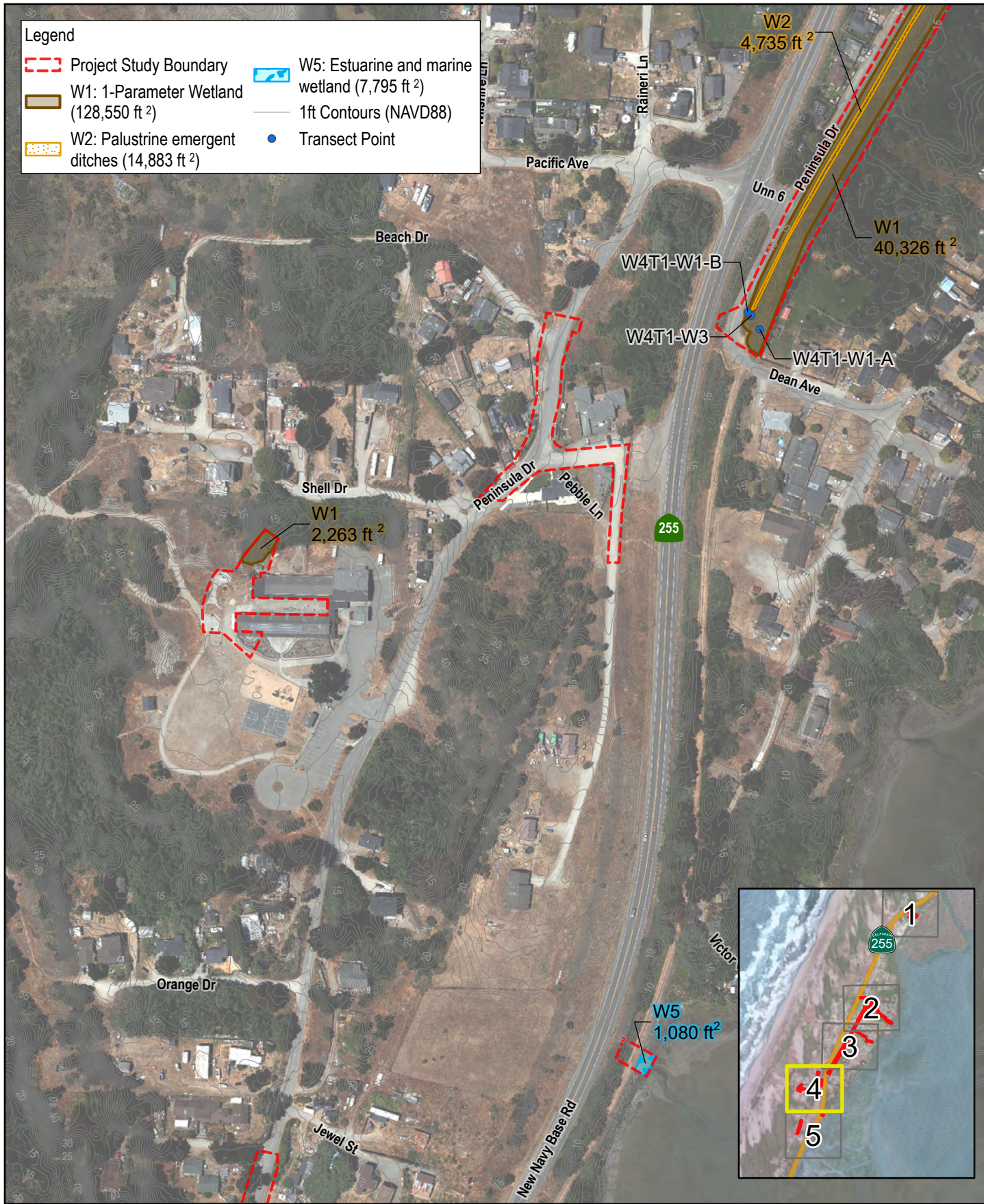
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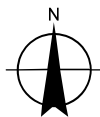
Project No. 12572691
Revision No. -
Date Nov 2022

Wetland Delineation

FIGURE 3-3



Paper Size ANSI A
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Feet



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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Drainage Enhancement Project

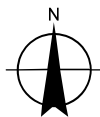
Project No. 12572691
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Date Nov 2022

Wetland Delineation

FIGURE 3-4



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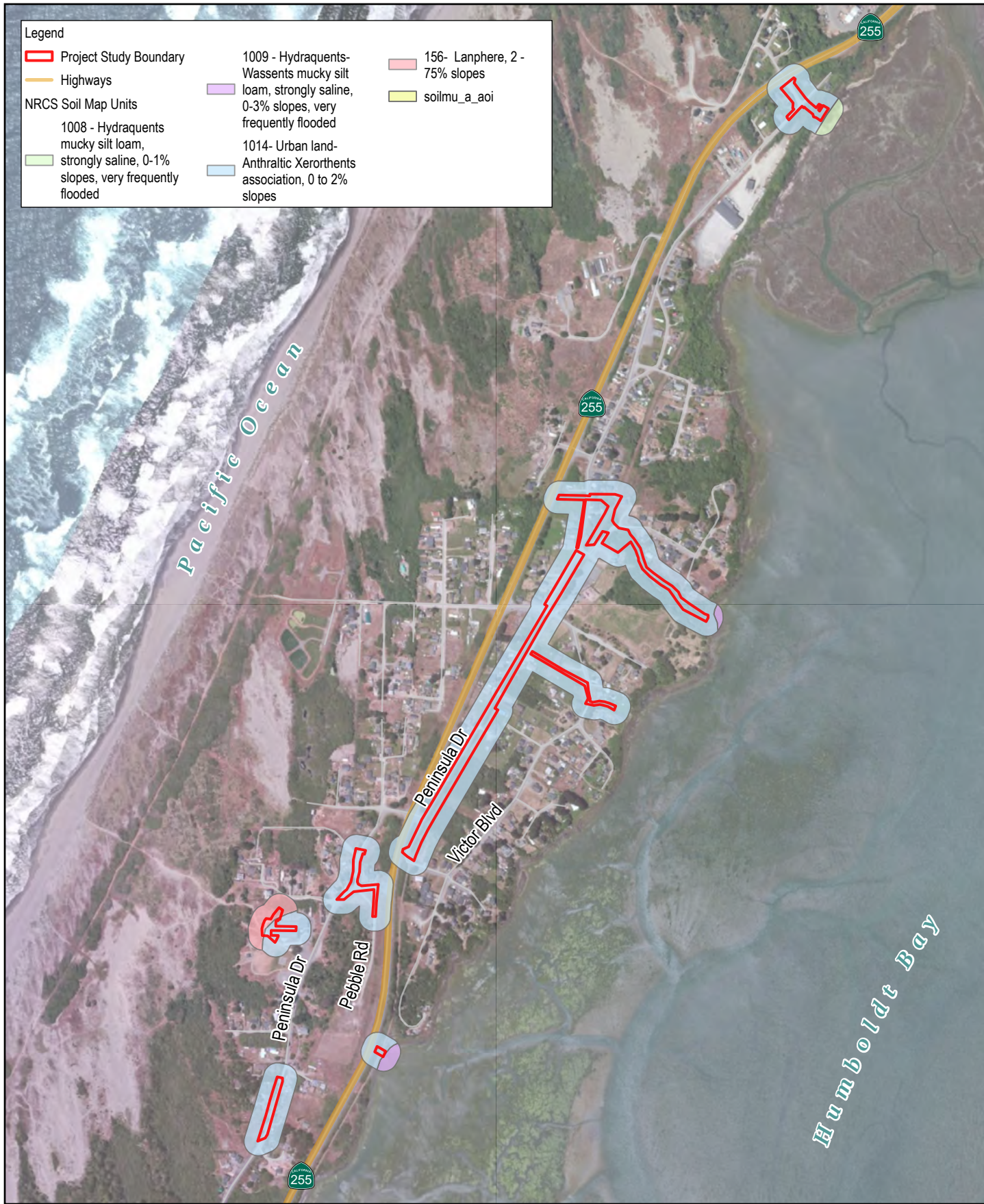
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Date Nov 2022

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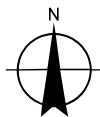
Wetland Delineation

FIGURE 3-5



Paper Size ANSI A
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Map Projection: Lambert Conformal Conic
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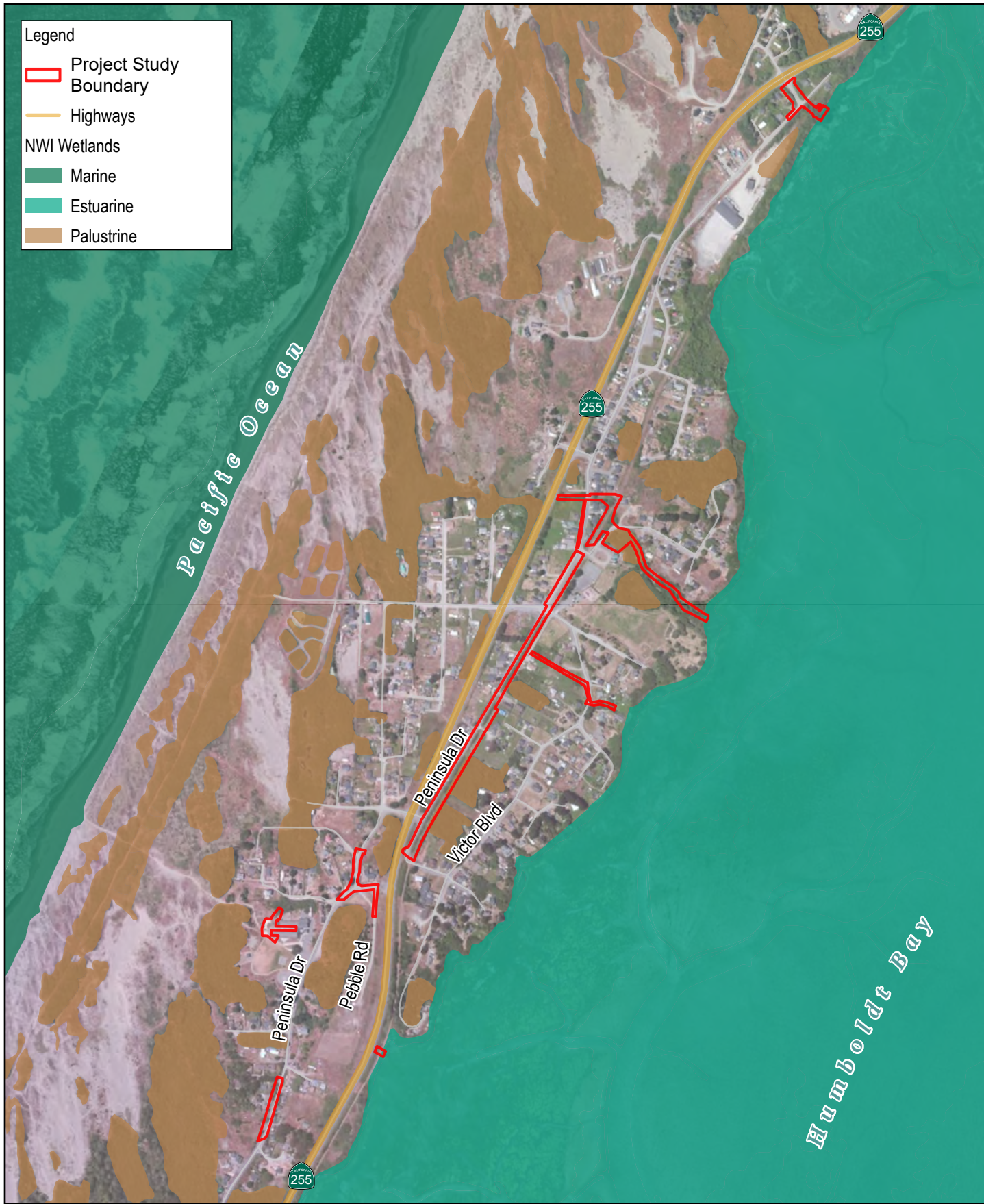


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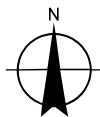
NRCS Soils

FIGURE 4



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Map Projection: Lambert Conformal Conic
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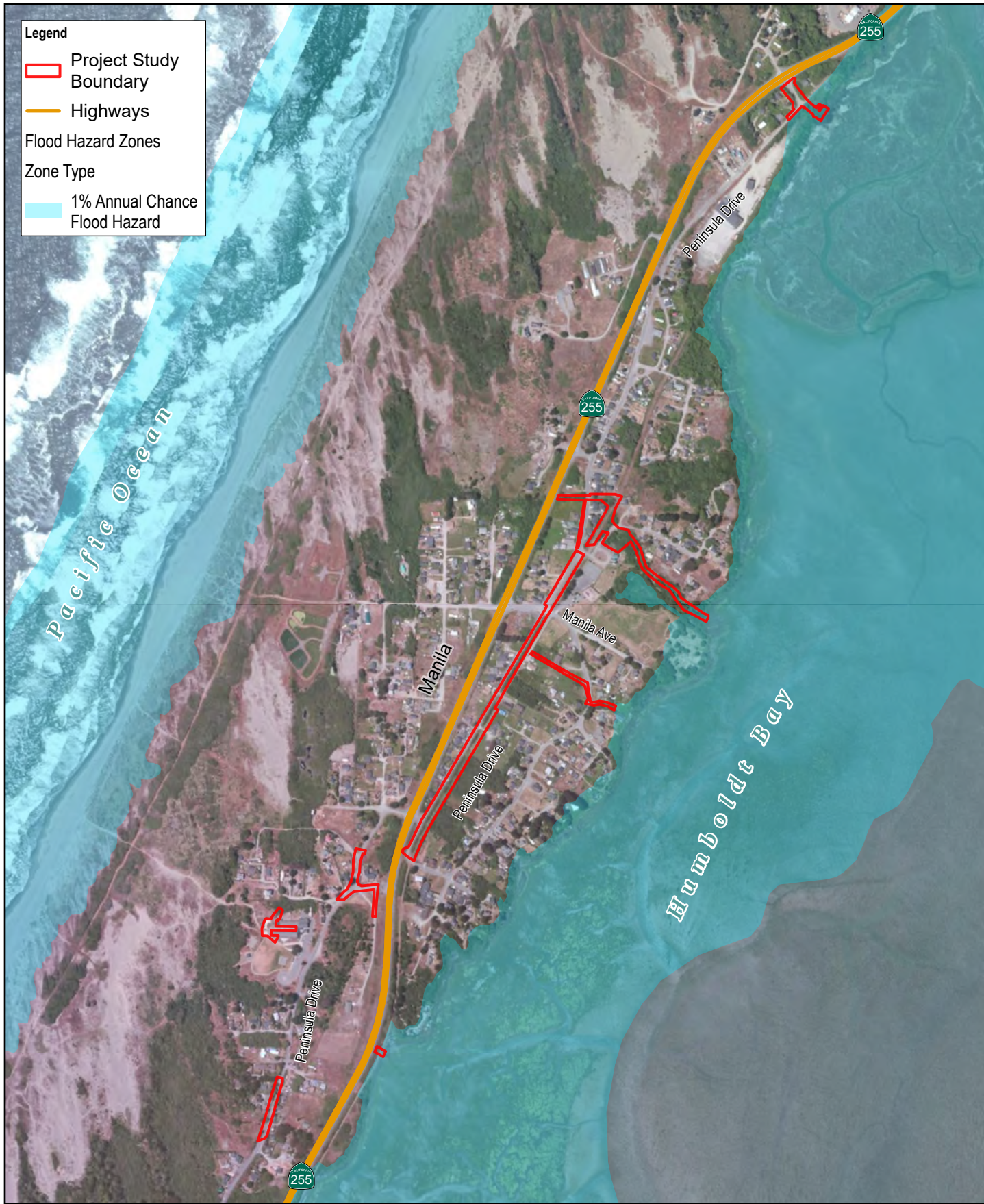


Manila Community Services District
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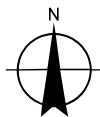
National Wetland Inventory

FIGURE 5



Paper Size ANSI A
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Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



**Manila Community Services District
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FEMA Flood Hazard Map

FIGURE 6

Appendix B

Data Sheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Manila / Humboldt Sampling Date: 7/20/22
 Applicant/Owner: Humboldt County State: CA Sampling Point: W2-T1-W1
 Investigator(s): J. Cipra / K. McNamee Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NVI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	Is the Sampled Area within a Wetland?	Yes ☒ No ☐
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☒	No ☐		
Remarks: <u>2-par wetland</u>				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft x 30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
1. <u>Salix hookeriana</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>1 m</u>)				
1. <u>Iris pseudocorus</u>	<u>2</u>	_____	<u>OBL</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Equisetum telmateia</u>	<u>4</u>	<u>yes</u>	<u>FACW</u>	
3. <u>Lotus corniculatus</u>	<u>3</u>	_____	<u>FAC</u>	
4. <u>Ranunculus repens</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	
5. <u>Holcus lanatus</u>	<u>2</u>	_____	<u>FAC</u>	
6. <u>Juncus tenuis</u>	<u><1</u>	_____	<u>FACW</u>	
7. <u>Festuca perenne</u>	<u><1</u>	_____	<u>FAC</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>1 m</u>)				
1. <u>Rubus ursinus</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes ☒ No ☐
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum: _____				
Remarks:				

Sampling Point: W2-T1-W

HYDROLOGY

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

- Field Observations:

Wetland Hydrology Present? Yes ☒ No ☐

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

passed alpha alpha test. Lower horizon felt with

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Humboldt County Sampling Date: 7/20/22
 Applicant/Owner: Humboldt County State: CA Sampling Point: W2-T2-U
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No ☒	Is the Sampled Area within a Wetland?	Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒		
Wetland Hydrology Present?	Yes _____ No ☒		
Remarks: <u>Upland due to dominance of Anthoxanthum</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
_____ = Total Cover			
Herb Stratum (Plot size: <u>1 m</u>)			
1. <u>Holcus lanatus</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>
2. <u>Anthoxanthum odoratum</u>	<u>70</u>	<u>yes</u>	<u>FACW</u>
3. <u>Hypochaeris radicata</u>	<u>1</u>		<u>FAC</u>
4. <u>Juncus pascuorum</u>	<u>2</u>		<u>FACW</u>
5. <u>Plantago lanceolata</u>	<u>1</u>		<u>FACW</u>
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
<u>94</u> = Total Cover			
Woody Vine Stratum (Plot size: <u>1 m</u>)			
1. <u>Rubus ursinus</u>	<u>1</u>		<u>FACW</u>
2. _____			
<u>1</u> = Total Cover			
% Bare Ground in Herb Stratum _____			
Remarks:			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0¹

___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants¹

___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ☒

W/2-72-U

✕

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Hydric Soil Present? Yes _____ No ☒

Remarks:

Primary indicators (1 or more required)		Secondary indicators (2 or more required)
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		

Wetland Hydrology Present? Yes _____ No ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Humboldt County Sampling Date: 7/20/22
 Applicant/Owner: Humboldt County State: CA Sampling Point: W2-T3-W1
 Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____
 Landform (hillslope terrace, etc.): _____ Local relief (concave, convex, none) _____ Slope (%) _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No ☒	
Remarks: <u>1 - par wetland</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size <u>30 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)	
1. <u>Salix hookeriana</u>	<u>70</u>	<u>yes</u>	<u>FACW</u>		
2. _____	_____	_____	_____	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 = _____	
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
= Total Cover					
Sapling/Shrub Stratum (Plot size _____)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0' 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
= Total Cover					
Herb Stratum (Plot size <u>1 m</u>)					
1. <u>Equisetum telmateia</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>		
2. <u>Lotus corniculatus</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>		
3. <u>Juncus effusus</u>	<u>10</u>	_____	<u>FACW</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
= Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____	
Woody Vine Stratum (Plot size <u>1 m</u>)					
1. <u>Rubus ursinus</u>	<u>65</u>	<u>yes</u>	<u>FACU</u>		
2. _____	_____	_____	_____		
= Total Cover					
% Bare Ground in Herb Stratum _____					
Remarks					

Sampling Point: W2-T3 - W1

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

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

Indicators for Problematic Hydric Soils³:

- ²Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Hydric Soil Present? Yes No ☒

On decomposition looks like redox; however faint specks of freedox visible.
(very small amount)

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

- Field Observations:

Wetland Hydrology Present? Yes _____ No ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Humboldt Co. Sampling Date: 7/20/22
 Applicant/Owner: Humboldt Co State: CA Sampling Point: W2-T4-W1
 Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____
 Landform (hillslope terrace, etc.): _____ Local relief (concave, convex, none) _____ Slope (%) _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soil Present? Yes ☐ No ☒	
Wetland Hydrology Present? Yes ☒ No ☐	
Remarks: <u>1-par wetland</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC <u>3</u> (A) Total Number of Dominant Species Across All Strata <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC <u>100%</u> (A/B)
1. <u>Salix hookeriana</u>	<u>60</u>	<u>yes</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
Sapling/Shrub Stratum (Plot size _____) <u>60</u> = Total Cover				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 = _____
1. _____				
2. _____				
3. _____				
4. _____				
Herb Stratum (Plot size <u>1 m</u>) _____ = Total Cover				Hydrophytic Vegetation Indicators: ☐ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☐ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ 5 - Wetland Non-Vascular Plants ¹ ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Calystegia sepium</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
Woody Vine Stratum (Plot size <u>1 m</u>) <u>5</u> = Total Cover				Hydrophytic Vegetation Present? Yes ☒ No ☐
1. <u>Rubus armeniacus</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
2. _____				
% Bare Ground in Herb Stratum _____ <u>30</u> = Total Cover				
Remarks				

Sampling Point: W2-T4-W

Sampling Point:

W2-T4-W

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ 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) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8) | ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks) |
|--|---|--|
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No ☒

Remarks:

Cobbles + boulder at 18" on bottom
Not hydric soil (F3) b/c not deep enough (needs 6" thickness) deeper than 10"

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|--|
| ☐ Surface Water (A1) | ☒ Water-Stained Leaves (B9) (except |
| ☐ High Water Table (A2) | MLRA 1, 2, 4A, and 4B) |
| ☐ Saturation (A3) | ☐ Salt Crust (B11) |
| ☐ Water Marks (B1) | ☐ Aquatic Invertebrates (B13) |
| ☐ Sediment Deposits (B2) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Drift Deposits (B3) | ☐ Oxidized Rhizospheres along Living Roots (C3) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) |
| ☐ Iron Deposits (B5) | ☐ Recent Iron Reduction in Tilled Soils (C6) |
| ☐ Surface Soil Cracks (B6) | ☐ Stunted or Stressed Plants (D1) (LRR A) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) |
| ☐ Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

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

Saturation Present? Yes ☒ No ☐ Depth (inches): 13"

Wetland Hydrology Present? Yes ~~_____~~ No _____

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

Remarks:

ditch immediately north of spot. Redox present in ditch

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Humboldt CO. Sampling Date: 7/20/22
 Applicant/Owner: Humboldt Co State: CA Sampling Point: W2-T4-W3
 Investigator(s): J. Cipa, K. McNamee Section, Township, Range: _____
 Landform (hillslope terrace, etc.): Drainage ditch Local relief (concave, convex, none) concave Slope (%) _____
 Subregion (LRR): _____ Lat _____ Long _____ Datum _____
 Soil Map Unit Name: _____ NWI classification _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ☒	No _____	Is the Sampled Area within a Wetland?	Yes ☒	No _____
Hydric Soil Present?	Yes ☒	No _____			
Wetland Hydrology Present?	Yes ☒	No _____			
Remarks: <u>3-par wetland</u>					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft x 10 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix hookeriana</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Total % Cover of _____ Multiply by: _____
4. _____	_____	_____	_____	OBL species _____ x 1 = _____
5. _____	_____	_____	_____	FACW species _____ x 2 = _____
= Total Cover				FAC species _____ x 3 = _____
Herb Stratum (Plot size: <u>1 m</u>)				FACU species _____ x 4 = _____
1. <u>Ranunculus repens</u>	<u>95</u>	<u>yes</u>	<u>FAC</u>	UPL species _____ x 5 = _____
2. <u>Conium maculatum</u>	<u>2</u>	_____	<u>FAC</u>	Column Totals: _____ (A) _____ (B)
3. _____	_____	_____	_____	Prevalence Index = B/A = _____
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	☒ 1 - Rapid Test for Hydrophytic Vegetation
10. _____	_____	_____	_____	☒ 2 - Dominance Test is >50%
11. _____	_____	_____	_____	_____ 3 - Prevalence Index is ≤3.0 ¹
= Total Cover				_____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Woody Vine Stratum (Plot size: _____)				_____ 5 - Wetland Non-Vascular Plants ¹
1. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
% Bare Ground in Herb Stratum _____				
Remarks				

Sampling Point: W2-T4-W3

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

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

- | | |
|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ Depleted Below Dark Surface (A11) | ☒ Depleted Matrix (F3) |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

marks: _____

Soil wet to the touch the entire pit.
Redox present. OM decomposition also present independent of redox. (photo)

BIOLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|--|
| ☒ Surface Water (A1) | ☐ Water-Stained Leaves (B9) (except |
| ☒ High Water Table (A2) | MLRA 1, 2, 4A, and 4B) |
| ☒ Saturation (A3) | ☐ Salt Crust (B11) |
| ☐ Water Marks (B1) | ☐ Aquatic Invertebrates (B13) |
| ☐ Sediment Deposits (B2) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Drift Deposits (B3) | ☐ Oxidized Rhizospheres along Living Roots (C3) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) |
| ☐ Iron Deposits (B5) | ☐ Recent Iron Reduction in Tilled Soils (C6) |
| ☐ Surface Soil Cracks (B6) | ☐ Stunted or Stressed Plants (D1) (LRR A) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) |
| ☐ Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes X No _____ Depth (inches): 16"

Saturation Present? Yes _____ No _____ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Water table visible
Soil saturated through entire pit

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Humboldt Co Sampling Date: 7/20/22
 Applicant/Owner: Humboldt Co. State: CA Sampling Point: W3-T1-W1
 Investigator(s): J. C. P. K. McNamee Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Slope above ditch Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: <u>1-par wetland</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Alnus rubra</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Morella californica</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	
3. _____				
4. _____				
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>1 m</u>)				
1. <u>Crocodylia</u>	<u>15</u>		<u>FAC</u>	
2. <u>Calystegia sepium</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>1 m</u>)				
1. <u>Rubus armeniacus</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes ☒ No _____				
Remarks				

Sampling Point: W3-T1-U1

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

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Depth (inches): _____

Hydric Soil Present? Yes No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (**LRR A**)
- Frost-Heave Hummocks (D7)

Field Observations:

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Humboldt Co Sampling Date: 7/20/22
 Applicant/Owner: Humboldt Co State: CA Sampling Point: W3-T1-W3
 Investigator(s): J Cipa, K. McName Section, Township Range: _____
 Landform (hillslope terrace, etc.): _____ Local relief (concave convex none) concave Slope (%) _____
 Subregion (LRR): _____ Lat _____ Long _____ Datum _____
 Soil Map Unit Name: _____ NWI classification _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ☒	No _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present?	Yes ☒	No _____	
Wetland Hydrology Present?	Yes ☒	No _____	
Remarks: <u>3 - par wetland</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW or FAC: <u>100</u> (A/B)
1. <u>Alnus rubra</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Morella californica</u>	<u>10</u>		<u>FACW</u>	
3. _____				
4. _____				
<u>70</u> = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
Herb Stratum (Plot size: <u>1 m</u>)				
1. <u>Desmodium illinoense</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
2. <u>Crocodyria</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>	
3. <u>Calystegia sepium</u>	<u>2</u>		<u>FAC</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>47</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>1 m</u>)				
1. <u>Rubus armeniacus</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	
2. _____				
<u>5</u> = Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes ☒ No _____				
Remarks				

SOIL

Sampling Point: W3-T1-W3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 2.5/1	100%						
4-14	2.5Y 3/1	85%	7.5YR 5/6	15%	C	M/PL	Silt loam	Full of 0.1 mm nodules
14-18	Gley 14/N	98%	7.5YR 5/6	2%	C	M	Sandy loam	sandy alloform

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

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

Indicators for Problematic Hydric Soils³:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ 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) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☒ Presence of Reduced Iron (C4) @ 14-18"
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☒ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☒ No ☐ Depth (inches): 14-18Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Lower horizon mucky and wet.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Marila Drainage City/County: Marila, Arcata/Humboldt Sampling Date: 7/22/22
 Applicant/Owner: MCSO State: CA Sampling Point: W4T1-W3
 Investigator(s): K. Lundgren Section, Township, Range: 3, 5N, 1W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Quaternary sand deposits NWI classification: freshwater shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Hydrophytic Vegetation Indicators: ____ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ____ 3 - Prevalence Index is ≤3.0' ____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ 5 - Wetland Non-Vascular Plants ¹ ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sapling/Shrub Stratum (Plot size: <u>4' x 8'</u>)				
1. <u>Salix hookeriana</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)				Remarks:
1. <u>Carex obnupta</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Juncus balticus</u>	<u>1</u>	_____	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ☒ No _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	Remarks:
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				Remarks:
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				Remarks:
% Bare Ground in Herb Stratum <u>0</u>				

Sampling Point: W4T1-W3

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

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

Indicators for Problematic Hydric Soils³:

- ² Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Hydric Soil Present? Yes ☒ No ☐

α di per positive

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

- Wetland Hydrology Present? Yes ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Aranta/Humco Sampling Date: 7/22/22
 Applicant/Owner: MCSO State: CA Sampling Point: W4-T1-W1 A1
 Investigator(s): K. Lindgren Section, Township, Range: 3, 5N, 1W
 Landform (hillslope, terrace, etc.): slope, ditch Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Quaternary sand deposits NWI classification: freshwater shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: <u>CCC 1-par wetland</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>NA</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>4/5 = 80%</u> (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 = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10x10'</u>)				
1. <u>Salix hookeriana</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>1m²</u>)				
1. <u>Carex obnupta</u>	<u>5</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Equisetum telmateia</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Anthoxanthum odoratum</u>	<u>1</u>		<u>FACU</u>	
4. <u>Bryza maxima</u>	<u>1</u>		<u>FAC</u>	
5. <u>Vicia sativa</u>	<u>1</u>		<u>UPL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>1x10'</u>)				
1. <u>Rubus armeniacus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Rubus ursinus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
= Total Cover				
% Bare Ground in Herb Stratum <u>15</u>				
Remarks:				Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Remarks:				Hydrophytic Vegetation Present? Yes <u>Y</u> No _____

SOIL

Sampling Point: W4-T1-W1-

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-2	10YR 2/1	90					loam	10% O.M. + roots
2-16	2.5Y 3/2	100%					Sandy loam	-mostly sand

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

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

Indicators for Problematic Hydric Soils³:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ 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) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

upper horizon has some soil formation; lower horizon entirely sand

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)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
☐ Salt Crust (B11)
☐ 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)
☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____Water Table Present? Yes _____ No X Depth (inches): _____Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No hydrology present although lower in elevation compared to adjacent RR track.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Marsh Damage City/County: Maricopa / Pinal Sampling Date: 7/22/22
 Applicant/Owner: MCSO State: CA Sampling Point: W477-W18
 Investigator(s): K. Lundgren Section, Township, Range: 3, 5N, 1W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 1
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Quaternary sand deposits NWI classification: freshwater shrub
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: <u>CCA 1-par wetland</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>3/4 = 75%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: ☒ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☐ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>1m²</u>)				
1. <u>Anthoxanthum odoratum</u>	<u>10</u>		<u>FACU</u>	
2. <u>Holcus lanatus</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Plantago lanceolata</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Equisetum telmateia</u>	<u>5</u>		<u>FACW</u>	
5. <u>Lotus corniculatus</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
6. <u>Vicia sativa</u>	<u>1</u>			
7. <u>Trifolium repens</u>	<u>9</u>		<u>FAC</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>1m²</u>)				
1. <u>Rubus armeniacus</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

Hydrophytic Vegetation Present? Yes ☒ No _____

SOIL

Sampling Point: W4T1-W1-B

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐ No ☒	Depth (inches): _____
		Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manda Drainage City/County: Arizola/HumCo Sampling Date: 7/22/22
 Applicant/Owner: MUSD State: CA Sampling Point: W4T2-W3
 Investigator(s): K. Lindger, M. Schwarz Section, Township, Range: 3, 5N, 1W
 Landform (hillslope, terrace, etc.): roadside drainage ditch Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Quaternary sand deposits NWI classification: freshwater shrub

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒	No _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒	No _____		
Wetland Hydrology Present?	Yes ☒	No _____		
Remarks: <u>3-par</u>				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>5/6</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
= Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>10' x 10'</u>)				
1. <u>Salix hookeriana</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
= Total Cover				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>1m²</u>)				
1. <u>Carex blanda</u>	<u>44</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Anthoxanthum odoratum</u>	<u>2</u>		<u>FACU</u>	
3. <u>Juncus balticus</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Holcus lanatus</u>	<u>3</u>	<u>Y</u>	<u>FAC</u>	
5. <u>Ranunculus repens</u>	<u>1</u>		<u>FAC</u>	
= Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
Woody Vine Stratum (Plot size: <u>1m²</u>)				
1. <u>Rubus amoenicus</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Rubus ursinus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
= Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				
Remarks: _____				

SOIL

Sampling Point: W4T2-W3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-6	2.5Y 3/2	100	—	—	—	sandy loam	
6-10	2.5Y 3/2	95%	10YR 3/6	5%	—	sand	
10-13	2.5Y 3/2	80%	10YR 3/6	20%	—	sand	

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

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

☐ Histosol (A1)	☒ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Very Shallow Dark Surface (TF12)
☒ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Other (Explain in Remarks)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Mucky Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy Gleyed Matrix (S4)	☐ Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☒ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		

Field Observations:

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

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

Saturation Present? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: geomorphic position

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Marble Damage City/County: Arcata/HumCo Sampling Date: 7/22/22
 Applicant/Owner: MCSO State: CA Sampling Point: W4T2-W1
 Investigator(s): K. Lindgren, M. Schwartz Section, Township, Range: 3, 5N, 1W
 Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Quaternary sand deposits NWI classification: Freshwater/Bartered
shrub wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒ No ☐	Is the Sampled Area within a Wetland?	Yes _____ No ☒
Hydric Soil Present?	Yes _____ No ☒		
Wetland Hydrology Present?	Yes _____ No ☒		
Remarks: <u>Qualifies as 1st per wetland per CCC</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>5/7 = 71%</u> (A/B)
1. <u>Salix hookeriana</u>				
2. _____				
3. _____				
4. _____				
= Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>10' x 10'</u>)				
1. <u>Salix hookeriana</u>	<u>0</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
= Total Cover				Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0' _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>1m²</u>)				
1. <u>Holcus lanatus</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Anthoxanthum odoratum</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Festuca perenne</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Trifolium repens</u>	<u>2</u>	<u>Y</u>	<u>FAC</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
= Total Cover				
Woody Vine Stratum (Plot size: <u>1m²</u>)				Hydrophytic Vegetation Present? Yes ☒ No _____
1. <u>Rubus ursinus</u>	<u>2</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Rubus armeniacus</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: W4T2-W1

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			Wetland Hydrology Indicators	
Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)	
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)		
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)		
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)		
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)		
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)		
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)		
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)		
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)		
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)		
☐ Inundation Visible on Aerial Imagery (B7)				
☐ Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____		
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____		
Saturation Present?	Yes ☐ No ☒	Depth (inches): _____		
(includes capillary fringe)			Wetland Hydrology Present? Yes ☐ No ☒	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks:				

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Humboldt Co Sampling Date: 7/21/22
 Applicant/Owner: Humboldt Co. State: CA Sampling Point: W5-T1-W1
 Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes _____ No ☒	
Remarks: <u>2 - par wetland</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 <u>Salix hookeriana</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B)
4 _____	_____	_____	_____	Prevalence Index worksheet:
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	Total % Cover of _____ Multiply by: _____
4 _____	_____	_____	_____	OBL species _____ x 1 = _____
5 _____	_____	_____	_____	FACW species _____ x 2 = _____
= Total Cover				FAC species _____ x 3 = _____
Herb Stratum (Plot size: <u>1 m</u>)				FACU species _____ x 4 = _____
1 <u>Scirpus microcarpus</u>	<u>15</u>	<u>yes</u>	<u>OBL</u>	UPL species _____ x 5 = _____
2 <u>Ranunculus repens</u>	<u>2</u>	_____	_____	Column Totals _____ (A) _____ (B)
3 <u>Lotus corniculatus</u>	<u>2</u>	_____	_____	Prevalence Index = B/A = _____
4 _____	_____	_____	_____	Hydrophytic Vegetation Indicators:
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	☒ 1 - Rapid Test for Hydrophytic Vegetation
10 _____	_____	_____	_____	☒ 2 - Dominance Test is >50%
11 _____	_____	_____	_____	_____ 3 - Prevalence Index is ≤3.0'
= Total Cover				_____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Woody Vine Stratum (Plot size: <u>1 m</u>)				_____ 5 - Wetland Non-Vascular Plants ¹
1 <u>Rubus ursinus</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>	_____ Problematic Hydrophytic Vegetation ¹ (Explain)
2 _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
= Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____
% Bare Ground in Herb Stratum _____				
Remarks				

Sampling Point: WS-TI-W1

HYDROLOGY

Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site Manila Drainage City/County Humboldt Co Sampling Date 7/21/21
 Applicant/Owner: Humboldt Co. State CA Sampling Point: W5H-T1-W3
 Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____
 Landform (hillslope terrace etc) _____ Local relief (concave convex none) _____ Slope (%) _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ☒ No _____	Is the Sampled Area within a Wetland? Yes ☒ No _____
Hydric Soil Present?	Yes ☒ No _____	
Wetland Hydrology Present?	Yes ☒ No _____	
Remarks <u>Ditch w/ standing water</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)	
1. <u>Salix hookeriana</u>	<u>25</u>	<u>yes</u>	<u>FACW</u>		
2. _____	_____	_____	_____	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 = _____	
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
<u>25</u> = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0' 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants' Problematic Hydrophytic Vegetation' (Explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover					
Herb Stratum (Plot size: <u>1 m</u>)					
1. <u>Scirpus microcarpus</u>	<u>15</u>	_____	<u>OBL</u>		
2. <u>Oenothera sarmentosa</u>	<u>25</u>	<u>yes</u>	<u>OBL</u>		
3. <u>Lotus corniculatus</u>	<u>1</u>	_____	_____		
4. <u>Apocynum odoratum</u>	<u>1</u>	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>42</u> = Total Cover				Hydrophytic Vegetation Present? Yes ☒ No _____	
Woody Vine Stratum (Plot size: <u>1 m</u>)					
1. <u>Rubus ursinus</u>	<u>3</u>	<u>yes</u>	<u>FACW</u>		
2. _____	_____	_____	_____		
_____ = Total Cover					
% Bare Ground in Herb Stratum _____					
Remarks					

WS-T1-W3

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|---|---|--|
| ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☒ Hydrogen Sulfide (A4)
☐ 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) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8) | ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks) |
|---|---|--|
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

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

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Strong sulfur odor; bright grey lower horizon

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

- | Primary Indicators (12 or more required) | | Secondary Indicators (2 or more required) |
|--|--|--|
| ☒ Surface Water (A1) | ☐ Water-Stained Leaves (B9) (except | ☐ Water-Stained Leaves (B9) (MLRA 1, 2, |
| ☒ High Water Table (A2) | MLRA 1, 2, 4A, and 4B) | 4A, and 4B) |
| ☒ Saturation (A3) | ☐ Salt Crust (B11) | ☐ Drainage Patterns (B10) |
| ☐ Water Marks (B1) | ☐ Aquatic Invertebrates (B13) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) | ☐ Hydrogen Sulfide Odor (C1) | ☐ Saturation Visible on Aerial Imagery (C9) |
| ☐ Drift Deposits (B3) | ☐ Oxidized Rhizospheres along Living Roots (C3) | ☐ Geomorphic Position (D2) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) | ☐ Shallow Aquitard (D3) |
| ☐ Iron Deposits (B5) | ☐ Recent Iron Reduction in Tilled Soils (C6) | ☐ FAC-Neutral Test (D5) |
| ☐ Surface Soil Cracks (B6) | ☐ Stunted or Stressed Plants (D1) (LRR A) | ☐ Raised Ant Mounds (D6) (LRR A) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) | ☐ Frost-Heave Hummocks (D7) |
| ☐ Sparsely Vegetated Concave Surface (B8) | | |

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 8

Saturation Present? Yes ☒ No ☐ Depth (inches): 1
(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila Drainage City/County: Humboldt Co. Sampling Date: 7/21/22
 Applicant/Owner: Humboldt Co. State: _____ Sampling Point: W5-T2-W3
 Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒	No _____	Is the Sampled Area within a Wetland?	Yes ☒ No _____
Hydric Soil Present?	Yes ☒	No _____		
Wetland Hydrology Present?	Yes ☒	No _____		
Remarks: <u>3 - par wetland</u>				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B)	
1. <u>Picea sitchensis</u>	<u>15</u>	<u>yes</u>	<u>FAC</u>		
2. <u>Morella californica</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
= Total Cover				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 = _____	
Sapling/Shrub Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
= Total Cover					
Herb Stratum (Plot size: <u>1 m</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. <u>Calceoglia sapium</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>		
2. <u>Oenothera sarmentosa</u>	<u>8</u>	<u>yes</u>	<u>OBL</u>		
3. <u>Scirpus usitatus</u>	<u>2</u>	<u>yes</u>	<u>OBL</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
= Total Cover					
Woody Vine Stratum (Plot size: <u>1 m</u>)				Hydrophytic Vegetation Present? Yes ☒ No _____	
1. <u>Rubus ursinus</u>	<u>8</u>	<u>yes</u>	<u>FACU</u>		
2. _____	_____	_____	_____		
= Total Cover					
% Bare Ground in Herb Stratum _____					
Remarks:					

Sampling Point: WS-T2-W3

Sampling Point:

WS-T2-W3

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

___ 2 cm Muck (A10)
 ___ Red Parent Material (TF2)
 ___ Very Shallow Dark Surface (TF12)
 ___ Other (Explain in Remarks)

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

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Soil predominantly sandy w/ grey coloring (not as bright as in other locations) w/ some sulfur smell.

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 16

Saturation Present? Yes ☒ No ☐ Depth (inches): 8
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Manila drainage City/County: Humboldt Co Sampling Date: 7/21/22
 Applicant/Owner: Humboldt Co State: CA Sampling Point: W5-T2-W1
 Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	
Remarks: <u>1 - poor wetland</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
1. <u>Morella californica</u>	<u>12</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Picea sitchensis</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
Herb Stratum (Plot size: <u>1 m</u>) 1. <u>Scrophularia californica</u> <u>6</u> <u>yes</u> <u>FACW</u> 2. <u>Oenanthe sarmentosa</u> <u>1</u> <u>yes</u> <u>OBL</u> 3. <u>Equisetum telmateia</u> <u>2</u> <u>yes</u> <u>FACW</u> 4. <u>Stachys rigida</u> <u>5</u> <u>yes</u> <u>FACW</u> 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ _____ = Total Cover				
Woody Vine Stratum (Plot size: <u>1 m</u>) 1. <u>Rubus ursinus</u> <u>85</u> <u>yes</u> <u>FACU</u> 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes ☒ No ☐				
Remarks:				

Sampling Point: WS-T2-W1

HYDROLOGY

Wetland Hydrology Indicators:

Appendix C

On-site Plant list

Scientific Name	Common Name	Status	Family	Status
<i>Agave sp.</i>	agave	Non-native	Agavaceae	
<i>Carprobrotus chilensis</i>	sea fig	Non-native	Aizoaceae	
<i>Alisma triviale</i>	Northern water plantain	Native	Alismataceae	OBL
<i>Atriplex prostrata</i>	spear-leaved orache	Non-native	Amaranthaceae	FAC
<i>Salicornia pacifica</i>	pickleweed	Native	Amaranthaceae	OBL
<i>Allium triquetrum</i>	three-cornered leek	Non-native	Amaryllidaceae	
<i>Allium unifolium</i>	ornamental onion	Non-native	Amaryllidaceae	
<i>Amarillis belladonna</i>	naked ladies	Non-native	Amaryllidaceae	
<i>Daucus carota</i>	wild carrot	Native	Apiaceae	FACU
<i>Hydrocotyl ranunculoides</i>	floating pennywort	Non-native	Apiaceae	OBL
<i>Oenanthe sarmentosa</i>	water parsley	Native	Apiaceae	OBL
<i>Vinca major</i>	periwinkle	Non-native	Apocynaceae	FACU
<i>Ilex aquifolium</i>	English holly	Non-native	Aquifoliaceae	FACU
<i>Lemna sp.</i>	duckweed	Native	Araceae	OBL
<i>Lysichiton americanus</i>	skunk cabbage	Native	Araceae	OBL
<i>Zantedescia aethiopica</i>	calla lily	Non-native	Araceae	
<i>Hedera helix</i>	English ivy	Non-native	Araliaceae	FACU
<i>Cordyline australis</i>	New Zealand cabbage tree	Non-native	Asparagaceae	
<i>Arctotheca calendula</i>	Cape weed	Non-native	Asteraceae	
<i>Baccharis pilularis</i>	coyote brush	Native	Asteraceae	
<i>Bellis perennis</i>	daisy	Non-native	Asteraceae	
<i>Chamomilla swaveolus</i>	chamomile	Non-native	Asteraceae	
<i>Cirsium vulgare</i>	bull thistle	Non-native	Asteraceae	FACU
<i>Conyza canadensis</i>	horseweed	Non-native	Asteraceae	
<i>Corethrogyne filaginifolia</i>	sandaster	Native	Asteraceae	
<i>Delairea odorata</i>	cape/German ivy	Non-native	Asteraceae	FAC
<i>Gamochaeta ustulata</i>	featherweed	Native	Asteraceae	
<i>Gnaphalium palustre</i>	cudweed	Native	Asteraceae	FACW
<i>Helminthotheca echioides</i>	prickly oxtongue	Non-native	Asteraceae	FAC
<i>Hypochaeris radicata</i>	cat's ear	Non-native	Asteraceae	FACU
<i>Jaumea carnosa</i>	marsh jaumea	Native	Asteraceae	OBL
<i>Leucanthemum vulgare</i>	oxe eye daisy	Non-native	Asteraceae	FACU
<i>Matricaria discoidea</i>	pineapple weed	Native	Asteraceae	FACU
<i>Solidago spathulata</i>	goldenrod	Native	Asteraceae	FACU
<i>Soliva sessilis</i>	field burweed	Non-native	Asteraceae	FAC
<i>Sonchus oleraceus</i>	prickly lettuce	Non-native	Asteraceae	UPL

Scientific Name	Common Name	Status	Family	Status
<i>Symphyotrichum chilense</i> var. <i>chilense</i>	common California aster	Native	Asteraceae	FAC
<i>Taraxacum officinale</i>	dandelion	Non-native	Asteraceae	FACU
<i>Athyrium filix-femina</i>	lady fern	Native	Athyriaceae	
<i>Alnus rubra</i>	red alder	Native	Betulaceae	FAC
<i>Echium candicans</i>	tower of jewels	Non-native	Boraginaceae	
<i>Symphytum officianalis</i>	comfrey	Non-native	Boraginaceae	
<i>Brassica rapa</i>	common mustard	Non-native	Brassicaceae	FACU
<i>Cardamine hirsuta</i>	hairy bittercress	Native	Brassicaceae	FACU
<i>Raphanus raphanistrum</i>	wild radish	Non-native	Brassicaceae	
<i>Lonicera involucrata</i>	twinberry	Native	Caprifoliaceae	FAC
<i>Lonicera japonica</i>	Japanese honeysuckle	Non-native	Caprifoliaceae	FAC
<i>Cardionema ramosissimum</i>	sand mat	Native	Caryophyllaceae	
<i>Limonium californicum</i>	sea lavender	Native	Caryophyllaceae	OBL
<i>Polycarpa tetraphyllum</i>	fourleaf allseed	Non-native	Caryophyllaceae	
<i>Silene gallica</i>	common catchfly	Non-native	Caryophyllaceae	
<i>Spergula arvensis</i>	spurry	Non-native	Caryophyllaceae	
<i>Spergularia rubra</i>	red sandspurry	Non-native	Caryophyllaceae	FAC
<i>Stellaria media</i>	chickweed	Non-native	Caryophyllaceae	FACU
<i>Calystegia sepium</i>	morning glory	Non-native	Convolvulaceae	FAC
<i>Crassula connata</i>	pigmy weed	Native	Crassulaceae	FAC
<i>Hesperocyparis macrocarpa</i>	Monterey cypress	Non-native	Cupressaceae	
<i>Sequoia sempervirens</i>	redwood	Native	Cupressaceae	
<i>Carex lyngbyei</i> (2B.2)	Lyngbye's sedge	Native	Cyperaceae	OBL
<i>Carex obnupta</i>	slough sedge	Native	Cyperaceae	OBL
<i>Cyperus eragrostis</i>	tall flatsedge	Native	Cyperaceae	FACW
<i>Eleocharis sp.</i>	spikesedge	Native	Cyperaceae	
<i>Isolepis cernua</i>	low bulrush	Native	Cyperaceae	OBL
<i>Schoenoplectus californicus</i>	California bulrush	Native	Cyperaceae	OBL
<i>Scirpus microcarpus</i>	small fruit bulrush	Native	Cyperaceae	OBL
<i>Pteridium aquilinum</i>	brackenfern	Native	Dennstaedtiaceae	FACU
<i>Dryopteris arguta</i>	wood fern	Native	Dryopteridaceae	
<i>Polystichum munitum</i>	Western sword fern	Native	Dryopteridaceae	FACU
<i>Equisetum laevigatum</i>	smooth horsetail	Native	Equisetaceae	FACW
<i>Equisetum telmateia</i>	great horsetail	Native	Equisetaceae	FACW
<i>Acacia dealbata</i>	silver wattle	Non-native	Fabaceae	
<i>Acacia melanoxylon</i>	Australian blackwood	Non-native	Fabaceae	

Scientific Name	Common Name	Status	Family	Status
<i>Acmispon parviflorus</i>	small-flowered lotus	Native	Fabaceae	
<i>Cytisus scoparius</i>	Scotch broom	Non-native	Fabaceae	
<i>Fumaria capreolata</i>	white-ramping fumitory	Non-native	Fabaceae	
<i>Lathyrus latifolius</i>	sweet pea	Non-native	Fabaceae	
<i>Lathyrus tingitanus</i>	tangier pea	Non-native	Fabaceae	
<i>Lotus corniculatus</i>	big trefoil	Non-native	Fabaceae	FAC
<i>Lupinus arboreus</i>	yellow bush lupine	Non-native	Fabaceae	
<i>Lupinus bicolor</i>	miniature lupine	Native	Fabaceae	
<i>Medicago arabica</i>	spotted medic	Non-native	Fabaceae	
<i>Medicago polymorpha</i>	burr clover	Non-native	Fabaceae	FACU
<i>Trifolium arvense</i>	hare's foot clover	Non-native	Fabaceae	
<i>Trifolium dubium</i>	lesser trefoil	Non-native	Fabaceae	FACU
<i>Trifolium pratense</i>	red clover	Non-native	Fabaceae	FACU
<i>Trifolium repens</i>	white clover	Non-native	Fabaceae	FAC
<i>Trifolium subterraneum</i>	subterranean clover	Non-native	Fabaceae	
<i>Trifolium wormskiolddii</i>	cows clover	Non-native	Fabaceae	FACW
<i>Vicia behnghalense</i>	purple vetch	Non-native	Fabaceae	
<i>Vicia hirsuta</i>	hairy vetch	Non-native	Fabaceae	
<i>Vicia nigricans</i>	giant vicia	Non-native	Fabaceae	FACU
<i>Vicia sativa</i>	common vetch	Non-native	Fabaceae	UPL
<i>Erodium cicutarium</i>	redstem filaree	Non-native	Geraniaceae	
<i>Erodium moschatum</i>	whitestem filaree	Non-native	Geraniaceae	
<i>Geranium dissectum</i>	cutleaf geranium	Non-native	Geraniaceae	
<i>Geranium molle</i>	dove's foot geranium	Non-native	Geraniaceae	
<i>Geranium robertianum</i>	herb robert	Non-native	Geraniaceae	FACU
<i>Malva neglecta</i>	cheeseweed	Non-native	Geraniaceae	
<i>Escallonia rubra</i>	red claws	Non-native	Grossulariaceae	
<i>Crocasmia sp.</i>	crocasmia	Non-native	Iridaceae	FAC
<i>Iris douglasiana</i>	Douglas iris	Native	Iridaceae	
<i>Iris pseudacorus</i>	bearded iris	Non-native	Iridaceae	OBL
<i>Juncus balticus</i>	wire rush	Native	Juncaceae	FACW
<i>Juncus bolanderi</i>	Bolander's rush	Native	Juncaceae	OBL
<i>Juncus breweri</i>	Brewer's rush	Native	Juncaceae	FACW
<i>Juncus bufonius</i>	toad rush	Native	Juncaceae	FACW
<i>Juncus effusus</i>	common rush	Native	Juncaceae	FACW
<i>Juncus hesperius</i>	bog rush	Native	Juncaceae	FACW

Scientific Name	Common Name	Status	Family	Status
<i>Juncus lescurii</i>	dune rush	Native	Juncaceae	FACW
<i>Triglochin maritima</i>	saltmarsh arrowgrass	Native	Juncaginaceae	OBL
<i>Mentha pulegium</i>	pennyroyal	Non-native	Lamiaceae	OBL
<i>Mentha spicata</i>	spearmint	Non-native	Lamiaceae	FACW
<i>Prunella vulgaris</i>	common self-heal	Non-native	Lamiaceae	FACU
<i>Stachys chamissonis</i>	coastal hedgenettle	Native	Lamiaceae	FACW
<i>Stachys rigida</i>	rough hedgenettle	Native	Lamiaceae	FACW
<i>Linum bienne</i>	blue flax	Non-native	Linaceae	
<i>Malva arborea</i>	tree mallow	Non-native	Malvaceae	
<i>Melianthus major</i>	honey flower	Non-native	Melianthaceae	
<i>Claytonia perfoliata</i>	niner's lettuce	Native	Montiaceae	FAC
<i>Morella californica</i>	California wax myrtle	Native	Myricaceae	FACW
<i>Eucalyptus globulus</i>	blue gum	Non-native	Myrtaceae	
<i>Fuchsia sp.</i>	fuchsia	Non-native	Myrtales	
<i>Epilobium ciliatum</i>	northern willow herb	Native	Onagraceae	FACW
<i>Oxalis articulata</i>	pink oxalis	Non-native	Oxalidaceae	
<i>Eschscholzia californica</i>	California poppy	Native	Papaveraceae	
<i>Eschscholzia californica ssp. maritima</i>	seaside California poppy	Native	Papaveraceae	
<i>Erythranthe guttata</i>	yellow monkey flower	Native	Phrymaceae	OBL
<i>Picea sitchensis</i>	Sitka spruce	Native	Pinaceae	FAC
<i>Pinus contorta</i>	beach pine	Native	Pinaceae	FAC
<i>Pinus radiata</i>	Monterey pine	Non-native	Pinaceae	
<i>Plantago coronopus</i>	cutleaf plantago	Non-native	Plantaginaceae	FAC
<i>Plantago lanceolata</i>	ribwort plantain	Non-native	Plantaginaceae	FACU
<i>Plantago major</i>	broadleaf plantain	Non-native	Plantaginaceae	FAC
<i>Triphysaria pusilla</i>	dwarf owl's clover	Native	Plantaginaceae	
<i>Veronica anagallis-aquatica</i>	water speedwell	Non-native	Plantaginaceae	OBL
<i>Veronica arvensis</i>	wall speedwell	Non-native	Plantaginaceae	FACU
<i>Agrostis stolonifera</i>	creeping bentgrass	Non-native	Poaceae	FAC
<i>Aira caryophyllea</i>	silver hairgrass	Non-native	Poaceae	FACU
<i>Alopecurus saccatus</i>	Pacific foxtail	Native	Poaceae	FACW
<i>Anthoxanthum odoratum</i>	vernal sweet grass	Non-native	Poaceae	FACU
<i>Avena barbata</i>	slender wild oat	Non-native	Poaceae	
<i>Avena sativa</i>	oats	Non-native	Poaceae	UPL
<i>Briza maxima</i>	rattlesnake grass	Non-native	Poaceae	
<i>Bromus carinatus</i>	California brome	Native	Poaceae	

Scientific Name	Common Name	Status	Family	Status
<i>Bromus catharticus</i>	rescue grass	Non-native	Poaceae	
<i>Bromus diandrus</i>	ripgut brome	Non-native	Poaceae	
<i>Bromus hordaceus</i>	hairy brome	Non-native	Poaceae	FACU
<i>Cortaderia jubata</i>	pampas grass	Non-native	Poaceae	FACU
<i>Dactylis glomerata</i>	orchard grass	Non-native	Poaceae	FACU
<i>Distichlis spicata</i>	salt grass	Native	Poaceae	FACW
<i>Festuca arundinacea</i>	reed fescue	Non-native	Poaceae	FAC
<i>Festuca bromoides</i>	fescue	Non-native	Poaceae	
<i>Festuca perenne</i>	Italian rye grass	Non-native	Poaceae	FAC
<i>Glyceria declinata</i>	small sweet grass	Non-native	Poaceae	FACW
<i>Hainardia cylindrica</i>	hard grass	Non-native	Poaceae	FACW
<i>Holcus lanatus</i>	soft chess	Non-native	Poaceae	FAC
<i>Hordeum sp.</i>	barley	Non-native	Poaceae	
<i>Phleum pratense</i>	timothy grass	Non-native	Poaceae	FAC
<i>Phyllostachys sp.</i>	bamboo	Non-native	Poaceae	
<i>Poa annua</i>	annual bluegrass	Non-native	Poaceae	FAC
<i>Poa confinis</i>	coastline bluegrass	Native	Poaceae	
<i>Poa macrantha</i>	seashore bluegrass	Native	Poaceae	FACU
<i>Poa pratensis</i>	Kentucky bluegrass	Non-native	Poaceae	FAC
<i>Spartina densiflora</i>	dense cordgrass	Non-native	Poaceae	OBL
<i>Eriogonum latifolium</i>	beach buckwheat	Native	Polygonaceae	
<i>Muehlenbeckia sp.</i>	wire vine	Non-native	Polygonaceae	
<i>Polygonum paronychia</i>	beach knotweed	Native	Polygonaceae	
<i>Rumex acetosella</i>	sheep sorrel	Non-native	Polygonaceae	FACU
<i>Rumex crispus</i>	curly dock	Non-native	Polygonaceae	FAC
<i>Rumex occidentalis</i>	western dock	Native	Polygonaceae	FACW
<i>Polypodium calirhiza</i>	California polypody	Native	Polypodiaceae	
<i>Lysimachia arvensis</i>	scarlet pimpernel	Non-native	Primulaceae	FAC
<i>Lysimachia arvensis</i>	scarlet pimpernel	Non-native	Primulaceae	FAC
<i>Ranunculus repens</i>	buttercup	Non-native	Ranunculaceae	FAC
<i>Frangula purshiana</i>	cascara sagrada	Native	Rhamnaceae	FAC
<i>Cotoneaster sp.</i>	cotoneaster	Non-native	Rosaceae	
<i>Crataegus monogyna</i>	common hawthorn	Non-native	Rosaceae	FAC
<i>Fragaria chiloensis</i>	beach strawberry	Native	Rosaceae	FACU
<i>Potentilla anserina</i>	silverweed	Native	Rosaceae	OBL
<i>Prunus sp.</i>	apple?	Non-native	Rosaceae	

Scientific Name	Common Name	Status	Family	Status
<i>Rosa sp.</i>	ornamental rose	Non-native	Rosaceae	
<i>Rubus armeniacus</i>	Himalayan blackberry	Non-native	Rosaceae	FAC
<i>Rubus ursinus</i>	California blackberry	Native	Rosaceae	FACU
<i>Galium aparine</i>	cleavers	Non-native	Rubiaceae	FACU
<i>Salix hookeriana</i>	Hooker's willow	Native	Salicaceae	FACW
<i>Salix lasiandra</i>	shining willow	Native	Salicaceae	FACW
<i>Salix lasiolepis</i>	arroyo willow	Native	Salicaceae	FACW
<i>Myriophyllum aquaticum</i>	parrot feather	Non-native	Saxifragaceae	OBL
<i>Tolmiea menziesii</i>	piggyback plant	Native	Saxifragaceae	FAC
<i>Buddleja davidii</i>	butterfly bush	Non-native	Scrophulariaceae	FACU
<i>Scrophularia californica</i>	California figwort	Native	Scrophulariaceae	FAC
<i>Tropaeolum majus</i>	garden nasturtium	Non-native	Tropaeolaceae	UPL
<i>Typha latifolia</i>	broadleaved cattail	Native	Typhaceae	OBL
<i>Soleirolia soleirolii</i>	baby's tears	Non-native	Urticaceae	

Appendix D

Site Photographs



Photo 1. View one-parameter wetland surrounding railroad tracks parallel to Peninsula Drive, May 16, 2022.



Photo 2. View of three-parameter Wetland 2 ditch (below yellow arrow) at plot W5-T2-W3, July 21, 2022.



Photo 3. Plot location for W5-T1-W3 for three-parameter Wetland 2 ditch, July 22, 2022.



Photo 4. Plot location of W2-T1-W1: one-parameter Wetland 1, July 21, 2022.

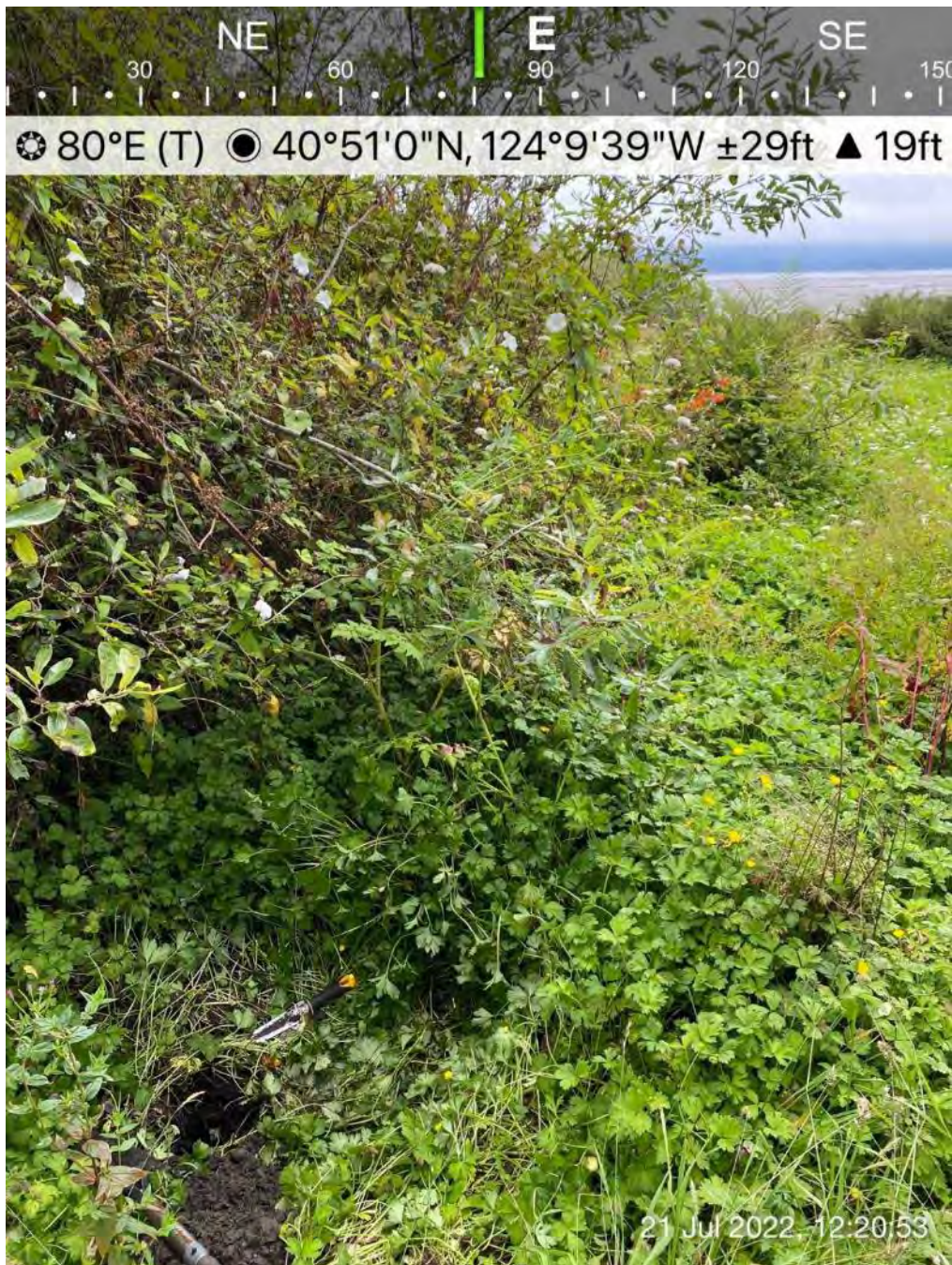


Photo 5. Plot location for W2-T4-W3 in Wetland 3: three-parameter palustrine emergent wetland July 21, 2022.



Photo 6. View of Wetland 4, three-parameter freshwater forested shrub wetland near plot W3-T1-W3, May 24, 2022.



Photo 7. Southernmost culvert (below yellow arrow) on the shore of Humboldt Bay in estuarine marine wetland, July 26, 2022.



Photo 8. Estuarine marine wetland on shore of Humboldt Bay northeast of the Manila Community Park, May 4, 2022.



Photo 9. View of the three-parameter palustrine emergent Wetland 3 on either side of Young Lane at the north end of Manila, August 23, 2022.



Photo 10. View east of three-parameter palustrine emergent Wetland 3 at Young Lane, August 23, 2022.

Appendix E

NRCS Custom Soil Resource Report



United States
Department of
Agriculture

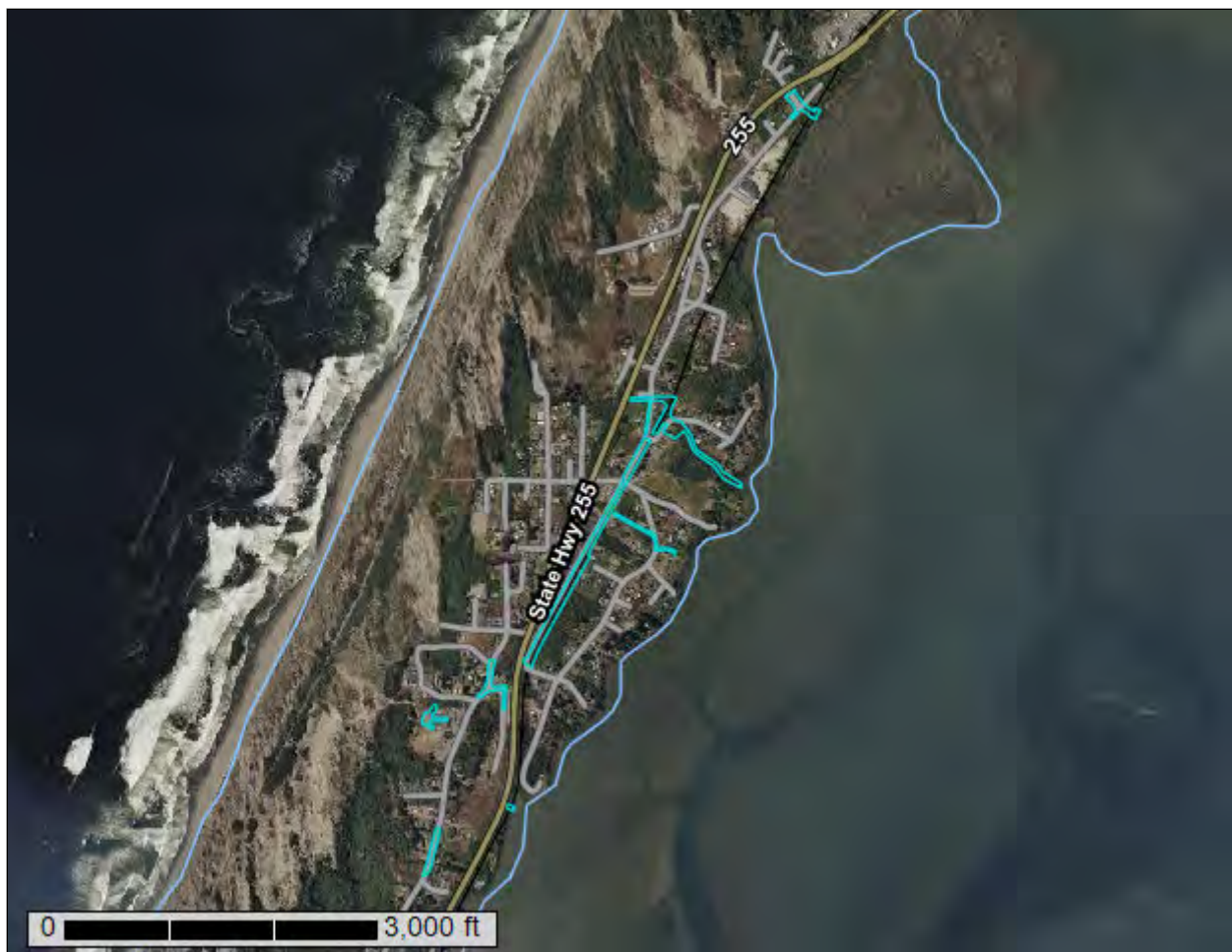
NRCS

Natural
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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 **Humboldt County, Central Part, California**

12572691 Soil Report V2



November 14, 2022

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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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

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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



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Humboldt County, Central Part, California

Survey Area Data: Version 9, 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: Jun 1, 2022—Jun 19, 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
156	Lanphere, 2 to 75 percent slopes	0.2	1.9%
1009	Hydraquents-Wassents mucky silt loam, strongly saline, 0-3 percent slopes, very frequently flooded	0.0	0.0%
1014	Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes	8.2	98.0%
Totals for Area of Interest		8.4	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.

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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.

Humboldt County, Central Part, California

156—Lanphere, 2 to 75 percent slopes

Map Unit Setting

National map unit symbol: 221w7

Elevation: 0 to 80 feet

Mean annual precipitation: 35 to 80 inches

Mean annual air temperature: 50 to 55 degrees F

Frost-free period: 275 to 330 days

Farmland classification: Not prime farmland

Map Unit Composition

Lanphere and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lanphere

Setting

Landform: Dunes, longitudinal dunes

Landform position (two-dimensional): Summit, backslope, shoulder

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Parent material: Mixed eolian sands

Typical profile

Oi - 0 to 4 inches: slightly decomposed plant material

A - 4 to 11 inches: sand

AC - 11 to 26 inches: sand

C - 26 to 63 inches: sand

Properties and qualities

Slope: 5 to 75 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: F004BX116CA - Sitka spruce-shore pine/California huckleberry, foredunes, mixed eolian sands, sand

Hydric soil rating: No

Minor Components

Clambeach

Percent of map unit: 10 percent
Landform: Deflation basins
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Samoa

Percent of map unit: 5 percent
Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

1009—Hydraquents-Wassents mucky silt loam, strongly saline, 0-3 percent slopes, very frequently flooded

Map Unit Setting

National map unit symbol: 2t150
Elevation: 0 to 10 feet
Mean annual precipitation: 35 to 80 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 275 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Hydraquents, low tidal, and similar soils: 50 percent
Wassents and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hydraquents, Low Tidal

Setting

Landform: Tidal flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mucky, silty, and clayey estuarine deposits

Typical profile

Czg1 - 0 to 9 inches: mucky silty clay loam
Cg2 - 9 to 16 inches: mucky silty clay loam
Cg3 - 16 to 26 inches: mucky silty clay loam

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Cg4 - 26 to 39 inches: mucky silty clay loam

Cg5 - 39 to 59 inches: mucky silty clay loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 0 inches to salic; 20 to 79 inches to sulfuric

Drainage class: Very poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low
(0.01 to 0.06 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Very frequent

Frequency of ponding: None

Maximum salinity: Strongly saline (30.0 to 80.0 mmhos/cm)

Sodium adsorption ratio, maximum: 75.0

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Ecological site: R004BA205CA - Marshlands

Hydric soil rating: Yes

Description of Wassents

Setting

Landform: Tidal flats

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mucky, silty, and clayey estuarine deposits

Typical profile

Asez - 0 to 6 inches: mucky silt loam

Cg1 - 6 to 14 inches: mucky silty clay loam

Cg2 - 14 to 31 inches: mucky silty clay loam

Cg3 - 31 to 59 inches: mucky silty clay loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: 0 inches to salic; 0 inches to sulfuric

Drainage class: Subaqueous

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Very frequent

Frequency of ponding: Frequent

Maximum salinity: Strongly saline (30.0 to 80.0 mmhos/cm)

Sodium adsorption ratio, maximum: 75.0

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Ecological site: R004BA205CA - Marshlands

Hydric soil rating: Yes

Minor Components

Hydraquents, high tidal

Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Water, marine

Percent of map unit: 5 percent
Landform: Channels

1014—Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w91f
Elevation: 0 to 10 feet
Mean annual precipitation: 41 to 43 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 275 to 330 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Urban land, industrial: 80 percent
Anthraltic xerorthents and similar soils: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land, Industrial

Setting

Landform: Fluviomarine terraces

Properties and qualities

Slope: 0 to 2 percent
Depth to water table: About 24 inches
Frequency of ponding: Frequent

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Anthraltic Xerorthents

Setting

Landform: Fluviomarine terraces

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Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-loamy fluviomarine deposits and/or coarse-loamy dredge spoils

Typical profile

A - 0 to 6 inches: gravelly loamy fine sand

^C1 - 6 to 13 inches: sandy loam

^C2 - 13 to 19 inches: sandy loam

^C3 - 19 to 24 inches: sandy loam

^C4 - 24 to 31 inches: sandy loam

^C5 - 31 to 43 inches: gravelly sand

C6 - 43 to 65 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A/D

Hydric soil rating: No

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Appendix F

**Record of Climatological Observations and
WETS Table**

McKinleyville WETS Table

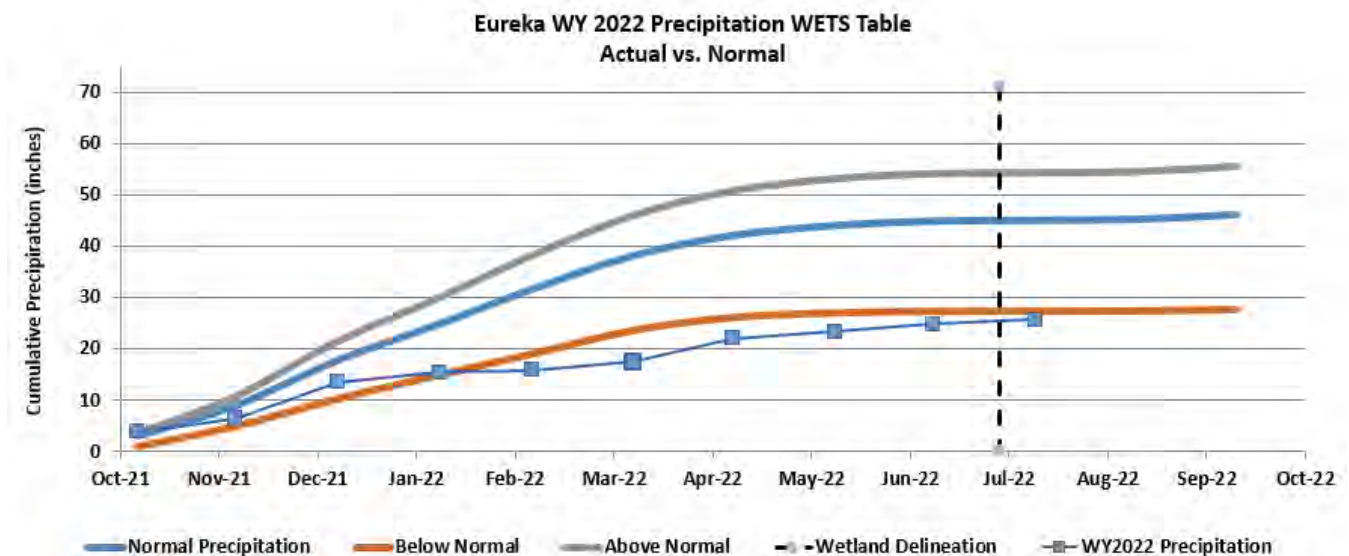
Name ARCATA EUREKA AIRPORT, CA US

Loc. (Lat/Lon): 40.97806°, -124.10861°

	Monthly Precipitation (All values in inches)				Cumulative Precipitation (All values in inches)			
Month	Normal ¹	Below Normal ¹	Above Normal ¹	Actual WY 2022 ²	Normal ¹	Below Normal ¹	Above Normal ¹	Actual WY 2022 ²
31-Oct	2.99	1.09	3.60	3.88	2.99	1.09	3.60	3.88
30-Nov	5.96	3.94	7.15	2.62	8.95	5.03	10.75	6.50
31-Dec	8.86	5.28	10.75	7.04	17.81	10.31	21.50	13.54
31-Jan	7.11	4.65	8.54	1.90	24.92	14.96	30.04	15.44
28-Feb	6.75	4.00	8.20	0.51	31.67	18.96	38.24	15.95
31-Mar	6.58	4.58	7.82	1.49	38.25	23.54	46.06	17.44
30-Apr	3.92	2.47	4.73	4.57	42.17	26.01	50.79	22.01
31-May	1.94	0.88	2.36	1.36	44.11	26.89	53.15	23.37
30-Jun	0.87	0.29	1.00	1.53	44.98	27.18	54.15	24.90
31-Jul	0.16	0.04	0.16	0.76	45.14	27.22	54.31	25.66
31-Aug	0.20	0.06	0.23		45.34	27.28	54.54	
30-Sep	0.91	0.27	1.02		46.25	27.55	55.56	

1. From WETS Tables - ARCATA EUREKA AIRPORT, CA US - <http://agacis.rcc-acis.org/>

2. From NOAA Gage Data - ARCATA EUREKA AIRPORT, CA US - <https://www.ncdc.noaa.gov/cdo-web/search>





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