Received 8.14.2023 HCP&B

Wetland and Other Waters Delineation Report

Assessor's Parcel Number
512-072-002
5364 Fieldbrook Road
Fieldbrook, California

Prepared for:

Larry Hand

February 2023

022203

Phone: (707) 822-5785 **Email:** info@shn-engr.com
Web: shn-engr.com • 1062 G Street, Ste. I, Arcata, CA 95521-5800

Wetland and Other Waters Delineation Report

Assessor's Parcel Number 512-072-002
5364 Fieldbrook Road
Fieldbrook, California

Prepared for:

Larry Hand

Prepared by:

1062 G St., Suite I
Arcata, CA 95521
707-822-5785

February 2023

QA/QC: JLS___
Reference: 022203

\\Arcata\Projects\2022\022203A-Fieldbrook-WD\PUBS\Rpts\20230206-WetDelRpt.doc

Table of Contents

Appendices

1. Site Photographs
2. National Wetlands Inventory, Drought Monitoring, and Soil Maps
3. Wetland and OHWM Determination Data Forms

List of Illustrations

Abbreviations and Acronyms

Terms of Measurement

F	Fahrenheit
in/hr	inches per hour
mmhos/cm	millimhos per centimeter

Additional Terms

ADU	Accessory Dwelling Unit
APN	Assessor's Parcel Number
CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
FAC	facultative plant species
FACU	facultative-upland plant species
FACW	facultative-wetland plant species
Ksat	most limiting layer to transmit water
NADM	North American Drought Monitor
NOAA	National Oceanic and Atmospheric Administration
NL	not listed-wetland plant status
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate-wetland plant species
OHWM	ordinary high water mark
PEM1E	Palustrine emergent persistent seasonally flooded/saturated
redox	redoximorphic
R65B3	Riverine ephemeral streambed cobble-gravel
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
TP	test pit
UPL	upland plant species
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish & Wildlife Service
WDRs	Waste Discharge Requirements
WETS	Climate Analysis for Wetlands Tables
WoS	Waters of the State
WoUS	Waters of the United States

1.0 Introduction

SHN has prepared this Wetland and Other Waters Delineation Report for Larry Hand at 5364 Fieldbrook Road, Fieldbrook, California (Figure 1). Fieldwork was performed by both an SHN soil scientist and an SHN botanist.

1.1 Purpose

The purpose of this report is to identify wetland and Ordinary High Water Marks (OHWMs) within the study area (Figure 2), as defined by the United States Army Corps of Engineers (USACE) three-parameter and OHWM methodologies.

1.2 Study Area

The study area is partially within a 2.9-acre parcel (Assessor's Parcel Number [APN] 512-072-002) and an unnamed easement on the western border. It is approximately 1.2 acres in the northwest corner of the parcel (Figure 2; Appendix 1, Photos 1 and 2). The parcel has an existing residential home in the southern portion of the lot. The undeveloped northern portion of the parcel is dissected by an intermittent stream that has been partially dammed, creating a small wetland pond.

2.0 Project Description

This study is to determine whether the undeveloped northwestern portion of the parcel can be developed with an accessory dwelling unit (ADU), following buffer guidelines with regards to wetlands and other waters jurisdictional to State and Federal laws. The USACE wetland guidance was used to determine wetland parameters.

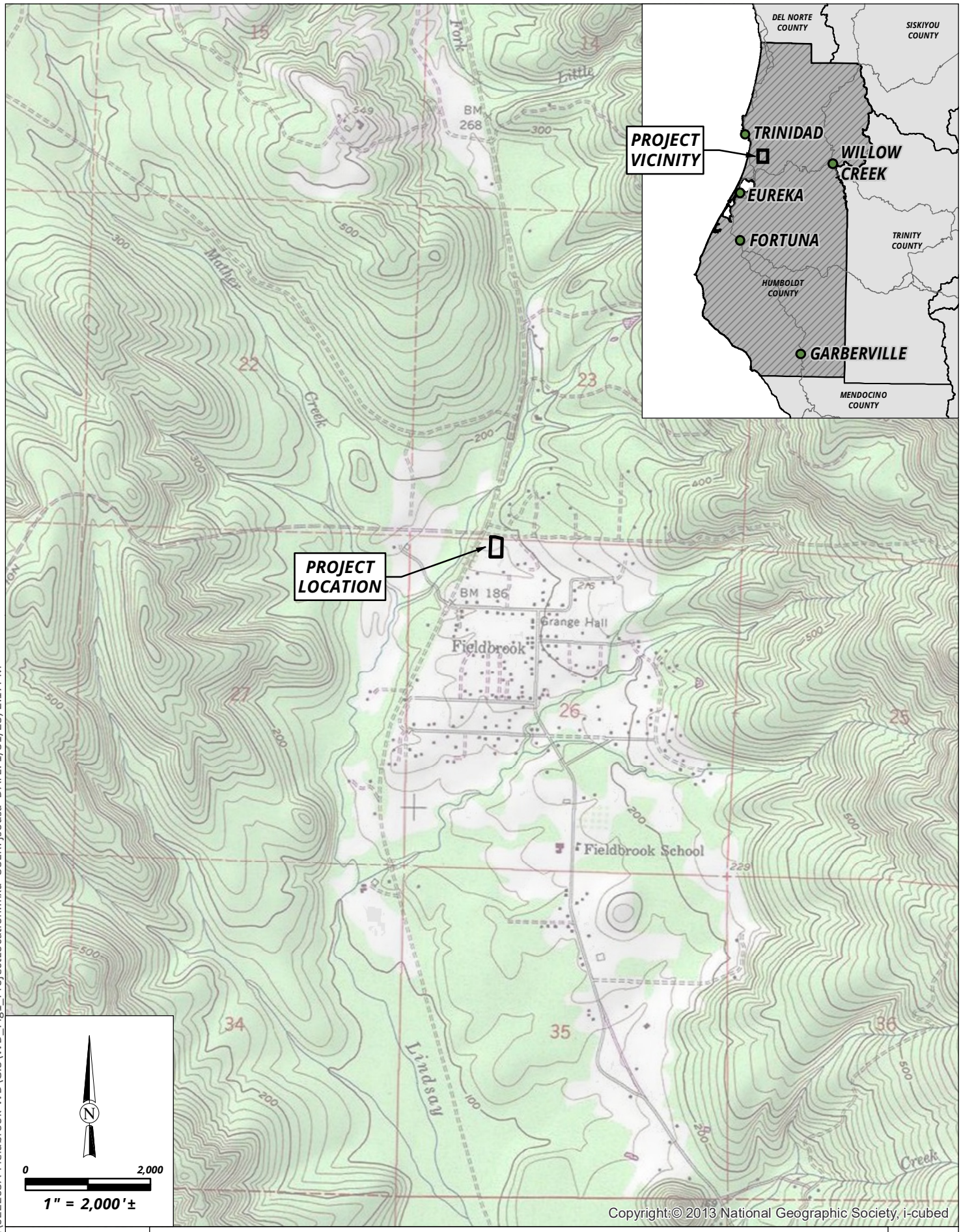
3.0 Environmental Setting

3.1 Site Uses

The site is an on the undeveloped portion of a residential parcel that is currently a mowed field with a nearby stream and human-created pond. Access to this portion of the parcel has an existing dirt driveway off Fieldbrook Road.

3.2 Site Hydrology

The United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) Climate Analysis for Wetlands Table (WETS) method was used to review rainfall conditions (See Figure 19-100: Rainfall Documentation Form and Figure 19-101: Completed Rainfall Documentation Form in the National Engineering Handbook [USDA, 2021]). Nearby climate data is analyzed for the previous three months prior to the test pit (TP) investigations (or the same month and two months prior if after the 15th (Table 1; USDA-NRCS, 2023a). The TP investigation occurred on January 19, 2023. The current 2022 and 2023 rainfall data for November 2022, December 2022, and January 2023 (National Oceanic and Atmospheric Administration (NOAA, 2023) were compared to the 30-year rainfall average at the Woodley Island Weather Forecast Office in Eureka, California (1991-2020 data) for the same months. If the current rainfall of each month is between 30% and 70% of the 1991-2020 precipitation average, it is "normal" rainfall; if above 70%, it is ranked "wetter than normal" rainfall; if below 30%, it is ranked "drier



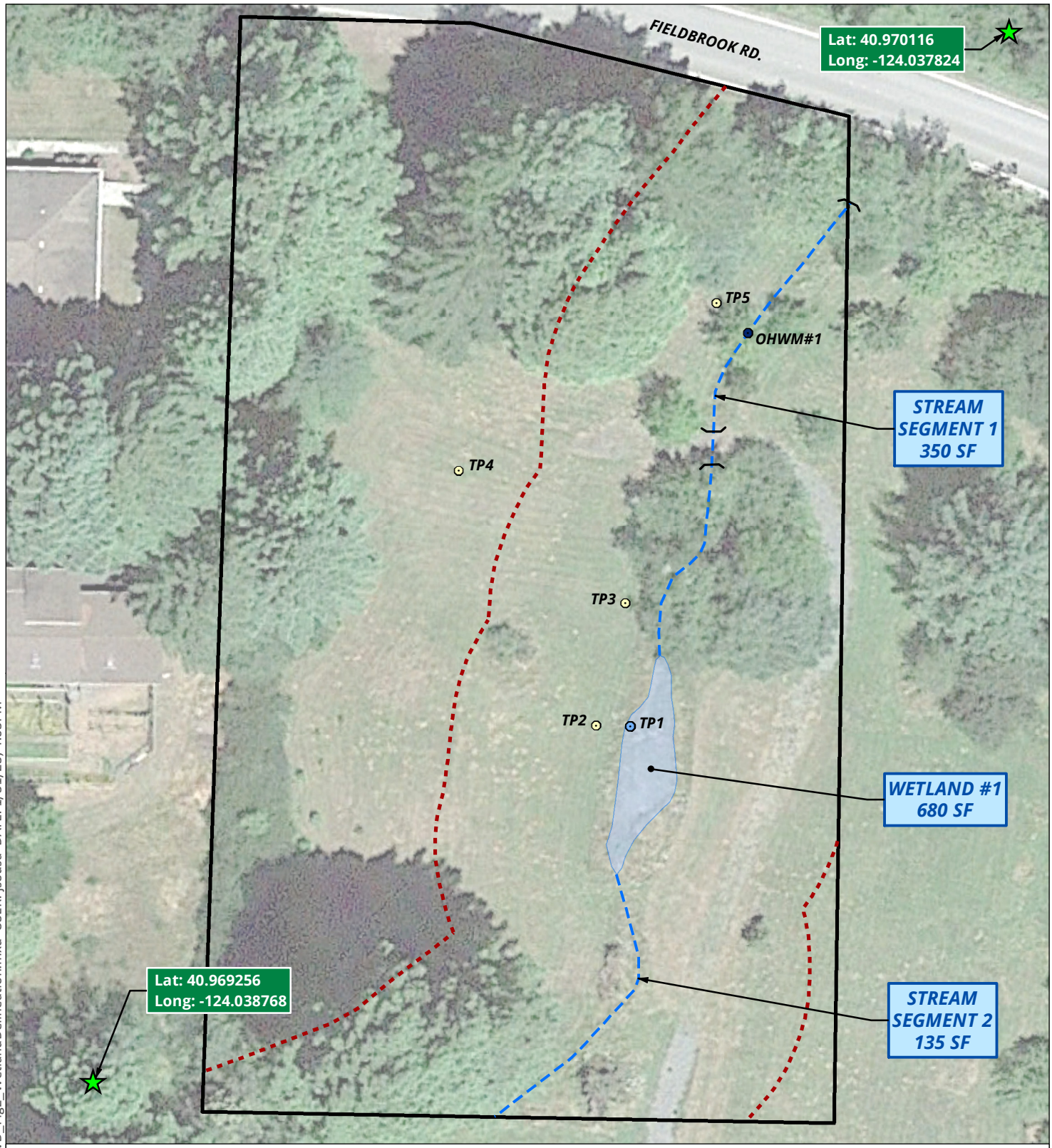
P:\Arcata\2022\022203A-Fieldbrook-WD\GIS\WD_Fig1_ProjectLocation.mxd USER: jsousa DATE: 1/31/23, 2:17PM

Larry Hand
Wetland Delineation Report
Fieldbrook, California

Project Location Map

February 2023 - 022203

Figure 1



EXPLANATION

- UPLAND TEST PIT
- WETLAND TEST PIT
- SEASONAL WETLAND
- INTERMITTENT STREAM
- 50-FT SEASONAL WETLAND AND INTERMITTENT STREAM BUFFER
- OHWM REFERENCE POINT
- CULVERT HEADWALL
- STUDY AREA

0 40

1" = 40'±

PHOTO SOURCE: GOOGLE EARTH, JULY 2022

N

P:\Arcata\2022\022203A-Fieldbrook-WD\GIS\WD_Fig2_WetlandDelineation.mxd USER: jsousa DATE: 1/31/23, 4:03PM

Larry Hand
Wetland Delineation Report
Fieldbrook, California

Wetland Delineation

February 2023 - 022203

Figure 2

than normal" rainfall. The WETS data indicates that the 2022 to 2023 early winter season, just prior to the delineation, was performed in a "normal" rainfall for the late January 2023 field assessment. The majority of the precipitation during January fell in the first two weeks, just prior to this investigation.

Table 1. WETS Rainfall Data, November/December 2022-January 2023, Hydrological Analysis Fieldbrook, Humboldt County, California

Month	WETS Condition	<30%	> 70%	Rainfall (in.)	Condition Value	Weight	Product Value
January 19, 2023 Test Pit Excavation							
January 2023	Normal	4.04	8.08	7.89	2	3	6
December 2022	Normal	4.59	9.82	8.53	2	2	4
November 2022	Normal	3.13	5.88	5.36	2	1	2
Total						**Normal[a]**	**12**

[a] A sum of 6-9 prior to site investigation is considered a drier than normal rainfall.
10-14 prior to site investigation is considered a normal rainfall.
15-18 prior to site investigation is considered a wetter than normal rainfall.
Sources: USDA-NRCS, 2023a; NOAA, 2023

In addition to reviewing the WETS table, there is also the consideration of normal hydrological conditions over an extended period of time. California has recently experienced two years of drought. The NOAA and USDA have a North American Drought Monitor (NADM) that monitors drought. This region has just changed from a "Severe Drought" category to currently undergoing an "Abnormally Dry" status because of the normal rainfall experienced for the past few months (NADM, 2023; Appendix 2).

3.3 National Wetlands Inventory

The United States Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI; USFWS, 2023) website does not map riparian or wetlands at the study site. This general categorization by the NWI is not intended for planning purposes because of the lack of ground-truthing. In the "Data Limitations, Exclusions and Precautions" disclaimer, it states that:

> "The Service's objective of mapping wetlands and deep-water habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high-altitude imagery. Wetlands are identified based on vegetation, visible hydrology, and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis."
> (USFWS, 2023)

The intent of this study is to verify NWI mapping using site-specific soil, hydrology, and vegetation analysis.

4.0 Vegetation

The wetland indicator status of plant species for this investigation was based on the *Western Mountains, Valleys, and Coast 2020 Regional Wetland Plant List* (USACE, 2020). Synonyms were checked for species that did not appear on the USACE wetland plant list. Plant species were classified as:

- Obligate (OBL)–almost always occurs in wetlands
- Facultative-wetland (FACW)–usually occurs in wetlands, but may occur in non-wetlands
- Facultative (FAC)–occurs in wetlands and non-wetlands
- Facultative-upland (FACU)–usually occurs in non-wetlands, but may occur in wetlands
- Upland (UPL)–almost never occurs in wetlands
- Not listed (NL)–scored as an upland plant and calculated as such on wetland determination forms

During the 2023 winter wetland investigation, botanical species were recorded within the vicinity of the TPs onto corresponding data forms. The study area is located on a moderately sloped mowed field surrounded by forested residential areas. The surrounding forest supports dominantly redwood (*Sequoia sempervirens* [NL]), red alder (*Alnus rubra* [FAC]), California blackberry (*Rubus ursinus* [FACU]), salmon berry (*Rubus spectabilis* [FAC]), western azalea (*Rhododendron occidentale* [FAC]), and western sword fern (*Polystichum munition* [FACU]). The majority of the study site is a mowed field consisting of the dominant herbaceous non-native vegetation: hairy oat grass (*Rytidosperma penicillatum* [NL]), sweet vernal grass (*Anthoxanthum odoratum* [FACU]), velvet grass [*Holcus lanatus* [FAC]), and hairy cat's ear (*Hypochaeris radicata* [FACU]).

5.0 Geologic and Soil Composition

The geology at the site is mapped as Cretaceous-Jurassic aged Franciscan Complex composed of sandstone with smaller amounts of shale, chert, limestone, and conglomerate. (Geologic map unit KJf from California Department of Conservation, 2010).

The underlying soils in the study area have the USDA-NRCS soil map unit designation 257- Leopoil Candy Mountain complex, 2-15 percent slopes and 266- Hookton-Urban Land complex, 0-2 percent slopes, as described below (full report in Appendix 2). Soils were characterized by loams to clay loams. The site-specific soil description at each exploratory soil TP is included in the wetland determination data forms found in Appendix 3, with photos in Appendix 1.

257—Lepoil-Candymountain complex, 2 to 15 percent slopes

Map Unit Setting
National map unit symbol: 2p9zc
Elevation: 10 to 800 feet
Mean annual precipitation: 35 to 90 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition
Lepoil and similar soils:45 percent
Candymountain and similar soils:40 percent
Minor components:15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.
Description of Lepoil
Setting
Landform:Marine terraces
Landform position (two-dimensional):Summit
Landform position (three-dimensional):Tread
Down-slope shape:Linear
Across-slope shape:Linear
Parent material:Mixed marine deposits derived from sedimentary rock
Typical profile
Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 16 inches: loam
Bt - 16 to 69 inches: clay loam
2CBt - 69 to 75 inches: very fine sandy loam
2C - 75 to 83 inches: fine sand
Properties and qualities
Slope:2 to 15 percent
Depth to restrictive feature:More than 80 inches
Drainage class:Well drained
Capacity of the most limiting layer to transmit water (Ksat):Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table:More than 80 inches
Frequency of flooding:None
Frequency of ponding:None
Maximum salinity:Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.2 inches)
Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
Hydric soil rating: No

266—Hookton-Urban Land complex, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 23d0n
Elevation: 0 to 140 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 275 to 330 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition
Hookton and similar soils:65 percent
Urban land, residential:20 percent
Minor components:15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.
Description of Hookton
Setting
Landform:Erosion remnants
Landform position (two-dimensional):Backslope
Landform position (three-dimensional):Tread
Down-slope shape:Linear
Across-slope shape:Linear
Parent material:Alluvium derived from mixed sources
Typical profile
Ap - 0 to 11 inches: clay loam
AB - 11 to 17 inches: clay loam
Bw - 17 to 51 inches: clay loam
BC - 51 to 60 inches: silty clay loam
Properties and qualities
Slope:0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table:About 10 to 20 inches
Frequency of flooding:None
Frequency of ponding:None
Maximum salinity:Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)
Custom Soil Resource Report 15
Interpretive groups
Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F004BI101CA - Low elevation marine and floodplain terraces
Hydric soil rating: No
(USDA-NRCS, 2023b)

6.0 Regulatory Setting

6.1 Federal Laws

6.1.1 Section 401 and 404 of the Clean Water Act

Under Section 404 of the Clean Water Act (CWA; 33 U.S. Code [USC] 1344; U.S. Code of Federal Regulations (CFR), 1986), as amended, the USACE and the Environmental Protection Agency (EPA) retain primary responsibility for regulating discharge of dredged or fill material into "navigable waters of the United States." All discharges of dredged or fill material into jurisdictional Waters of the United States

(WoUS) that result in permanent or temporary losses of WoUS are regulated by the USACE. A permit from the USACE must be obtained before placing fill or grading in wetlands or other WoUS, unless the activity is exempt from CWA Section 404 regulation (for example, certain farming and forestry activities).

In summary, the definition of WoUS as defined by 33 CFR Section 328.3 includes:

1. waters used for commerce,
2. interstate wetlands,
3. all other waters (including lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds),
4. impoundments of water,
5. tributaries to aforementioned waters,
6. territorial seas, and
7. wetlands adjacent to waters.

Under 33 CFR 328.3, WoUS do not include prior converted cropland or waste treatment systems.
In 2008, the EPA and USACE released a guidance memorandum implementing the Supreme Court's decision in the cases of the Rapanos v. U.S. and Carabell v. U.S. Because of these cases, the agencies will apply a significant nexus standard to the following categories of waterbodies to determine if it meets the definition of WoUS:

- Non-navigable tributaries that are not relatively permanent
- Wetland adjacent to non-navigable tributaries that are not relatively permanent
- Wetland adjacent to but that does not directly abut a relatively permanent tributary

Section 401 of the CWA (33 USC 1341) requires that applicants for a federal license or permit obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards (EPA, 1986). The certification is obtained from the state in which the discharge originates or would originate, or if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate. The responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs).

6.1.2 Rivers and Harbors Appropriation Act of 1899

The River and Harbors Appropriation Act of 1899 addresses activities that involve the construction of dams, bridges, dikes, and other structures across any navigable water. Placing obstructions to navigation outside established federal lines and excavating from or depositing material in such waters require permits from the USACE. Section 10 of the Rivers and Harbors Appropriation Act (33 USC 403) prohibits the unauthorized obstruction or alteration of any navigable WoUS.

6.1.3 Porter-Cologne Water Quality Control Act

The State of California maintains independent regulatory authority over the placement of waste, including fill, into Waters of the State (WoS) under the Porter-Cologne Water Quality Control Act. WoS are defined by the Porter-Cologne Water Quality Control Act as "any surface water or groundwater,

including saline waters, within the boundaries of the state." The SWRCB protects all waters in its regulatory scope but has special responsibility for isolated wetlands and headwaters. WoS are regulated by the RWQCBs under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act.

Projects that require a USACE permit, or fall under other federal jurisdiction, and have the potential to impact WoS are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit but does involve activities that may result in a discharge to WoS, then the local RWQCB has the option to regulate such activities under its state authority in the form of waste discharge requirements (WDRs) or certification of WDRs. Water Quality Order No. 2004-0004-DWQ specifies general WDRs for dredge or fill discharges to waters deemed by the USACE to be outside of federal jurisdiction under Section 404 of the CWA.

7.0 Methods

Wetland delineation fieldwork was conducted on January 19, 2023. Wetland delineation methods described in *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and *The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0*; USACE, 2010) were used to identify potential wetlands and other waters. The routine method for wetland delineation described in the Environmental Laboratory 1987 manual was used to identify potential wetlands within the study area. The USACE method relies on a three-parameter approach, in which criteria for hydrophytic vegetation, hydric soils, and wetland hydrology must each be met (present at the point of field investigation) to conclude that an area is a wetland. A parameter may be missing if a site has been currently disturbed and does not have "normal circumstances" (USACE, 2015). A wetland may still be defined despite a missing parameter if it can be determined that the site has not yet reached its equilibrium.

Hydrophytic vegetation refers to plant species known to be adapted to wetland sites. To classify the hydrophytic plants onsite, the most recent *Western Mountains, Valleys, and Coast 2020: Regional Wetland Plant List* was used (USACE, 2020). Hydric soils are those formed under saturated conditions, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (USDA-NRCS, 2018). Wetland hydrology is demonstrated through direct evidence (primary indicators) or indirect evidence (secondary indicators) of flooding, ponding, or saturation for a significant portion of the growing season (USACE, 2010).

Prior to conducting the field investigation, SHN staff reviewed Google Earth (Google Earth, 2023); USDA-NRCS Web Soil Survey website (USDA-NRCS, 2023b; Appendix 2); and NWI map (USFWS, 2023; Appendix 2). Visual inspection of the site prior to TP excavation was performed to identify appropriate TP locations and potential wetland locations and boundaries. During the TP subsurface investigation, sample points were characterized at each pit for the botanical, hydrological, and soil parameters. Wetland TP locations were selected to:

- achieve appropriate coverage and characterization of wetland and upland habitats,
- document potential changes in the vegetative community (such as a shift in the dominant species), and

- determine the approximate boundary line between wetlands and uplands by evaluating the extent of key wetland criteria (hydrology, hydric soils, and hydrophytic vegetation).

TP locations were mapped using a field tape and triangulating using known points on an aerial photo map, with a one-meter accuracy.

7.1 Vegetation Methods

Prior to the wetland field investigations (January 19, 2023), a review of plant species reported to be within the study area was performed by querying the "Consortium of California Herbaria" (Consortium of California Herbaria, 2023) database records and "Calflora" (Calflora, 2023) observations. It was determined that the site investigation was performed during a normal rainfall period by reviewing rainfall data (see Section 3.2 Site Hydrology, Table 1), and also during an "abnormally dry" drought for this region. Absolute percent cover of each plant species was visually estimated within the sample point and within each vegetation stratum. The tree stratum was inspected at a 30-foot radius centered on the sample point, and the herb and sapling/shrub strata, at a 5-foot radius. Botanical nomenclature follows *The Jepson Manual, Vascular Plants of California* (Baldwin et al., 2012) in addition to the online Jepson Interchange (University of California, Berkeley, 2023) for verification of species whose taxonomy may have changed since its publication.

The 50/20 method[1] was applied to each stratum to determine the dominant plant species within the vicinity of the test pit. The hydrophytic vegetation wetland parameter requires dominance by hydrophytic vegetation. If hydric soils and wetland hydrology were present, the prevalence index[2] was applied. The occurrence and type of plant cover determine whether an area satisfies the wetland vegetation parameter criteria. Sites displaying wetland hydrology and hydric soil, but with little or no plant cover, or other sites not capable of supporting hydrophytic plant communities in normal circumstances, may be wetlands as defined by the state of California. Those sites with little or no plant cover, or other sites not capable of supporting hydrophytic plant communities in normal circumstances are identified as other waters, provided they have an OHWM.

7.2 Soils Methods

Soils were field verified for the presence or absence of hydric conditions. All TPs were manually excavated using hand tools to a minimum depth of 16 inches. The thickness of each soil horizon was measured. The Munsell Soil Color Chart (Munsell, 2009) was referenced to determine the colors of the moist soil matrix and redoximorphic (redox) features (if present). Soils were closely inspected for hydric soil indicators, as defined by the NRCS "Field Indicators of Hydric Soils in the United States" (USDA-NRCS, 2018).

[1] The 50/20 rule: for each stratum of the plant community, dominant species are the most abundant species that (when ranked in descending order of abundance and cumulatively totaled) immediately exceed 50% of total dominance measure for the stratum, plus any additional species that individually comprise 20% or more of the total dominance measure for the stratum (USACE, 2010).

[2] The prevalence index is a weighted-average wetland indicator status of all plant species in the sampling plot or other sampling unit, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (absolute percent cover).

7.3 Hydrology Methods

Observations for wetland hydrology were made during TP excavations on January 19, 2023. Wetland hydrology is determined by the presence of surface and/or ground water and saturation, in addition to indirect hydrologic indicators (such as, water marks, drift deposits, sediment deposits, drainage patterns, geomorphic position, water-stained leaves, and similar features). Indicators of extended periods of saturation would include oxidized rhizospheres surrounding living roots or the presence of reduced iron or sulfur in the soil profile. A site must contain at least one primary indicator or two secondary indicators to qualify for the hydrology parameter. In addition, aerial imagery are reviewed that may show past inundation, seasonal inundation patterns, or changes onsite that may have influenced hydrology. Current and prior hydrological history is also taken into consideration when interpreting hydrology indicators (Section 3.2- Site Hydrology).

7.4 Ordinary High Water Mark Methods

For purposes of Section 404 of the CWA, the lateral limits of federal jurisdiction over non-tidal water bodies in the absence of adjacent wetlands extend to the OHWM. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. For purposes of Sections 9 and 10 of the Rivers and Harbors Act of 1899, the lateral extent of federal jurisdiction, which is limited to the traditional navigable waters of the United States, extends to the OHWM, whether or not adjacent wetlands extend landward of the OHWM (USACE, 2014).

USACE regulations define the term OHWM for the purposes of the CWA lateral jurisdiction as follows:

> "The term "ordinary high water mark" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas at 33 CFR 328.3(e)."

The OHWM in non-perennial streams corresponds with the boundaries of the active channel, which are typically expressed by some combination of three primary indicators: a topographic break in slope, change in sediment characteristics, and change in vegetation characteristics (USACE, 2014). The following supporting features should be considered when making an OHWM determination, to the extent that they can be identified and are deemed reasonably reliable (USACE, 2014):

- Drift/wrack
- Erosion/scour
- Bank undercutting
- Root exposure
- Point bars
- Water staining
- Litter removal
- Silt deposits
- Shelving
- Headcut/knickpoint
- Macroinvertebrates

8.0 Discussion and Results

Five TPs were excavated by hand on January 19, 2023 (Figure 2), and data for each TP was recorded for soils, vegetation, and hydrology on USACE Wetland Determination Data Forms (Appendix 3). The investigation occurred during a "normal" three-month rainfall period within the growing season for the study area, and this region was also experiencing an "Abnormally Dry Drought" (Section 3.2 Site Hydrology). Normal circumstances were considered present at TP and exploration sites.

See the discussion sections below for each TP, which describe the physical features and considerations of the site, followed by a data section that summarizes information from the completed USACE Wetland Determination Data Forms (Appendix 3). A map of the study area is included as Figure 2 and photos of the study area are presented in Appendix 1.

8.1 TP1

8.1.1 Discussion TP1

TP1 was excavated within the wetland that is in the study area (Figure 2; Appendix 1, Photos 3 and 4). The wetland was created by adding a dam in an intermittent stream that drains the forested hillslope north of the parcel. The owner indicated this occurred several years ago; therefore, normal circumstances were assumed. The test site was chosen to determine if the pond has enough hydrology during the year to support wetland conditions. All three parameters were present (hydrophytic vegetation, hydrology, and hydric soils); therefore, it is considered a USACE wetland.

8.1.2 Data TP1

TP1 vegetation contained the Sapling/Shrub and Herb stratums. The dominant shrub species was the Himalayan blackberry (*Rubus armeniacus* [FAC]) with only 4-percent cover and is therefore not part of the dominance test (under 5-percent cover). The dominant herb vegetation were Colonial bentgrass (*Agrostis capillaris* [FAC]) with 20-percent cover, and penny royal (*Mentha pulegium* [OBL]) with 17-percent cover. The vegetation dominance meets the hydrophytic vegetation parameter.

The hydrology parameter was met with the primary indicators of Surface Water (A1), High Water Table (A2), Saturation (A3), Drift Deposits (B3), Inundation Visible on Aerial Imagery (B7), Aquatic Invertebrates (B13), and the secondary indicators of Water-Stained Leaves (B9), Drainage Patterns (B10), Geomorphic Position (D2), and the FAC-Neutral Test (D5).

The hydric soil Depleted Matrix (F3) indicator was observed, in addition to the reaction of manganese oxide to hydrogen peroxide (H_2O_2), and a slight reaction to the alpha, alpha dipyridyl reagent. Therefore, the hydric soil parameter was met.

8.2 TP2

8.2.1 Discussion TP2

TP2 was excavated 10 feet above TP1 in the mowed field above the wetland and is the paired plot to TP1. It is at the base of a well-drained 20-percent sloped hillslope. None of the three parameters were observed; and therefore, is not considered a USACE wetland (Figure 2; Appendix 1, Photo 4).

8.2.2 Data TP2

TP2 vegetation contained the Sapling/Shrub and Herb stratums. The dominant shrub species were the California blackberry [FACU] with 2-percent cover, Himalayan blackberry [FAC] with 2-percent cover, and cotoneaster (*Cotoneaster franchetti* [NL]) with 2-percent cover. The dominant herb species were hairy oat grass [NL] with 46-percent cover and sweet vernal grass [FACU] with 20-percent cover. The vegetation dominance does not meet the hydrophytic vegetation parameter.

No hydric soil indicators were observed, and therefore, does not qualify for this parameter.

A primary indicator of Saturation (A3) was observed at 11 inches. Saturation must be above the 12-inch level to qualify. Because of the very heavy rains from the day before and the strong indication of upland vegetation with no redox observed in the soils, professional judgment was used to determine that the hydrology would not ordinarily qualify for this parameter.

8.3 TP3

8.3.1 Discussion TP3

TP3 was excavated farther north along the stream, upslope of the wetland in a slight depression, with a minor amount of hydrophytic vegetation. There were strong enough indicators for the hydrology parameter, but neither the vegetation or soils qualified for the hydrophytic vegetation or hydric soil parameters. The soils are forming a depleted matrix, but at a depth too low to support hydrophytic vegetation and not qualifying for the hydric soil parameter. Five other exploratory pits were excavated nearby, but with lower indications of redox than what was seen at TP3. (Figure 2; Appendix 1, Photo 5). This section does not qualify for a USACE wetland.

8.3.2 Data TP3

TP3 vegetation contained the Sapling/Shrub and the Herb stratums. The dominant shrub species was the California blackberry [FACU] with only 1-percent cover and is therefore not part of the dominance test (under 5-percent cover). The dominant herb stratum consisted of velvet grass [FAC] with a 40-percent cover and sweet vernal grass [FACU] with a 22-percent cover. The vegetation dominance does not meet the hydrophytic vegetation parameter.

There were no hydric soil indicators observed; therefore, not qualifying for this parameter.

The hydrology primary indicators observed were High Water Table (A2) and the Saturation (A3), with the secondary indicator Geomorphic Position (D2). This qualifies for the hydrology parameter.

8.4 TP4

8.4.1 Discussion TP4

TP4 was excavated at the top of the hillslope where the ADU is anticipated to be constructed. This site is on well-drained soils with a high percentage of upland vegetation. None of the wetland parameters were observed and it is not considered to be a USACE wetland (Figure 2; Appendix 1, Photo 6).

8.4.2 Data TP4

TP4 vegetation contained the Sapling/Shrub and the Herb stratums. The dominant shrub species was cotoneaster [NL] with only 3-percent cover and is therefore not part of the dominance test (under 5-

percent cover). The dominant herb stratum consisted of hairy cat's ear [FACU] with 42-percent cover and hairy oat grass [NL] with 30-percent cover. The vegetation dominance does not meet the hydrophytic vegetation parameter.

There were no hydrology or hydric soil indicators; therefore, neither qualify for these parameters.

8.5 TP5

8.5.1 Discussion TP5

TP5 was excavated near the stream, in a low-sloped area, to determine whether wetlands have developed in this section (Figure 2; Appendix 1, Photo 7). Soils were well drained and there were no parameters met at this location. TP5 is not considered a USACE wetland.

8.5.2 Data TP5

TP5 vegetation contained the Tree, Sapling/Shrub, and Herb stratums. The dominant tree species were Douglas fir (*Pseudotsuga menziesii* [FACU]) with 20-percent cover and redwood [NL] with 15-percent cover. The sapling/shrub stratum dominant species was cotoneaster [NL] with only 1-percent cover and is therefore not part of the dominance test (under 5-percent cover). The herb stratum dominant species was hairy oat grass [NL] with 77-percent cover. The vegetation dominance does not meet the hydrophytic vegetation parameter.

No hydric soil indicators were observed; therefore, it does not qualify for the hydric soil parameter.

Saturation (A3) was observed in TP5 at 12 inches, which would ordinarily qualify for a primary hydrology indicator. Because of the heavy rains during early January and on January 18 , the day before the investigation, that the 12-inch depth is at the borderline for this indicator, and that neither vegetation nor soils suggested wetland properties, professional judgement discounted this as an indicator. Therefore, TP5 does not meet the hydrology parameter.

8.6 Ordinary High Water Marks

Ordinary high water mark indicators were observed within the intermittent stream that runs through the eastern side of the study area (Figure 2; Appendix 1, Photo 8). This stream drains the northern forested area north of the study area. An OHWM point was delineated near TP5, above the human-constructed wetland at the southern edge of the study area. The datasheet for this point (OHWM1) is in Appendix 3.

9.0 Conclusions

This study area experienced a normal seasonal rainfall volume in the three months preceding the January 19, 2023 field work. The region was recovering from an extreme drought and downgraded to "Abnormally Dry" (Section 3.2 Site Hydrology). Most of the January precipitation fell prior to the site investigation. Wetland and OHWM indicators were confined to the existing stream and constructed pond. The remaining portion of the study site is a mowed field with upland characteristics. Table 2 lists the parameters present at each TP, and Table 3 describes wetlands and OHWMs found on site.

Table 2. Parameters Met at Each Test Pit, January 19, 2023
Fieldbrook, Humboldt County, California

TP[a] Number	Parameters Present	Parameter Type	Latitude/Longitude
TP1	3	Hydrophytic Vegetation, Hydric Soils, Hydrology	40.969551°/-124.038208°
TP2	0	None	40.969552°/-124.038244°
TP3	1	Hydrology	40.969650°/-124.038216°
TP4	0	None	40.969753°/-124.038396°
TP5	0	None	40.969893°/-124.038127°

[a] TP: test pit

Table 3. Wetland and OWHM Within Study Area
Fieldbrook, Humboldt County, California

Waterbodies	Cowardin Type	Latitude/Longitude	Area (square feet)
Wetland#1	PEM1E[a]	40.969522°/-124.038194°	680
Stream Segment #1	R65B3[b]	40.969869°/-124.038093°	350
Stream Segment #2		40.969314°/-124.038224°	135
Total			**1,165**

[a] Palustrine emergent persistent seasonally flooded/saturated
[b] Riverine ephemeral streambed cobble-gravel

The proposed project area is within the planning area of Fieldbrook, which uses the Humboldt County General plan for sensitive habitat area buffers and setbacks. Both seasonal wetlands and intermittent streams have 50-foot setback buffers (County of Humboldt, 2017). The 50-foot setback is used for the features found within the study area (Figure 2).

10.0 Limitations

The conclusions in this report document conditions at the time of field work, and some wetland conditions and plant species may not have been identifiable or may not have been present. This report documents the investigation by using the best professional judgment of SHN's botanist and soil scientist.

11.0 References Cited

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. (2012). The Jepson Manual: Vascular Plants of California, second edition. Berkeley, CA: University of California Press, Berkeley.

Calflora. (2023). Calflora database. Accessed January 2023 at: http://calflora.org/.

California Department of Conservation. (2010). Geologic Map of California. California Geological Survey. Accessed at: https://maps.conservation.ca.gov/cgs/gmc/.

Consortium of California Herbaria. (2023). Consortium of California Herbaria database. Accessed June 2022 at: http://ucjeps.berkeley.edu/consortium/.

County of Humboldt. (2017). Humboldt County General Plan. Accessed January 2023 at: https://humboldtgov.org/DocumentCenter/View/61984/Humboldt-County-General-Plan-complete-document-PDF.

Environmental Laboratory. (1987). Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1. Vicksburg, MS:USACE Waterways Experiment Station.

Google Earth. (2023). NAIP 7/17/2022 imagery 40.969660° latitude and -124.038388° longitude. NR: Google Earth.

Munsell Color (Firm). (2009). Munsell Soil Color Charts: with Genuine Munsell Color Chips. Grand Rapids, MI:Munsell Color.

National Geographic Society. (2013). I-cubed. Topographic map of Fieldbrook, California. NR:National Geographic.

National Oceanic and Atmospheric Administration (NOAA). (2023). Climate Graphs. National Weather Service Forecast Office, Eureka, California. Accessed at: https://www.wrh.noaa.gov/climate/monthdisp.php?stn=KEKA&p=temperature&mon=1&wfo=eka&year=2023.

North American Drought Monitor (NADM). (2023). North American Drought Monitor website. Accessed at: https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA.

University of California, Berkeley. (2023). "Jepson eFlora." Accessed at: http://ucjeps.berkeley.edu/eflora/.

U.S. Army Corps of Engineers. (2010). Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountain, Valleys, and Coast Region, J.S. Wakeley, R.W. Lichvar, and C.V. Noble (eds) ERDC/EL TR-08-03. Vicksburg, MS: USACE Research and Development Center.

---. (2014). A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States, M. K. Mersel and R. W. Lichvar (eds) ERDC/CRREL TR-14-13. Vicksburg, MS: USACE Research and Development Center.

---. (2015). Critical Definitions for Wetland Delineation: Normal Circumstances. Barbara Walther. March 11, 2015.

---. (2020). Western Mountains, Valleys, and Coast: 2020 Regional Wetland Plant List, Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin (eds), ERDC/CRREL. Vicksburg, MS: USACE Research and Development Center.

U.S. Code of Federal Regulations. (1986). "33 CFR 328, 401, 403, 404. Title 33, Navigation and Navigable Waters; Chapter II; Army Corp of Engineers, Dept. of Defense, Part 328, Regulatory Program of the U.S. Army Corps of Engineers." NR: USACE.

U.S. Department of Agriculture, Natural Resources Conservation Service. USDA-NRCS). (2018). Field Indicators of Hydric Soils in the United States, Version 8.2. G.W. Hurt, L.M. Vasilas (eds.). NR: USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils. Version 8.2.

---. (February 2021). "Title 210 – National Engineering Handbook Part 650 Engineering Field Handbook, National Engineering Handbook, Chapter 19 Hydrology Tools for Wetland Identification and Analysis, 2nd Edition." Washington, D.C.: USDA. Accessed at NRCS eDirectives website: https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=21429.

---. (2023a). WETS Database. Eureka WFO Woodley Island, CA. Accessed at: http://agacis.rcc-acis.org/?fips=06023.

---. (2023b). Web Soil Survey. Accessed at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

U.S. Environmental Protection Agency. (EPA). (1986). (33 USC 1341) Clean Water Act Section 401: State Certification of Water Quality. Washington D.C.: EPA.

U.S. Fish and Wildlife Service. (USFWS). (2023). National Wetlands Inventory. Accessed at: http://www.fws.gov/wetlands/data/mapper.HTML/.

Site Photographs

1

Photo 1: North view of project site. Photo taken January 19, 2023.

Photo 2: South view looking towards existing residential home with wetland and stream in swale. Photo taken January 19, 2023.

Photo 3: Looking south, towards the existing residence. The constructed wetland is in the foreground in the stream that flows southwest. Photo taken January 19, 2023.

Photo 4: Looking east at TP1 (located at shovel). TP2 is in foreground at excavated pit in the upland mowed field. Photo taken January 19, 2023.

Photo 5: Looking north at TP3 with surrounding exploratory pits. TP3 is 17 feet from the stream on the right. Photo taken January 19, 2023.

Photo 6: Taken at TP4, looking east towards the stream. Photo taken January 19, 2023.

Photo 7: TP5 (at base of shovel) is in a low-sloped section near the stream. Photo is looking northeast, towards Fieldbrook Road. Photo taken January 19, 2023.

Photo 8: OWHM1 (tape shows approximate location) is in an intermittent stream that drains the forested area north of the study site. TP5 is approximately 14 feet to left of the stream. Photo looking north. Photo taken January 19, 2023.

National Wetlands Inventory, Drought Monitoring, and Soil Maps

2

U.S. Fish and Wildlife Service
National Wetlands Inventory

Fieldbrook wetland

January 3, 2023

Wetlands

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

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

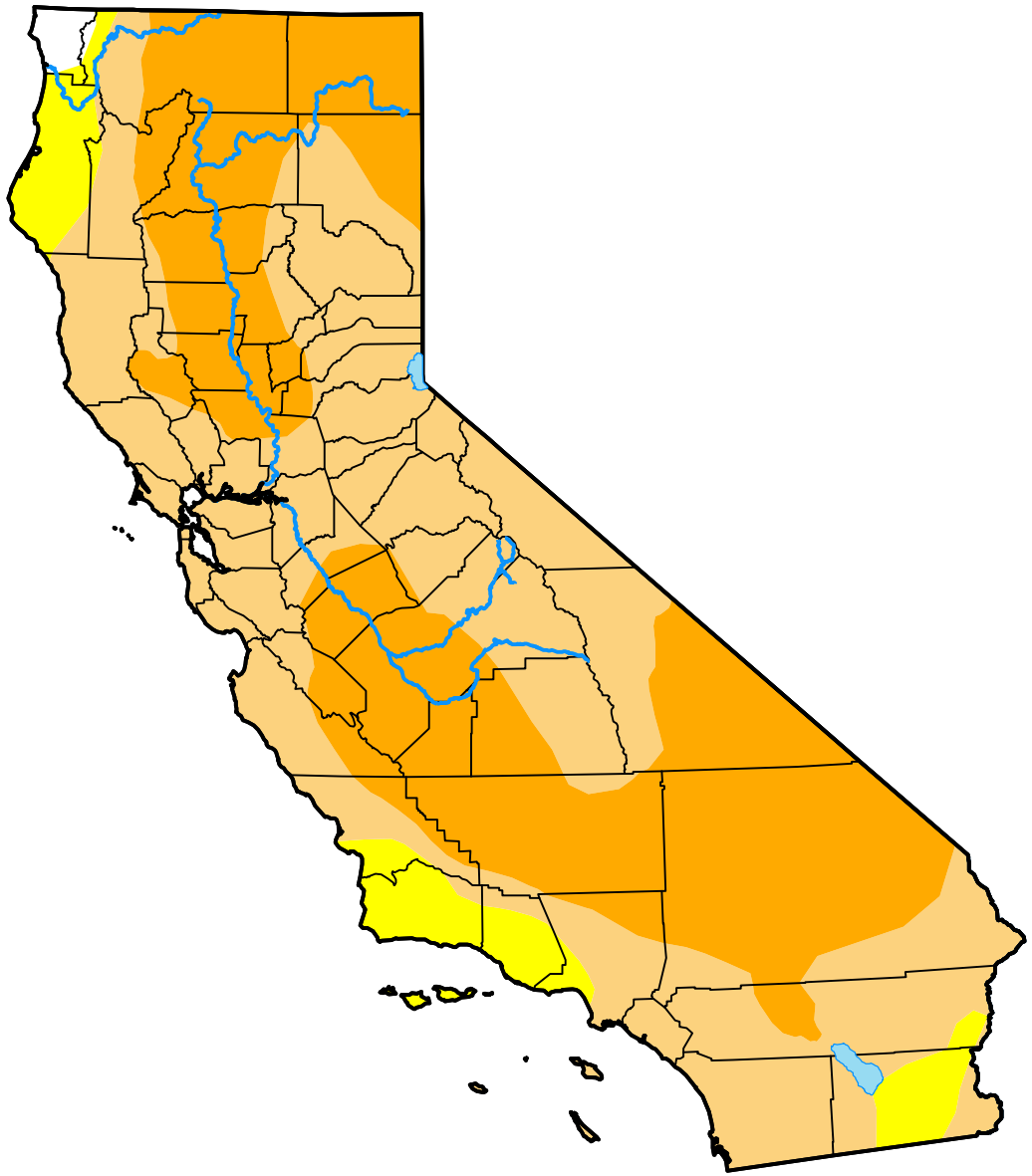
U.S. Drought Monitor

California

January 17, 2023

(Released Thursday, Jan. 19, 2023)

Valid 7 a.m. EST



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:

Deborah Bathke
National Drought Mitigation Center

droughtmonitor.unl.edu

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Humboldt County, Central Part, California

January 3, 2023

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:837 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 40 80 160 240

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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
257	Lepoil-Candymountain complex, 2 to 15 percent slopes	1.4	57.7%
266	Hookton-Urban Land complex, 0 to 2 percent slopes	1.1	42.3%
Totals for Area of Interest		**2.5**	**100.0%**

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Humboldt County, Central Part, California

257—Lepoil-Candymountain complex, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2p9zc
Elevation: 10 to 800 feet
Mean annual precipitation: 35 to 90 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition

Lepoil and similar soils: 45 percent
Candymountain and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lepoil

Setting

Landform: Marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed marine deposits derived from sedimentary rock

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 16 inches: loam
Bt - 16 to 69 inches: clay loam
2CBt - 69 to 75 inches: very fine sandy loam
2C - 75 to 83 inches: fine sand

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
Hydric soil rating: No

Description of Candymountain

Setting

Landform: Marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed marine deposits derived from sedimentary rock

Typical profile

Oi - 0 to 4 inches: slightly decomposed plant material
A - 4 to 15 inches: fine sandy loam
Bw - 15 to 31 inches: fine sandy loam
BC - 31 to 45 inches: fine sandy loam
C - 45 to 60 inches: very fine sand

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
Hydric soil rating: No

Minor Components

Cannonball

Percent of map unit: 10 percent
Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
Hydric soil rating: No

Hutsinpillar

Percent of map unit: 5 percent
Landform: Drainageways, marine terraces
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

266—Hookton-Urban Land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 23d0n
Elevation: 0 to 140 feet
Mean annual precipitation: 60 to 80 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 275 to 330 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Hookton and similar soils: 65 percent
Urban land, residential: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hookton

Setting

Landform: Erosion remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

Ap - 0 to 11 inches: clay loam
AB - 11 to 17 inches: clay loam
Bw - 17 to 51 inches: clay loam
BC - 51 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F004BI101CA - Low elevation marine and floodplain terraces
Hydric soil rating: No

Description of Urban Land, Residential

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex

Interpretive groups

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

Minor Components

Weott

Percent of map unit: 8 percent
Landform: Flood-plain steps, depressions, backswamps
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: Yes

Tillas

Percent of map unit: 7 percent
Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

References

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland and OHWM Determination Data Forms

3

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Fieldbrook | City/County: Humboldt | Sampling Date: 1/19/23

Applicant/Owner: Dan Salinger / Larry Hand | State: CA | Sampling Point: TP 1

Investigator(s): Joseph Saler, Cindy Wilcox | Section, Township, Range: Sec 26, T 7N, R 1E

Landform (hillslope, terrace, etc.): Hillslope, Swale | Local relief (concave, convex, none): Concave | Slope (%): 0-1

Subregion (LRR): A ; MLRA-4B | Lat: | Long: | Datum: WGS 84

Soil Map Unit Name: 266: Hoopa-Urban Land Complex, 0-2% slopes | NWI classification: none

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

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

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

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

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

Remarks: WETS table indicates normal rainfall for this time period.
TP excavated in Man-made seasonal pond along ephemeral stream. Normal conditions present.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	4		FAC
2.			
3.			
4.			
5.			
	4 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Mentha pulegium	17	✓	OBL
2. Cyperus eragrostis	8		FACW
3. Ranunculus repens	4		FAC
4. Holcus lanatus	5		FAC
5. Lotus corniculatus	5		FAC
6. Agrostis capillaris	20	✓	FAC
7. Leontodon saxatilis ssp. saxatilis	3		FACU
8.			
9.			
10.			
11.			
	62 = Total Cover (31/12.4)		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 38%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 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.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Bottom of pond low vegetation cover, with Mentha dominant. Pond edges have higher veg cover with grass species dominant.

SOIL

Sampling Point: TP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	75	N 2.5/	8	C	M	SiL	Manganese oxide conc. 8%
			7.5YR 3/4	17	C	M		
6-12	10YR 4/2	90	N 2.5/	5	C	M	SiCL	Manganese oxide conc 5%
			10YR 3/6	5	C	PL		
12-16+	10YR 4/3	90	10YR 4/6	10	C	M	SC	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

*Manganese oxide present. Reaction with H_2O_2 & faint α,α-Dreaction

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- X 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)
- X 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)

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

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 7in

Water Table Present? Yes X No ____ Depth (inches): surface

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): surface

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Ponded water within man-made pond. Ephemeral stream flows into and out of seasonal pond.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Fieldbrook City/County: Humboldt Sampling Date: 1/19/23

Applicant/Owner: Dan Salinger / Larry Hand State: CA Sampling Point: TP2

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range: Sec 26, T 7N, R 1E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 4

Subregion (LRR): A ; MLRA-4B Lat: Long: Datum: WGS 84

Soil Map Unit Name: 266: Hookton-Urban Land complex, 0-2% slope NWI classification: none

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

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

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

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

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

Remarks: WETS table indicates normal rainfall for this time period. Dry slope west of pond. Conditions representative of large area. Approximately 10 feet upslope of TP1

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: 5ft)			
1. Rubus ursinus	2	✓	FACU
2. Rubus armeniacus	2	✓	FAC
3. Cotoneaster franchetii	2	✓	NL
4.			
5.			
	6 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Leucanthemum vulgare	14		FACU
2. Prunella vulgaris var. lanceolata	5		FACU
3. Leontodon saxatilis ssp. saxatilis	3		FACU
4. Rytidosperma penicillatum	46	✓	NL
5. Lotus corniculatus	1		FAC
6. Daucus carota	1		FACU
7. Plantago lanceolata	3		FACU
8. Hypochaeris radicata	2		FACU
9. Anthoxanthum odoratum	20	✓	FACU
10. Agrostis capillaris	5		FAC
11.			
	100 = Total Cover		50/20
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (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 ≤3.0[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.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Mowed hillside. Vegetation relatively homogenous

SOIL

Sampling Point: TP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					SiCL	
7-16+	10YR 3/3	100					SCL	Charcoal present

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

well drained Willsboro soils

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): N/A

Water Table Present? Yes _____ No X Depth (inches): 14

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): 11in *

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Note: Recent storms have resulted in saturated soils and elevated watertable

1 inch of rain on day preceding delineation (1/18/23)

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Fieldbrook | City/County: Humboldt | Sampling Date: 1/19/23

Applicant/Owner: Dan Salinger / Larry Hard | State: CA | Sampling Point: TP 3

Investigator(s): Joseph Saler, Cindy Wilcox | Section, Township, Range: Sec 26, T 7N, R 1E

Landform (hillslope, terrace, etc.): Hillslope swale | Local relief (concave, convex, none): None | Slope (%): 1%

Subregion (LRR): A ; MLRA-4B | Lat: | Long: | Datum: WGS 84

Soil Map Unit Name: 266: Hookton-Urban Land Complex, 0-2% slopes | NWI classification: none

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

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

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

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

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

Remarks: WETS table indicates normal rainfall for this time period.
TP excavated in low point ~17 feet from stream. * Hydrology likely a reflection of recent heavy rains

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: 5ft)			
1. Rubus ursinus	1		FACU
2.			
3.			
4.			
5.			
	1 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Carex obnupta	8		OBL
2. Prunella vulgaris var. lanceolata	6		FACU
3. Rhytidosperma pericillatum	5		UPL
4. Holcus lanatus	40	✓	FAC
5. Anthoxanthum odoratum	22	✓	FACU
6. Paspalum dilatatum	2		FAC
7. Hypochaeris radicata	2		FACU
8. Plantago lanceolata	3		FACU
9. Leucanthemum vulgare	1		FACU
10. Lotus corniculatus	1		FAC
11.			
	100 = Total Cover 29/50		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	8	x 1 =	8
FACW species	0	x 2 =	0
FAC species	43	x 3 =	129
FACU species	34	x 4 =	136
UPL species	15	x 5 =	75
Column Totals:	100 (A)		348 (B)

Prevalence Index = B/A = 3.48

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.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Moved hillslope swale. Upland veg dominance similar to surrounding slope indicates no wetland conditions in swale.

SOIL

Sampling Point: TP 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR3/2	100					L	
1-10	10YR 3/2	97	10YR3/4	3	C	M	SiCL	Not enough redox for f6
10-16+	10YR 4/2	75	10YR3/6	25	C	M	SC	Too deep for f3

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Weakly forming hydric soil indicators, not strong enough for hydric soil f3 or f6. 6 exploratory TP confirm no hydric soils in vicinity. Hydrology too deep for f3, not supporting vegetation (hydrophytic). Borderline soils. Old meander?

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X 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 X No ___ Depth (inches): 8in

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 4in

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Low point in swale appears to catch and hold water. Recent heavy rainfall with ~1in of precipitation falling the preceeding day (1/18/23)

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Fieldbrook City/County: Humboldt Sampling Date: 1/19/23

Applicant/Owner: Dan Salinger / Larry Hand State: CA Sampling Point: TP 4

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range: Sec 26, T 7N, R 1E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5

Subregion (LRR): A ; MLRA-4B Lat: Long: Datum: WGS 84

Soil Map Unit Name: 257: Lepoil-Candymountain Complex, 2-15% slopes NWI classification: none

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

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

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

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

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

Remarks: WETS table indicates normal rainfall for this time period.
TP excavated near top of gentle slope. Well-drained

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: 5ft)			
1. Cotoneaster franchetii	3		NL
2.			
3.			
4.			
5.			
	3 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Rhytidosperma penicillatum	30	✓	NL
2. Leucanthemum vulgare	3		FACU
3. Hypochaeris radicata	42	✓	FACU
4. Carex obnupta	1		OBL
5. Prunella vulgaris var. lanceolata	5		FACU
6. Anthoxanthum odoratum	8		FACU
7. Plantago lanceolata	3		FACU
8. Daucus carota	1		FACU
9. Tritolium subterraneum	2		NL
10.			
11.			
	95 = Total Cover		47.5/19
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (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 ≤3.0[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.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:
Vegetation comparition reflective of hillslope. Relatively homogenous across the slope.

SOIL

Sampling Point: TP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	7.5YR 3/2	100					SiCL	
9-13	7.5YR 3/3	100					SiCL	occ. gravel
13-20+	7.5YR 3/3	95					SC	
	7.5YR 4/6	5						mixed matrix

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Abundant roots from redwoods in vicinity.

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): N/A

Water Table Present? Yes _____ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Well drained hillslope, near top of shoulder. Soil dry even after heavy rainfall on preceeding day.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Fieldbrook City/County: Humboldt Sampling Date: 11/19/23

Applicant/Owner: Dan Salinger / Larry Hand State: CA Sampling Point: TP 5

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range: Sec 26, T 7N, R 1E

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

Subregion (LRR): A ; MLRA-4B Lat: Long: Datum: WGS 84

Soil Map Unit Name: 257: Lepoil-Candymountain complex, 2-15% slopes NWI classification: none

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

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

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

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

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

Remarks: WETS table indicates normal rainfall for this time period.
TP excavated on slope ~14ft from stream. Well drained, representative of surrounding slope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	20	✓	FACU
2. Sequoia sempervirens	15	✓	NL
3.			
4.			
	35 = Total Cover		17.5/1
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Cotoneaster franchetii	1		NL
2.			
3.			
4.			
5.			
	1 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Holcus lanatus	7		FAC
2. Rhytidosperma penicillatum	77	✓	NL
3. Festuca arundinacea	3		FAC
4. Hypochaeris radicata	1		FACU
5. Paspalum dilatatum	1		FAC
6. Prunella vulgaris var. lanceolata	2		FACU
7. Anthoxanthum odoratum	3		FACU
8. Leucanthemum vulgare	5		FACU
9. Plantago lanceolata	3		FACU
10. Lotus corniculatus	1		FAC
11. Agrostis stolonifera	2		FAC
	105 = Total Cover		52.5/21
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (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 ≤3.0[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.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Veg relatively homogenous. Representative of surrounding slope w/o tree cover.

SOIL

Sampling Point: TP5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					SiL	
4-14	10YR 3/2	98	5YR 3/4	2	C	M	SiCL	
14-18+	10YR 4/3	50	7.5YR 5/8	<1	C	M	SC	Mixed matrices
	10YR 4/2	50						

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: Weakly forming soils, not prominent or indicative of hydric soils

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): N/A

Water Table Present? Yes _____ No X Depth (inches): 13 in

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): 12 in

Wetland Hydrology Present? Yes _____ No X

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

Remarks: Well-drained slope above stream. Saturation a result of heavy rainfall on preceeding day (~1 in 1/18/23) and week.

OHWM Delineation Cover Sheet Page 1 of 2

Project: Field Brook ADU **Date:** 1/19/2023

Location: APN 512-072-002 **Investigator(s):** Joseph Sater, Cindy Wilcox

Project Description:

Construct an ADU upslope of the stream

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

Small intermittent/ephemeral stream flows under Murray Rd and into the study area/subject parcel. Stream has been manipulated in the past and likely channelized and rock lined. Headwaters upslope in topographic bowl. flows likely accentuated by roadside ditches. OHWM: 28 in.

Off-site Information

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

See figure 2 in Report.

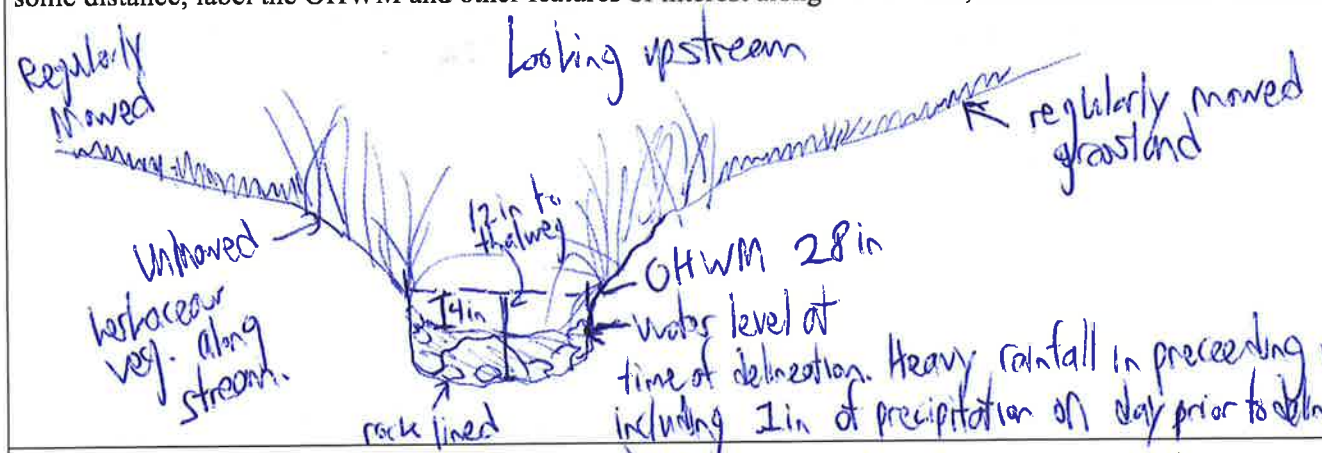
Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

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

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

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



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

Notes/Description:
Stream channel likely excavated in the past. Moderate break in slope from slope to active channel below OHWM.

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	75	25	0	0	0	Y
Below OHWM	10	25	10	50	5	N

Notes/Description:
Cobbles and boulders imported to stream to rock line channel for stability. Below OHWM. Silty clay loam / sandy loam above OHWM.

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	20	2	120	0
Below OHWM	15	0	20	80

Notes/Description:
Dense herbaceous cover above OHWM with some tree cover. Herbaceous cover extends over the OHWM on either side of the stream.

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

- Drift / wrack
- Erosion / scour
- Litter removal

Eureka, CA | Arcata, CA | Redding, CA | Willits, CA | Fort Bragg, CA | Coos Bay, OR | Klamath Falls, OR