Biological and Wetland Assessment—Revision 1

Garberville Sanitary District Robertson/Wallan/Hurlbutt Tanks Replacement Project

Prepared for:

Garberville Sanitary District

October 2023

022067.210

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

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

Reference: 022067.210

October 4, 2023

Ralph Emerson
Garberville Sanitary District
P.O. Box 211
Garberville, CA 95542

Subject: Biological and Wetland Assessment—Revision 1, Garberville Sanitary District Robertson/Wallan/Hurlbutt Tanks Replacement Project

Dear Ralph Emerson:

SHN has prepared this biological and wetland assessment for the Garberville Sanitary District water tanks replacement project. This assessment addresses potential project impacts to habitat, wetlands, and special-status species within the project area. This Revision 1 addresses the project area as of October 2023.

No special-status species were observed within the study area. Special-status species are unlikely to be impacted by the project due to the avoidance of suitable habitat during project activities, and the lack of occurrences within the project area. Two sensitive vegetation community types occur within the study area in multiple locations as shown on Figures 2-4. Ten wetlands and five streams occur within or immediately adjacent to the study area. These features should be avoided during project implementation. The recommendations in this assessment are intended to avoid or reduce impacts to habitat and wetlands that could occur during the construction of the project.

Please email me at jsaler@shn-engr.com or call me at 707-822-5785 if you have any comments or concerns.

Respectfully submitted,

SHN

Joseph Saler
Senior Ecologist

JLS:cet

Enclosure: Biological and Wetland Assessment-Revision 1

P:\Eureka\2022\022067-GSD-Water\210-Spec-Studies\PUBS\rpts\20231009-BioAssmt-Rev1.docx

Biological and Wetland Assessment—Revision 1

Garberville Sanitary District Robertson/Wallan/Hurlbutt Tanks Replacement Project

Prepared for:

Garberville Sanitary District

Prepared by:

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

October 2023

QA/QC:JLS JLS
Reference: 022067.210

Table of Contents

Table of Contents, Continued

Appendices

List of Illustrations

Figures **Follows Page**

Tables **Page**

Abbreviations and Acronyms

Units of Measure

Term	Definition	Term	Definition
C	Celsius	mi	mile
ft	feet	sqft	square feet
km	kilometer		

Additional Terms

Term	Definition	Term	Definition
A1	surface water	FP	Fully Protected species status
A3	saturation	G1/S1	critically imperiled species heritage rank
BLM	Bureau of Land Management		
BCC	Board of Conservation Concern	G2/S2	imperiled species heritage rank
BIOS	Biogeographical Information and Observation System	G3/S3	vulnerable species heritage rank
BMP	best management practices	G4/S4	apparently secure species heritage rank
C	Candidate species status		
CCH	Consortium of California Herbaria	G5/S5	secure species heritage rank
		GIS	Geographic Information System
CDFW	California Department of Fish and Wildlife	GSD	Garberville Sanitary District
		IPaC	Information for Planning and Conservation
CEQA	California Environmental Quality Act	MBTA	Migratory Bird Treaty Act
CESA	California Endangered Species Act	NCRWQCB	North Coast Regional Water Quality Control Board
CNDDB	California Natural Diversity Database	NDMC	National Drought Mitigation Center
CNPS	California Native Plant Society	NL	Not Listed
CT	candidate threatened species status	NOAA	National Oceanic and Atmospheric Administration
CWA	Clean Water Act	NR	Not Referenced
D	Delisted species status	NRCS	Natural Resources Conservation Service
D2	geomorphic position		
D3	shallow aquitard	NWI	National Wetland Inventory
DI	Drainage Inlet	OBL	Obligate
District	Garberville Sanitary District	OHV	Off-highway Vehicle
DPS	Northern California distinct population segment/species status	OHWM	Ordinary High Water Mark
		PT	Proposed Threatened
		ROW	Right-of-Way
E	Endangered species status	SNR	species not ranked
ESU	evolutionarily significant unit/species status	SSC	species of special concern
		T	Threatened species status
F3	depleted matrix indicator	TNW	Traditional Navigable Waterway
FAC	Facultative vegetation	TP	Test Pit
FACU	Facultative Upland vegetation	UPL	Upland
FACW	Facultative Wetland vegetation	USACE	U.S. Army Corp of Engineers
FESA	Federal Endangered Species Act	USDA	U.S. Department of Agriculture

Term	Definition	Term	Definition
USFS	U.S. Forest Service	WETS	Climate Analysis for Wetlands Table
USFWS	U.S. Fish and Wildlife Service		
USGS	United States Geological Survey	WL	Watch List species status
VegCAMP	Vegetation Classification and Mapping Program		

1.0 Introduction

SHN biologists conducted biological and botanical surveys for special-status species[1] within the area of potential effects for the replacement of existing municipal water tanks and other Garberville Sanitary District (GSD, District) improvements in several locations around the town of Garberville, California (see Figure 1). A wetland delineation was conducted in conjunction with the biological and botanical surveys by SHN's wetland ecologist and soil scientist, which documents potential wetland conditions within the project areas on April 12, 15, and 27, 2022 and February 17, May 9, and May 10, 2023. The study area covered several distinct locations (see Figure 1; Maxar, 2021). Section 1 covers the Wallan Tank and Pump Station off Wallan Road (total study area of 1.35 acres); Section 2 is located along Alderpoint Road near the existing Robertson Tank and Arthur Pump Station and includes portions of the CalFire Station (total study area of 8.6 acres); and Section 3 covers the existing Tobin Well site, existing Hurlbutt Tank site with pressure tank and pump system, and the proposed Main Tank site (total study area of 13.14 acres; Figures 2 through Figure 4). The study area covers an area of approximately 23.10 acres (see Figure 1). This biological and wetland assessment documents the results of the biological and wetland site investigation within the study area.

2.0 Project Description

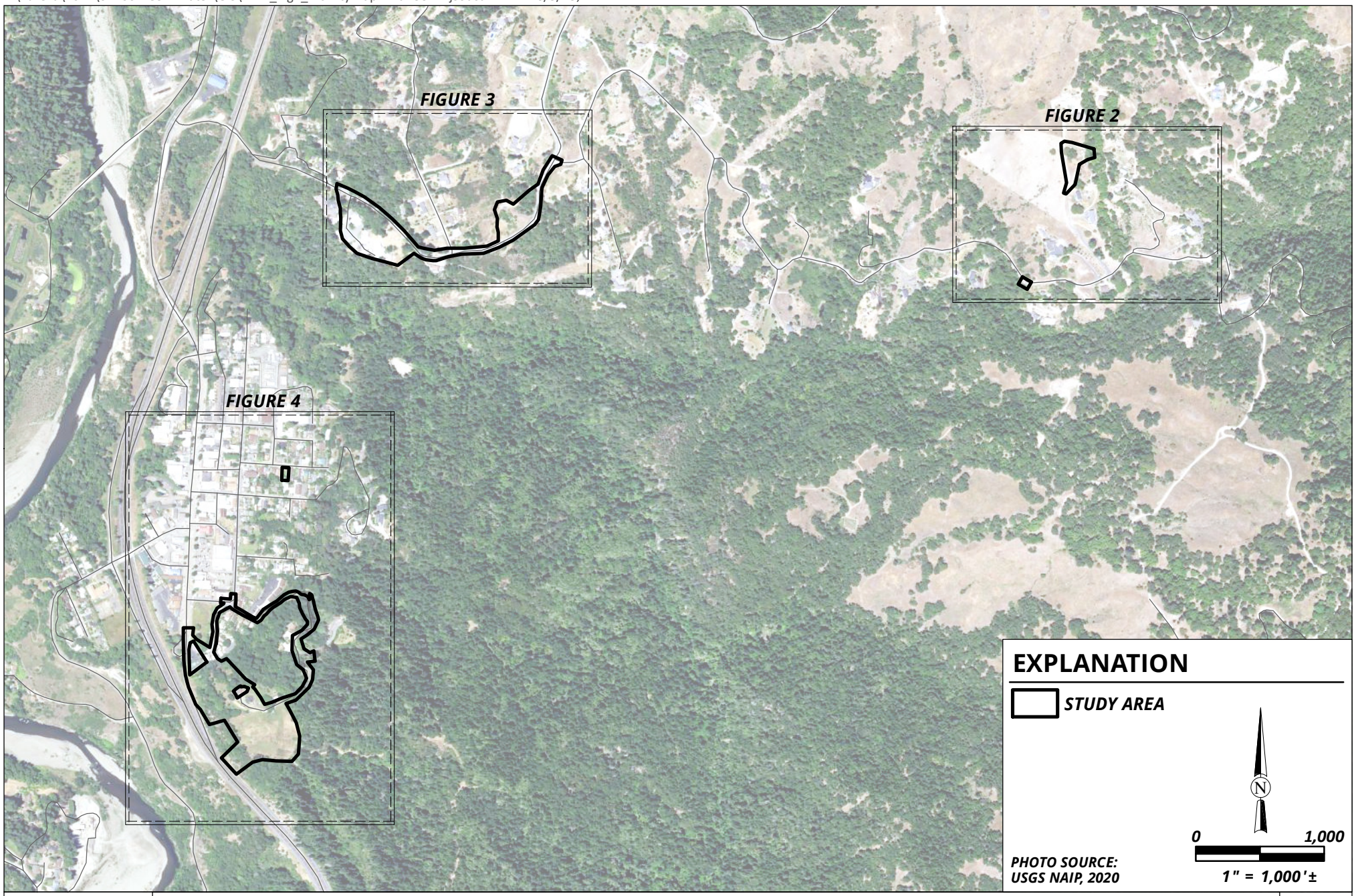
The District is proposing to replace the existing 180,000-gallon, in-ground, concrete, finished water storage tank (Hurlbutt/Main Tank) and a 20,000-gallon, failing, redwood drinking water storage tank (Wallan Tank) with two new increased capacity tanks. In addition, the failing Robertson Tank, which has been taken out of service, will be removed from the system. The new Main Tank will be an in-ground, approximately 550,000-gallon, pre-stressed concrete tank located on an adjacent parcel and similar elevation to the existing tank. The existing Wallan Tank will be replaced with an approximately 77,000-gallon welded steel tank. Both of the existing tanks in operation are leaking and lack sufficient storage capacity for maximum daily consumption and fire suppression; they also do not meet current seismic design standards.

In addition, the District proposes to replace or upgrade three booster Pump Stations (Upper Maple Lane Pump Station, Arthur/Alderpoint Pump Station, and Wallan Pump Station). The existing Upper Maple Lane Pump Station is located at the existing Hurlbutt Tank site and will be demolished when the Hurlbutt Tank is demolished. A new Upper Maple Lane Pump Station will be constructed at the site of the new Main Tank. The existing Arthur Pump Station is in poor condition and has operational deficiencies that will be improved when this Pump Station is replaced by the Alderpoint Pump Station. The Wallan Pump Station is also in poor condition and requires upgrades to meet the operational requirements of the new Wallan Tank.

The project includes installation of some new segments of distribution piping in order to connect the new tanks and Pump Stations to the existing distribution system.

[1]The term "Special-status Species" is used collectively to refer to species that are State or federally listed, species that are State or federal candidates for listing, and all species listed by the California Natural Diversity Database. This term is consistent with the biological resources that need to be assessed pursuant to the California Environmental Quality Act.

P:\Eureka\2022\022067-GSD-Water\GIS\PWB_Fig1_VicinityMap.mxd USER: jsousa DATE: 10/3/23, 11:14AM



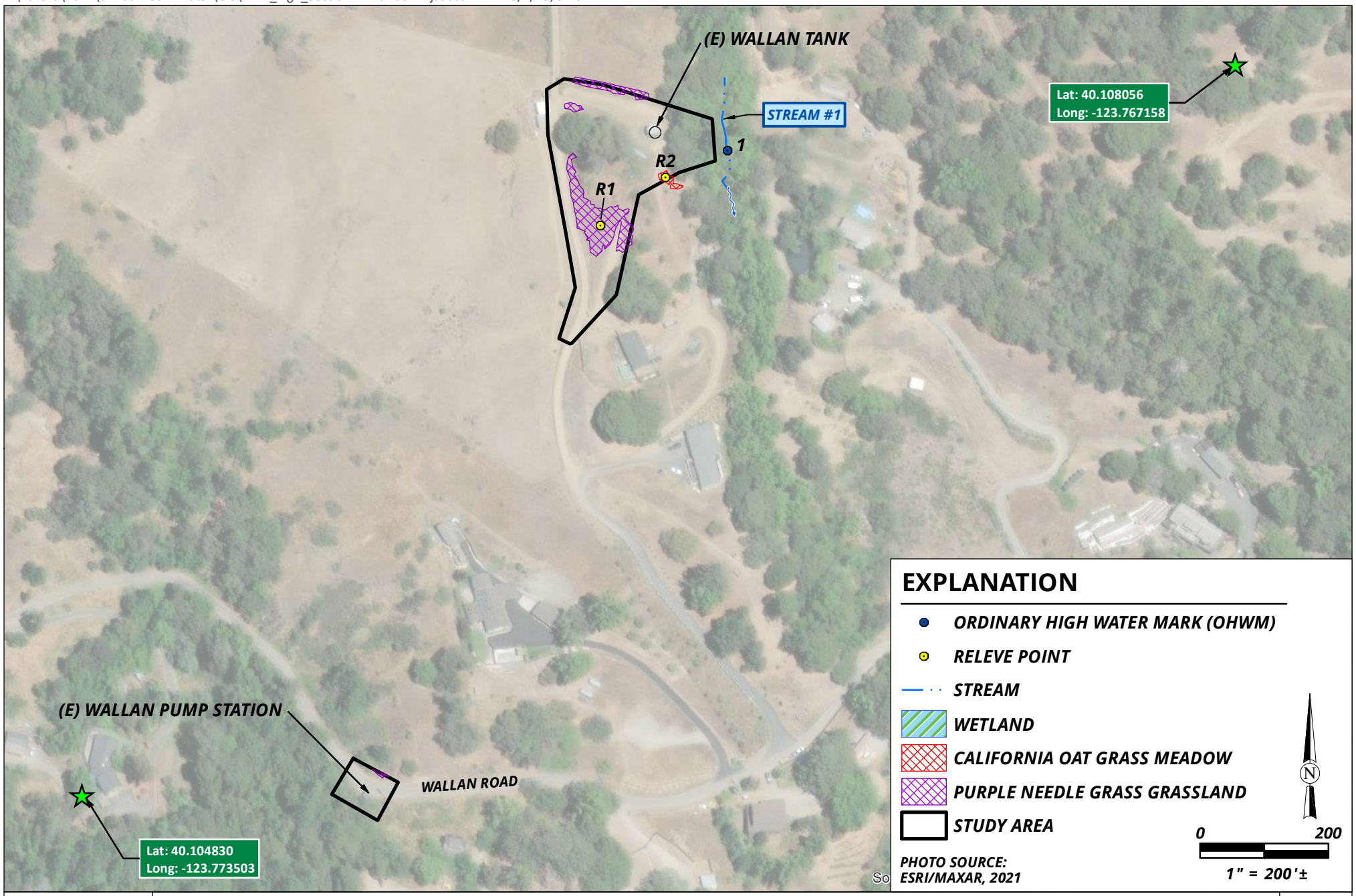
Garberville Sanitary District
Preliminary Wetland & Biological Study
Garberville, California

Vicinity Map

October 2023 - 022067.210

Figure 1

P:\Eureka\2022\022067-GSD-Water\GIS\PWB_Fig2_Section1.mxd USER: jsousa DATE: 8/4/23, 9:23AM

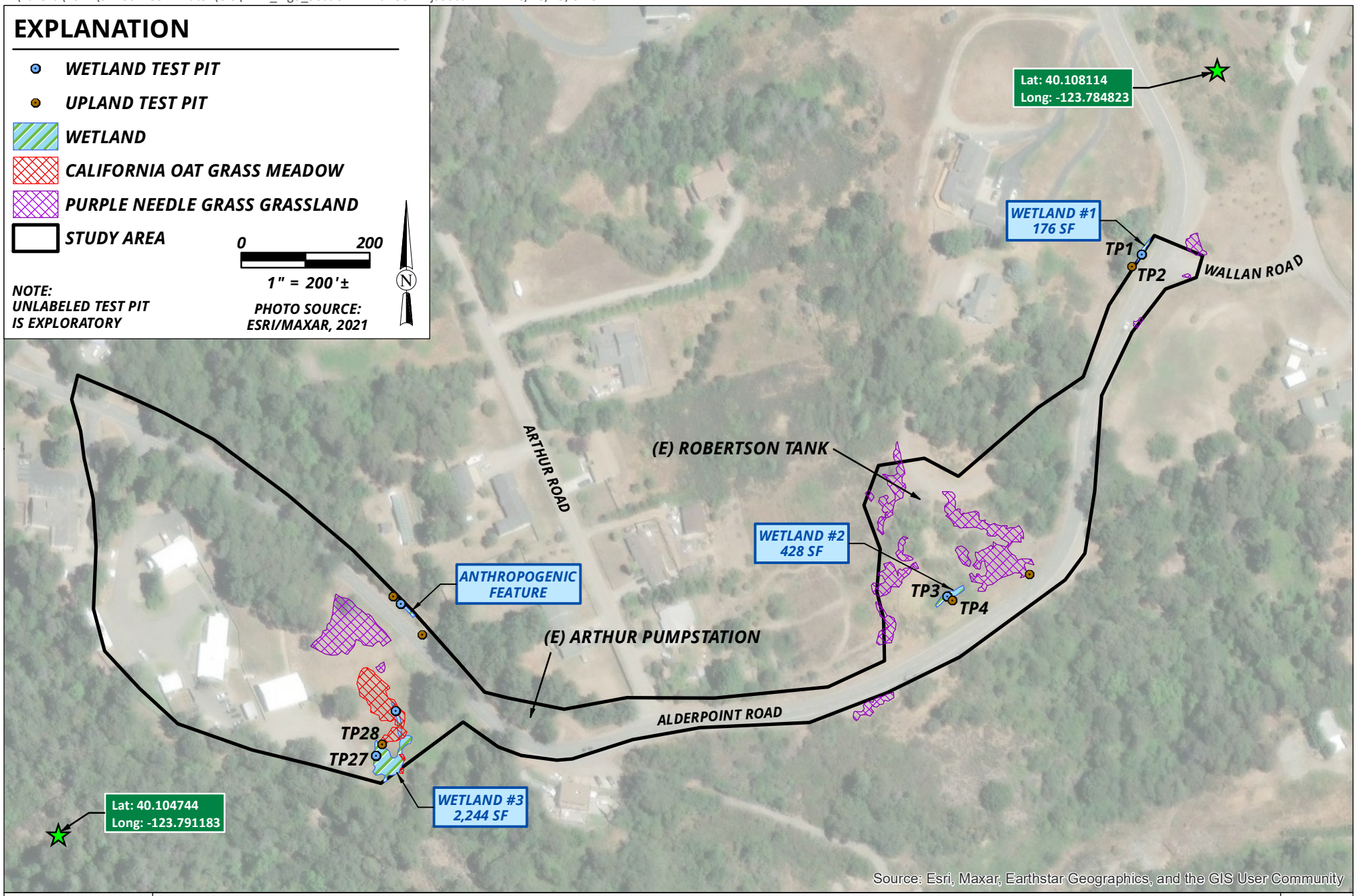


Garberville Sanitary District
Preliminary Wetland & Biological Study
Garberville, California

Study Area
Section 1
August 2023 - 022067.210

Figure
2

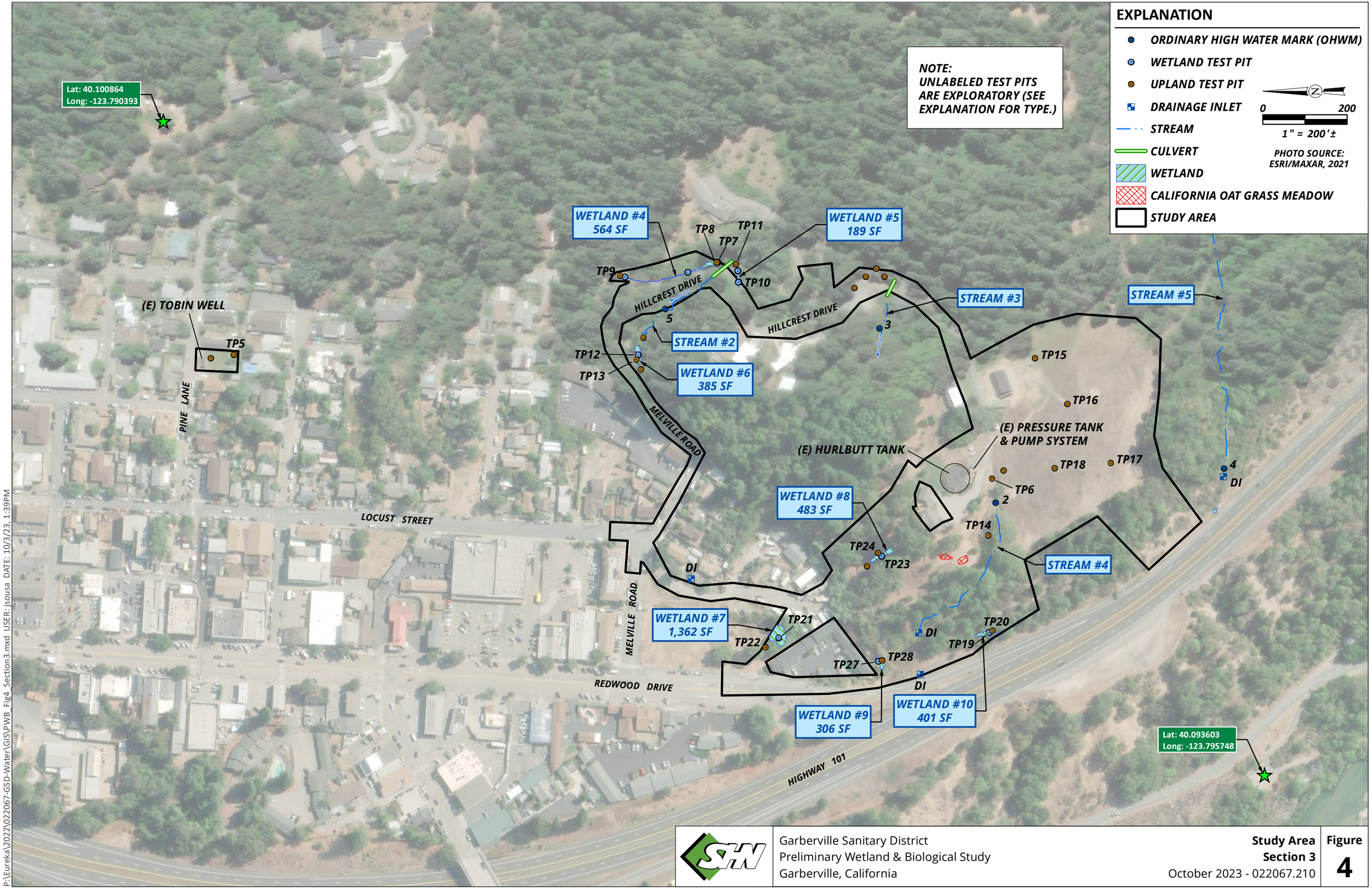
P:\Eureka\2022\022067-GSD-Water\GIS\PWB_Fig3_Section2.mxd USER: jsousa DATE: 10/10/23, 8:46AM



Garberville Sanitary District
Preliminary Wetland & Biological Study
Garberville, California

Study Area
Section 2
October 2023 - 022067.210

Figure
3



P:\Eureka\2022\022067-GSD-Water\GIS\PWB_Fig4_Section3.mxd USER: jsousa DATE: 10/3/23, 1:39PM

Garberville Sanitary District
Preliminary Wetland & Biological Study
Garberville, California

Study Area
Section 3
October 2023 - 022067.210

Figure
4

3.0 Background

The project is located in three separated distinct sections in and around the town of Garberville, California, within an unincorporated area of Humboldt County (Figure 1; United States Geological Survey [USGS] Garberville 7.5-minute Quadrangle, Township 4 South, Range 3 East, Section 24, Township 4 South, Range 4 East, Sections 18 and 19, Humboldt Meridian).

The study areas and the water distribution system and associated infrastructure have remained relatively unchanged for the past 20 years (Google Earth, 2022). They have been managed in much the same way over the years. Existing and proposed tank and Pump Station sites have remained vegetated at a similar density. The Wallan Tank site is atop a steep south-southwest-facing slope, approximately 1,150 feet above sea level, and the Wallan Pump Station is on a moderately steep south-southwest facing slope approximately 855 feet above sea level (Figure 2). The Robertson Tank site is atop a south-facing steep slope approximately 780 feet above sea level, uphill from the Arthur Road Pump Station, which is on a generally-level hillside bench, approximately 615 feet above sea level (Figure 3). The CalFire Station is downslope from the Arthur Road Pump Station, on a larger hillside bench between 550 and 600 feet above sea level. The Wallan and Robertson Tank sites and the CalFire Station are located within a rural residential area northeast of the town of Garberville. The existing Hurlbutt Tank and proposed Main Tank site is on a west-facing moderately-steep slope approximately 700 feet above sea level (Figure 4). This site includes a residence and several associated structures south of the town of Garberville. Downtown Garberville is on a west-facing hillside bench, with a gentle slope approximately 550 feet above sea level, within an urban residential area (Figure 4).

4.0 Environmental Setting

4.1 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 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, 2022a). The TP investigations occurred on April 12, 15, and 27, 2022, and February 17, and May 9 and 10, 2023. The current rainfall data for January, February, March, and December 2022 and January, February, March, April, and May 2023 (National Oceanic and Atmospheric Administration (NOAA, 2023) were compared to the 30-year rainfall average in Scotia, California (the nearest long-term records; 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 than normal" rainfall. The WETS data indicates that both the April 12 and April 15, 2022 TP investigations were performed during a "drier than normal" rainfall season, and the February 17, May 9, and May 10, 2023 investigations were performed during "normal" rainfall periods.

Table 1. WETS Rainfall Data, 2022 and 2023, Hydrological Analysis Garberville, Humboldt County, California

Month	WETS Condition	<30%	> 70%	Rainfall (in.)	Condition Value	Weight	Product Value
April 12, 15, and 27, 2022 Test Pit Excavation							
March 2022	Dry	4.35	8.48	2.00	1	3	3
February 2022	Dry	4.37	9.40	0.63	1	2	2
January 2022	Dry	4.38	10.42	2.14	1	1	1
Total						**Drier than Normal[a]**	**6**
February 17, 2023 Test Pit Excavation							
February 2023	Normal	4.37	9.40	7.04	2	3	6
January 2023	Above Normal	4.38	10.42	16.94	3	2	6
December 2022	Normal	5.17	11.69	11.13	2	1	2
Total						**Normal[a]**	**14**
May 9 and 10, 2023 Test Pit Excavation							
May 2023	Normal	0.93	2.34	1.18	2	3	6
April 2023	Normal	2.49	4.67	2.57	2	2	4
March 2023	Above Normal	4.35	8.48	11.83	3	1	3
Total						**Normal[a]**	**13**

[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, 2022a; NOAA, 2023

In addition to reviewing the WETS table, there is also the consideration of drier than normal conditions over an extended period. The NOAA and USDA have a National Drought Mitigation Center (NDMC) that monitors drought. The NDMC classifies this region as undergoing a "Severe Drought" during the April 2022 investigations. During the February 2023 site investigation, this region had enough precipitation in winter to re-classify it to "Abnormally Dry" and by April 2023, "No Drought" (NDMC, 2022; Appendix 1). Long term drought conditions necessitate addition considerations for wetland hydrology indicators, discussed in Section 6.3 Hydrology Methods.

4.2 National Wetlands Inventory

The United States Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI; USFWS, 2022a) does not have any wetland or riparian areas mapped within the study area (Appendix 1, NWI). 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 deepwater 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, 2022a)

The intent of this study is to determine wetland conditions within the study area using site-specific soil, hydrology, and vegetation analysis.

4.3 Geologic and Soil Composition

The site is set within Pliocene-aged marine sediments mainly composed of sandstone, siltstone, shale and moderately consolidated conglomerate (California Department of Conservation [CDC], 2010). The underlying soils in the study areas have the USDA-NRCS soil map unit designation 311- Urban land-Garberville complex, 5 to 15% slopes; 461-Tannin-Burgsblock-Rockyglen complex, 30 to 50% slopes; 667—Dryfield-Yorknorth-Witherell complex, 5 to 30% slopes; and 673-Coolyork-Yorknorth Complex, 30 to 50% slopes. The complete description of these soils and location maps are in Appendix 2 (USDA-NRCS, 2022b).

5.0 Biological Survey Methods

5.1 Biological Scoping Methods

A list of special-status species was developed from known occurrences within the Garberville and adjacent 7.5-minute quadrangles, available from the following sources:

- Consortium of California Herbaria (CCH, 2022)
- Calflora Project (Calflora, 2022)
- California Natural Diversity Database (CNDDB; California Department of Fish and Wildlife [CDFW], 2022a)
- Biogeographical Information and Observation System (BIOS; CDFW, 2022b)
- Special Animals of California List (CDFW, 2022c)
- Electronic Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS], 2022)
- USFWS Information for Planning and Consultation (IPaC; USFWS, 2022b)
- USFWS Threatened and Endangered Species Active Critical Habitat Report Geographic Information System (GIS) database (USFWS, 2022c).

Using information about sensitive species potentially present in the vicinity of the project area, SHN conducted botanical and biological surveys to determine if any of these species were located within or adjacent to the project area or had potential to occur based on habitat availability.

Appendix 3, Table 1, presents the botanical species reported from the queries, their preferred habitat, and whether there is suitable habitat present within the study area for the species. Appendix 3, Table 2 presents the animal species reported from the queries, their preferred habitat, and whether there is suitable habitat present within the study area for the species. Each species was evaluated for its potential to occur within the study area according to the following criteria:

1) **None**. Species listed as having "none" with regard to their potential to occur on the study area are those species for which:

- there is no suitable habitat present in the study area. (Habitats in the study area are unsuitable for the species requirements [e.g., elevation, hydrology, plant community, disturbance regime, etc.])

2) **Low**. Species listed as having a "low" potential to occur in the study area are those for which:
   - there is no known record of occurrence in the vicinity of the study area; and
   - there is marginal or very limited suitable habitat present in the study area.

3) **Moderate**. Species listed as having a "moderate" potential to occur on the study area are those species for which:
   - there is a known record of occurrence in the vicinity of the study area; and
   - there is suitable habitat present in the study area.

4) **High**. Species listed as having a "high" potential to occur in the study area are those species for which:
   - there is a known record of occurrence in the vicinity of the study area (there are many records and/or records in close proximity); and
   - there is highly suitable habitat present in the study area.

5) **Present**. Species listed as "present" in the study area are those species for which:
   - the species was observed in the study area during the investigations.

5.2 Field Investigations

Based on the results of the aforementioned database queries, a focused botanical survey was conducted pursuant to the CDFW *Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities* (CDFW, 2018). Plants observed during site visits were identified to the lowest taxonomic level possible to distinguish special-status species from others. Vegetation alliances conform to the Vegetation Classification and Mapping Program's (VegCAMP) Natural Communities List (CDFW, 2020) and A Manual of California Vegetation online (CNPS, 2023). Botanical nomenclature of species in this Assessment follows the Jepson Manual (Baldwin et al., 2012) and subsequent online revisions (UCB, 2022). In accordance with the botanical survey protocol recommended by CDFW, botanical surveys were floristic in nature, with an attempt to identify all species present, including possible special-status species and natural communities (CDFW, 2018).

Active searches and habitat assessments were conducted for special-status animal species during site visits. Nomenclature for special-status animals conforms to the CDFW Animals List (CDFW, 2022c).

Field surveys were conducted on April 12, 15, 27, and July 1, 2022, and May 9, and 10, and July 5 and 6, 2023 for all special-status species and sensitive habitats potentially present (Appendix 3, Tables 1 and 2) in the study area. The protocol floristic plant surveys and reconnaissance-level wildlife habitat and animal observation surveys covered the entire project area and area of potential effects, as well as a buffer around the project area of potential effects. (See Figure 1 for approximate survey boundary). Vegetation Rapid Assessment and Relevés were conducted to document conditions within sensitive natural communities and are attached in (Appendix 4).

In addition to surveying for target species, lists of all botanical and animal species encountered were compiled. A list of observed botanical species is attached as Appendix 3, Table 3. A list of observed animal species is attached as Appendix 3, Table 4.

6.0 Wetland Assessment Methods

Wetland field investigations were conducted on April 12, 15, and 27, 2022, and February 17, May 9, and May 10, 2023. Twenty-eight (28) test pits were excavated to characterize wetland conditions within the study area. If wetland parameters were observed, then a subsequent test pit was excavated to investigate further for hydric soil indicators and additional hydrology. Results were recorded for soils, vegetation, and hydrology on United States Army Corps of Engineers (USACE) Wetland Determination Data Forms (Appendix 5). Exploratory pits were excavated to help confirm wetland boundaries. These are soil pits that help delineate boundaries by confirming hydrology and hydric soils conditions but are not followed up with data sheets when conditions are similar to those recorded in adjacent test pits on wetland determination data forms.

Wetland delineation methods described in the *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 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 qualifies as a wetland. Prior to conducting the field investigation, SHN staff reviewed Google Earth (Google Earth, 2022) and NWI map (USFWS, 2022a; Appendix 1). During the field investigation, sample points were characterized at the site for the botanical, hydrological, and soil parameters.

Point locations were used to:

- achieve appropriate coverage and characterization of any potential 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 determining the extent of key wetland criteria (hydrology, hydric soils, and hydrophytic vegetation).

The study area was investigated by choosing test pit and exploratory pit locations at edges of depressions, in locations with evidence of standing water, changes in vegetation, or dominance of hydrophytic vegetation, locations of flow patterns, or changes in topography. Areas with potential wetland parameters were selected as pit locations to ascertain the presence or absence of wetlands and the extent of wetlands within the study area. This resulted in a conservative search being conducted for potential wetlands (see Figures 3 and 4 for TP locations). If wetland conditions were absent, then no additional test pit was excavated.

6.1 Vegetation Methods

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). Absolute percent cover of each plant species was visually estimated within the sample point and within each vegetation stratum. The herbaceous and shrub stratums were

inspected at a 5-foot radius centered on the sample point while the tree stratum was inspected at a 30-foot radius centered on the sample point. Botanical nomenclature follows *The Jepson Manual, Vascular Plants of California* (Baldwin et al., 2012) in addition to the online Jepson eflora (UCB, 2022) for verification of species whose taxonomy may have changed since its publication.

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-wet (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

The 50/20 method[2] was applied to each stratum to determine the dominant plant species and to satisfy the hydrophytic vegetation criteria. When the site failed to meet the 50/20 standard, and both hydric soils and wetland hydrology were present, the prevalence index[3] was applied. The occurrence and type of plant cover determine whether jurisdictional areas are identified as satisfying the vegetation criteria of a wetland or other waters. Those sites with little or no hydrophytic plant cover, or other sites not capable of supporting hydrophytic plant communities in normal circumstances, are identified as other waters, provided they have an ordinary highwater mark (OHWM).

6.2 Soil Methods

Soils were field verified for the presence or absence of hydric conditions. Hydric soils are soils that are 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, 2018). All TPs were manually excavated using hand tools to a minimum depth of 24 inches when possible. 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).

6.3 Hydrology Methods

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). Observations for wetland hydrology were made during TP excavations on April 12, 15, and 27, 2022, and February 17, May 9, and May 10, 2023. Wetland hydrology is determined by the

2. 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).

3. 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).

presence of surface and/or ground water 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 (Section 4.1 Site Hydrology). In addition, aerial imagery was reviewed that may show past inundation, seasonal inundation patterns, or changes onsite that may have influenced hydrology.

The NDMC was reviewed for the north coast region, which includes the study area. This region was experiencing an "Extreme Drought" during the April 2022 investigations, according to the NDMC (Appendix 1). If the wetland delineation is conducted within a region that is experiencing a prolonged extreme drought, the USACE manual (USACE, 2010) describes the follow change in methods for determining hydrology:

> "c. Drought years. Determine whether the area has been subject to short or long-term drought. Droughts lasting two to several years in a row are common in the region, particularly in interior portions away from the Pacific coast. Drought periods can be identified by comparing annual rainfall totals with the normal range of annual rainfall given in WETS tables or by examining trends in drought indices, such as the Palmer Drought Severity Index (PDSI; Sprecher and Warne 2000). If wetland hydrology indicators appear to be absent on a site that has hydrophytic vegetation and hydric soils, no significant hydrologic manipulation (e.g., no dams, levees, water diversions, land grading, etc., and the site is not within the zone of influence of any drainage ditches or subsurface drains), and the region has been affected by drought, then the area should be identified as a wetland."
> (USACE, 2010)

Because the study area is located within a region that was experiencing a persistent, extreme drought and in a "drier than normal" rainfall period during the April 2022 portion of the wetland delineation (see Section 4.1; Site Hydrology), every TP with hydric soil indicators *and* hydrophytic vegetation was assumed to have wetland hydrology normally, even if it was not observed during the wetland delineation fieldwork. In addition, the April 2022 test pits were also excavated to at least 24 inches if no other hydrology indicators were met, to determine if the USACE hydrology "Dry-Season" Water Table (C2) indicator was observed (USACE, 2010). The February 17, and May 9 and 10, 2023 portion of the wetland investigation was performed during a "normal" rainfall period and drought conditions have been reduced from "Abnormally Dry" to "No Drought", which does not require the same level of assumptions (See Appendix 1).

6.4 Ordinary High Water Mark Methods

For purposes of Section 404 of the Clean Water Act (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

7.0 Existing Habitat Conditions

7.1 Wallan Tank Site and Pump Station

Section 1 of the study area (Figure 2) includes the Wallan Tank site and Wallan Pump Station for a total of 1.35 acres. The Wallan Tank site and corresponding Pump Station are characterized by sparsely forested slopes in an area of rural development northeast of the town of Garberville. The Wallan Tank (see Appendix 6, Photo 1) is positioned upslope of Wallan Road and just west of a narrow strip of mixed hardwood and conifer woodland along the steep slopes of a ravine. A nearby unnamed seasonal stream (Stream #1) was mapped within the forested ravine (Figure 2; Appendix 6, Photo 2). Burn marks and debris within the forested area indicate a historical burn, estimated approximately 70 years ago. The study area around the Wallan Tank also contains several populations of sensitive vegetation communities: California oatgrass (*Danthonia californica* Herbaceous Alliance) grassland and purple needlegrass (*Stipa* spp. Herbaceous Alliance) grassland (Figure 2), further described in Section 8.0 below. Historically disturbed areas within the Wallan Tank site are dominated by nonnative annual grasses and forbs, such as large quaking grass (*Briza maxima*), soft chess (*Bromus hordeaceus*), silver hairgrass (*Aira caryophyllea*), and yellow star thistle (*Centaurea solstitialis*). At the time of 2022 and 2023 surveys, the Wallan Tank was leaking, and a pool of accumulated water was present around the base of the tank (see Appendix 6, Photo 1). This area was not mapped as wetland due to its highly artificial and disturbed nature.

The Wallan Pump Station is located south of Wallan Road at the edge of a mixed hardwood and conifer forest, which extends along the south of Wallan Road. The sensitive vegetation community, purple needlegrass grassland, is present across from the Pump Station on the north bank of Wallan Road (Figure 2).

7.2 Robertson Tank Site, Arthur Pump Station, and CalFire Station

Section 2 of the study area (Figure 3) is 8.6 acres and includes the Robertson Tank site, the Arthur Pump Station, Alderpoint Road, and the CalFire Station. The Robertson Tank is located atop a steep south-southwest-facing slope north of Alderpoint Road in an area of rural development northeast of the town of Garberville (Appendix 6, Photos 3 and 4). The tank is partially below ground within a grassland adjacent to a mixed hardwood and conifer woodland that extends down the slope. This portion of study area also includes several populations of sensitive purple needlegrass grassland between Robertson Tank and Alderpoint Road and extending along Alderpoint Road (Figure 3) and discussed in Section 8.0 below. There are also two isolated wetlands within the study area, discussed in detail in Section 11.0 below.

The Arthur Pump Station is located just north of Alderpoint Road within a stand of Douglas fir (*Pseudotsuga menziesii*) between Alderpoint road and residential development. Across Alderpoint Road, mixed hardwood/Douglas fir forest extends south of the Arthur Pump Station toward the town of Garberville.

The CalFire Station is located immediately south and downslope from Alderpoint Road on a large hillside bench that ranges from moderately steep to mostly flat. Flat portions of the area are developed with the CalFire Station infrastructure and this area is dominated by non-native species including landscaping and other cultivated plants. Undeveloped portions of the area are dominated by mixed conifer and hardwood forest specifically on the perimeter of the station area and in the northern portion of the area along Alderpoint Road. The undeveloped southeastern portion of the CalFire Station area is dominated by native and non-native grassland, including large sections of California oatgrass grassland and purple needlegrass grassland described in Section 8.0.

7.3 Tobin Well Site and Hurlbutt/Main Tank Sites

Section 3 of the study area (Figure 4) includes the Tobin Well site, the existing Hurlbutt Tank site, and proposed Main Tank site for a total of 13.14 acres. Vegetation present at the Tobin Well site consists of nonnative grasses and herbs, as well as ornamental trees and shrubs. No sensitive plant communities or wetlands were identified within this portion of the study area.

The Hurlbutt/Main Tanks site is accessed from the southeastern end of downtown Garberville via Melville Road and Hillcrest Drive (Figure 4). The access roads pass through mixed hardwood/conifer woodlands, connecting to a large, expansive forested area dominated by mature Douglas fir to the south and east of Garberville. The study area encompasses the existing Hurlbutt Tank, a residence, and several other associated structures accessed from a paved driveway northwest of a large gently-sloping mowed non-native grassland. The proposed location of the new Hurlbutt Tank is on the southwestern edge of the sloping mowed pasture. The residence, existing, Hurlbutt Tank, proposed Main Tank, and the mowed pasture are surrounded by mixed hardwood-conifer forests. The southwestern edge of the study area includes a steep cut slope dominated by young forest and shrubland between the mowed pasture and U.S. Highway 101. Several seasonal streams and wetlands exist within and adjacent to the study area, as shown in Figure 4 and discussed in detail in Section 11.0 below. Dominant species within the forested area include Oregon white oak (*Quercus garryana*), California bay laurel (*Umbellularia californica*), madrone (*Arbutus menziesii*), and Douglas fir, which have a well-developed understory with native herbaceous and woody species dominant. Within the mowed pasture dominant species were non-native species common within managed pasture and grassland, including subterranean clover (*Trifolium subterraneum* [NL]), sweet vernal grass (*Anthoxanthum odoratum* [FACU]), hairy oatgrass

(*Rhytidosperma penicillatum* [NL], California blackberry (*Rubus ursinus* [FACU]), velvet grass (*Holcus lanatus* [FAC]), and creeping bentgrass (*Agrostis stolonifera* [FAC]).

8.0 Natural Communities

Sensitive vegetation communities, with a rank of S3 or lower, require California Environmental Quality Act (CEQA) analysis if potential impacts may occur. Two sensitive vegetation communities as defined by the Manual of California Vegetation or CDFW Natural Communities list occur within the study area (Sawyer, 2009; CNPS, 2023; CDFW, 2022a; Figures 2, 3, and 4). These include purple needlegrass grassland (*Stipa* spp. Herbaceous Alliance) and California oatgrass grassland (*Danthonia californica* Herbaceous Alliance) and appropriate species associations.

Purple needlegrass grassland (*Stipa* spp. Herbaceous Alliance) occupies approximately 26,977.9 sqft (0.62 acre) within the study area. The majority of the purple needlegrass grassland is in Section 2 with multiple occurrences totaling 19,484.67 square feet (sqft; 0.45 acre; Figure 3). Four well-developed, intact purple needlegrass grassland occurrences exist in Section 1, for a total of 7,493.20 sqft (0.17 acre; Figure 2). The purple needlegrass grasslands observed within the study area are further described to the association level. Within Section 1, all purple needlegrass grasslands were best described as having the *Stipa pulchra* association, which is characterized by high cover and dominance by purple needlegrass. Purple needlegrass grasslands within the study area displayed up to 80 percent cover by purple needlegrass, most of which was flowering at the time of the survey (Appendix 6, Photo 5). Common associated species included large quaking grass, coast heron's bill (*Erodium cicutarium*), California oatgrass, rose clover (*Trifolium hirtum*), and purple sanicle (*Sanicula bipinnatifida*), among others. Purple needlegrass grassland within the study area is generally on open, herbaceous-dominated south-facing slopes in locations with a history of minimal recent disturbance. More disturbed areas display much higher cover by non-native annual grasses, including an off-highway vehicle (OHV) trail that nearly bisects the purple needlegrass grassland immediately south of the Wallan Tank site. Purple needlegrass grassland has a global heritage rank of G3G4 and a State heritage rank of S3S4, and the *Stipa pulchra* association has an additional rarity ranking of S3, therefore qualifying for consideration under CEQA Guidelines checklist IVb. Releve' Data Sheet 1 documents representative conditions within the purple needlegrass grasslands in the study area and this data point was located within a large purple needlegrass grassland south of the Wallan Tank site (Appendix 4).

California oatgrass grassland (*Danthonia californica* Herbaceous Alliance) occupies approximately 5,063.86 sqft (0.11 acre) within the study area. The majority of the California oatgrass grassland is in Section 2 with three distinct occurrences totaling 4,005.15 sqft (0.09 acre; Figure 3). One California oatgrass grassland occurrence is in Section 1 with a total of 446.07 sqft (0.01 acre; Figure 2) and two California oatgrass grassland occurrences are in Section 3 with a total of 612.64 sqft (0.01 acre; Figure 4). The majority of the California oatgrass grassland occurrences do not meet an association level description, however the largest California oatgrass grassland mapped within the study area (Section 2, Figure 3) is best described using the *Stipa pulchra* association as there is a low percentage of purple needlegrass present within the grassland dominated by California oatgrass. California oatgrass within the study area displayed a wide range of dominance by California oatgrass. High quality examples exhibited up to 70 percent cover by California oatgrass, however most were less than 50 percent cover by California oatgrass (Appendix 6, Photo 6). Common associated species included smooth cat's ear (*Hypochaeris glabra*). Large quaking grass, ripgut brome (*Bromus diandrus*), and Purdy's iris (*Iris purdyi*) among others. California oatgrass grassland within the study area is generally on open, herbaceous dominated slopes with varied aspects, primarily in areas with some amount of irregular mowing.

California oatgrass grassland does not have a global rarity rank (GNR), but has a State heritage rank of S3, therefore qualifying for consideration under California Environmental Qualifications Act (CEQA) Guidelines checklist IVb. Releve' Data Sheet 2 documents representative conditions within the California oatgrass grasslands in the study area and this data point was located within a small, lower quality California oatgrass grassland southeast of the Wallan Tank site (Appendix 4).

9.0 Special-status Botanical Species

Based on a review for special-status plant species, 46 special-status botanical species were identified as occurring within the Garberville and surrounding USGS quadrangles (Appendix 3, Table 1). A total of 11 special-status botanical species were determined to have a moderate or high potential of occurring within the study area. Species with moderate or high potential of occurring within the study area are listed below:

- northern clustered sedge (*Carex arcta*)
- Humboldt County fuchsia (*Epilobium septentrionale*)
- streamside daisy (*Erigeron biolettii*)
- coast fawn lily (*Erythronium revolutum*)
- bristly leptosiphon (*Leptosiphon acicularis*)
- broad-lobed leptosiphon (*Leptosiphon latisectus*)
- heart-leaved twayblade (*Listera cordata*)
- white-flowered rein orchid (*Piperia candida*)
- North Coast semaphore grass (*Pleuropogon hooverianus*)
- Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*)
- Methuselah's beard lichen (*Usnea longissima*)

A total of 315 botanical species were observed within the study area, reflecting the varied habitat occurring within the study area and are recorded in Appendix 3, Table 3. Of the 315 botanical species, 50 percent are native species. Seasonally-appropriate surveys of the study area did not locate any special-status botanical species. Habitat exists within the study area for a number of the special-status botanical species documented as potentially occurring within the study area, including wetland areas, grassland, and forested areas. No special-status botanical species were observed, possibly as a result of disturbance, dominance by non-native and invasive species, or other reasons. The findings in this Assessment represent conditions at the time of the surveys and it is possible that false negative surveys for rare plant species could occur; however, the surveys were conducted over a two-year period (2022 and 2023), significantly reducing the potential for false negative results. This Assessment documents the 2022 and 2023 field investigations, and the findings presented here are based on best professional judgment.

10.0 Special-status Animal Species

Based on a review for special-status animal species, 37 special-status animal species have been reported from the region consisting of the Garberville quadrangle and surrounding quadrangles (Appendix 3, Table 2). Of the special-status animal species potentially occurring in the region, 27 animal species are considered to have no or low potential to occur at the project site and 10 species have a moderate to high potential to occur at the project site. Species with a moderate or high potential for occurrence within the study area are listed below.

10.1 Amphibians

The **red-bellied newt** (*Taricha rivularis*) is not listed under either the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA), but is considered a Species of Special Concern (SSC) by CDFW and has heritage ranks of G2/S2. This species breeds in streams and adults live in terrestrial environments within coniferous and riparian forests and woodlands. There is suitable terrestrial habitat available for adults and juveniles within the forested portions of the study area. Logs were turned within the study area to search for amphibians. This species was not observed during site visits, although the ephemeral drainages within the study area may provide dispersal habitat for this species. With the incorporation of the recommendation to avoid and minimize impacts to wetlands/waters, this species is not expected to be affected by the project.

10.2 Birds

The **American peregrine falcon** (*Falco peregrinus anatum*) is delisted under FESA and CESA and has heritage rankings of G4T4/S3S4. This species occurs in forested areas, open areas with rocky outcroppings, and often near water bodies. They nest on cliff ledges, sometimes in hollow or broken snags or large trees, and also use ledges of buildings, bridges, or other structures. This species was not observed during site visits, although portions of the study area provides urban nesting habitat for this species while the surrounding landscape provides higher quality nesting and foraging habitat. Section 14.0 Recommendations provides strategies for minimizing or avoiding impacts on nesting birds.

The **cooper's hawk** (*Accipiter cooperii*) is not listed under FESA or CESA but it is on the Watch List by CDFW and has heritage rankings of G5/S4. This species occurs in forested habitats, including cismontane woodlands and riparian forests. Cooper's hawk prefers open, interrupted, or marginal forests, allowing for increased foraging opportunities. Nest sites are usually in deciduous forested riparian areas. Suitable nesting habitat is available within the forested portions of the study area, although no nests of this species were observed during site visits. Section 14.0 Recommendations provides strategies for minimizing or avoiding impacts on nesting birds.

The **olive-sided flycatcher** (*Contopus cooperi*) is not listed under FESA or CESA, but it is a SSC by CDFW and has heritage rankings of G4/S3. This species occupies various forest and woodland habitats, including mixed coniferous-deciduous forest, and wetland/riparian forested areas. Nest sites are usually in coniferous trees, often with nearby large dead snags. Suitable nesting habitat is available within the forested portions of the study area. Section 14.0 Recommendations provides strategies for minimizing or avoiding impacts on nesting birds.

The **osprey** (*Pandion haliaetus*) is not listed under FESA or CESA but is on the Watch List by CDFW and has heritage rankings of G5/S4. This species can be found within riparian forests, shores, bays, lakes and larger streams. They build large nests on broken treetops or human-made structures within 15 miles of a fish-bearing body of water. Suitable nesting habitat is available within the forested portions of the study area, where some broken treetops were observed, although no nests of this species were observed during site visits. Section 14.0 Recommendations provides strategies for minimizing or avoiding impacts on nesting birds.

10.3 Fishes

There are no special-status fish with potential to occur within the study area due to lack of suitable stream connectivity and seasonal, ephemeral water flows.

10.4 Insects

There are no special-status insects with moderate or high potential to occur within the study area due to lack of adequate suitable habitat.

10.5 Mammals

The **pallid bat** (*Antrozous pallidus*) is not listed under FESA or CESA and has heritage rankings of G4/S3. This species inhabits a variety of forested habitats such as broadleaf upland forest, cismontane woodland, closed-cone conifer forest, lower and upper montane conifer forest, and north coast conifer forest. They are most common in open, dry habitats with rocky areas for roosting. A focused bat presence survey was not conducted, although limited suitable roosting habitat is available within the portions of the study area away from town. Section 14.0 Recommendations provides strategies for minimizing or avoiding impacts to roosting bats.

The **North American porcupine** (*Erethizon dorsatum*) is not listed under either FESA or CESA, but has a heritage ranking of G5/S3. This species is a generalist herbivore found in a wide variety of coniferous and mixed woodland habitat. They are commonly found on the ground or in trees. Denning can occur in rocky areas, or if not available, in hollowed-out trees. This species was not observed during site visits, although suitable habitat is available within the forested portions of the study area. Due to project activities being focused on existing infrastructure replacement within developed areas, this species is not expected to be affected by the project.

The **fringed myotis** (*Myotis thysanodes*) is not listed under either FESA or CESA but is considered a sensitive species by the Bureau of Land Management (BLM) and has a heritage ranking of G4/S3. This species feeds on beetles, moths, flies, leafhoppers, lacewings, crickets, spiders, harvestmen, and other invertebrates. The fringed myotis roosts in rock crevices, caves, buildings, and mines as well as large snags generally in small clusters of females. Males roost alone or in small separate colony. A focused bat presence survey was not conducted, although suitable habitat is available within the forested portions of the study area and adjacent buildings. Section 14.0 Recommendations provides strategies for minimizing or avoiding impacts on roosting bats.

The **long-eared myotis** (*Myotis evotis*) is not listed under either FESA or CESA but is considered a sensitive species by the BLM and has a heritage ranking of G5/S3. This species feeds on a variety of arthropods including moths, flies, spiders, and especially beetles. The long-eared myotis roosts singly, or in small groups in buildings, crevices, spaces under bark and snags. Caves are used primarily as night roosts. A focused bat presence survey was not conducted, although suitable habitat is available within the forested portions of the study area and adjacent buildings. Section 14.0 Recommendations provides strategies for minimizing or avoiding impacts on rooting bats.

The **Yuma myotis** (*Myotis yumanensis*) is not listed under either FESA or CESA but is considered a sensitive species by the BLM and has a heritage ranking of G5/S4. This species is found in a variety of western lowland habitats, from arid thorn scrub to coniferous forest, but always close to standing water such as lakes and ponds. This species may roost in a variety of places such as buildings and bridges, trees, and rocks. A focused bat presence survey was not conducted, although suitable habitat is available within the forested portions of the study area and adjacent buildings, though standing water is limited. Section 14.0 Recommendations provides strategies for minimizing or avoiding impacts on rooting bats.

10.6 Reptiles

No special-status reptiles have potential to occur within the study area due to lack of suitable habitat.

10.7 Designated Critical Habitat

The nearest Designated Critical Habitat exists approximately 0.2 miles to the west within the Eel River and is mapped for Steelhead and Chinook salmon. This habitat is on the opposite side of U.S. Highway 101 from the project area; however, there is hydrologic connectivity through the five streams that occur within or adjacent to the study area. Streams will be avoided with suitable buffers, and proper stormwater best management practices (BMPs) will be utilized to prevent the introduction of sediment or other contaminants. As such, this habitat will not be affected by the project. The next nearest Designated Critical habitat exists approximately 2 miles to the northwest of the project area and is mapped for the marbled murrelet. This habitat will not be affected by the project due to its distance from the project areas.

10.8 Nesting Bird Habitat

All areas of vegetation and some urban development structures may provide suitable nesting habitat for a wide variety of birds. There is the potential for significant impacts to nesting birds during construction without the incorporation of mitigation. To minimize impacts to nesting bird species, pre-construction surveys for nesting birds are recommended as mitigation for the proposed project as described in Section 14.0 Recommendations.

10.9 Wildlife Movement Corridors

The ephemeral drainages, streams, grassland, and forested areas within the study area provide potential movement corridors for animals. These areas are to remain largely unimpacted and will not be significantly modified by project activities. The only permanent fencing proposed by the project is security fencing immediately around the proposed water tanks, which would not cause disruption of wildlife movement. Therefore, there are no anticipated negative effects on wildlife movement corridors as a result of the project.

10.10 Special-status Animal Species Summary

No special-status animal species were detected during the surveys, although it is possible that special-status species could be found within the project area at some point. However, the lack of high-quality habitat compared to the surrounding landscape makes it unlikely that special-status species would remain on site during construction.

11.0 Wetland and Other Waters Results

Wetland field investigations were conducted on April 12, 15, and 27, 2022, and February 17, and May 9 and 10, 2023. Ten wetland features and five streams were mapped within or near the study area. Streams and wetlands outside of the study area but immediately adjacent to proposed project activities were mapped for planning and setback purposes. The results from the wetland investigation within each of the study area sections are described below, including wetland and stream conditions. See Figure 1 for the location of each study area section, Figure 2 for Section 1 wetland and stream conditions, Figure 3 for Section 2 wetland and stream conditions, and Figure 4 for Section 3 wetland and stream conditions. The Wetland Determination Data Forms and OHWM Delineation Datasheets for each test pit and OHWM delineation point are included in Appendix 5.

11.1 Section 1—Wallan Tank Site and Pump Station

This area is a dry, sloping, well drained upland and had no evidence of wetland hydrology or hydrophytic vegetation; therefore, no test pits were excavated (Figure 2). The existing Wallan Tank has a small leak, which has created a small, isolated wet depression that was not considered to be a wetland due to its completely artificial nature in an otherwise upland and well-drained setting (Appendix 6, Photo 1).

A steep forested ravine immediately east of the Wallan Tank site contains Stream #1. Stream #1 is a seasonal intermittent stream flowing north to south within a steep ravine approximately 50 feet elevation lower than the location of Wallan Tank. The stream occurs approximately 100 feet east of the existing Wallan Tank at its nearest point and is outside of the study area (Figure 2). Approximately 191 feet of Stream #1 was mapped (Figure 2; Appendix 6, Photo 2); however, the stream reach up slope and downslope are unknown. It is likely that the stream flows through the steep forested ravine and into Bear Canyon which flows to the Eel River a Traditional Navigable Waterway (TNW). See Appendix 5, OHWM Datasheet 1 for detailed conditions within Stream #1.

The Wallan Pump Station in the southwestern portion of the Section 1 study site did not have any wetland or OHWM features and is very steep and well drained.

11.2 Section 2—Robertson Tank, Arthur Pump Station, and CalFire Station

Three wetlands were observed within this portion of the study area (Figure 3). Wetland #1 occurs within a roadside swale on the west side of Alderpoint Road across from the junction of Wallan Road and Alderpoint Road (Figure 3). Wetland conditions are restricted to the low point within the roadside swale (Appendix 6, Photo 3). While the roadside swale was constructed to capture stormwater, most of the swale is dry without wetland conditions. Wetland conditions are restricted to a 176-sqft area. Stormwater input likely enhances wetland conditions; however, the disappearance of wetland conditions within the swale downslope of Wetland #1 suggests that wetland conditions in Wetland #1 are a result of groundwater or other hydrologic input. The location of Wetland #1 is within a swale at the base of a large hillslope cut, and it is possible that a groundwater table was intercepted and is providing localized hydrologic input at this location. As such, this wetland is considered artificially induced, but has become a naturalized wetland. All three wetland parameters are present in Wetland #1 and the wetland likely has above-ground connectivity to Bear Canyon and the Eel River (a TNW), via the roadside ditch and other water conveyance infrastructure. Dominant species include common rush (*Juncus effusus* ssp. *pacificus* [FACW]), tall fescue (*Festuca arundinacea* [FAC]), and Himalayan blackberry (*Rubus armeniacus* [FAC]). Hydric soil indicators Depleted Matrix (F3) and Depleted Below a Dark Surface (A11) indicate localized long-term saturation. Wetland hydrology indicators of High-Water Table, Saturation, Geomorphic Position (artificial), and a vegetation community meeting the FAC-Neutral Test were present. See Table 3 for Cowardin classification and Figure 3 for the location of Wetland #1. See Appendix 5, TP1 Wetland Determination Data Form for detailed conditions within Wetland #1 and TP2 Data Form for upland conditions within the swale immediately downslope from Wetland #1.

Wetland #2 occurs within an artificial flat area downslope of the Robertson Tank and north of Alderpoint Road (Figure 3; Appendix 6, Photo 4). Stormwater from Alderpoint Road collects within this flat area, and leaks from the Robertson Tank have until recently flowed down the slope and into this flat area, likely enhancing wetland conditions within Wetland #2. Wetland #2 occupies approximately 428-sqft of the low-sloped area, specifically in low points that collect water. Wetland #2 likely has above-ground

connectivity to Bear Canyon and the Eel River (a TNW), via the roadside ditch and culvert under Alderpoint Road and other water conveyance infrastructure. Although this area is artificially manipulated, conditions within Wetland #2 have normalized, and it is considered a naturally-occurring wetland. All three wetland parameters are present in Wetland #2. Dominant species include spreading rush (*Juncus patens* [FACW]), pennyroyal (*Mentha pulegium* [OBL]), and Oregon ash (*Fraxinus latifolius* [FACW]). Hydric soil indicators Depleted Matrix (F3) and Depleted Below a Dark Surface (A11) show localized long-term saturation. Wetland hydrology indicators of an Algal Mat (B4), Drainage Patterns (B10), and a vegetation community that meets the FAC- Neutral Test (D5) were present. See Table 3 for Cowardin classification and Figure 3 for the location of Wetland #2. See Appendix 5, for the TP3 Wetland Determination Data Form for detailed conditions within Wetland #2 and TP4 Data Form for upland conditions around Wetland #2.

Wetland #3 occurs in a shallow swale at the break in slope where the steep hillslope meets the mostly flat topography of the hillside bench which contains the CalFire Station. Wetland #3 is approximately 2,244-sqft and appears to be mostly naturally-occurring as a result of the microtopography of the area and the movement of groundwater and surface water off of the hillslope, which has resulted in a seasonal seep that provides wetland hydrology during the wet season. A shallow artificial swale extends across the hillslope to the northwest, which captures stormwater from the slope and directs it to the wetland, which further enhances wetland hydrology conditions. This swale has in turn developed wetland conditions and is mapped as part of Wetland #3 (Figure 3; Appendix 6, Photo 7). All three parameters are present in Wetland #3, with vegetation dominance of Himalayan blackberry [FAC], Harford's sedge (*Carex harfordii* [OBL]), and rough-stalk blue grass (*Poa trivialis* [FAC]). The well-formed hydric soils denote long-term saturation, with indicators of Depleted Below Dark Surface (A11) and Depleted Matrix (F3). The soils were saturated up to 3 inches with a water table at 10 inches, meeting the hydrology indicators High Water Table (A2) and Saturation (A3), in addition to the Geomorphic Position (D2) and FAC-Neutral Test (D5). See Table 3 for Cowardin classification and location of Wetland #3. See Appendix 5, for the TP27 Wetland Determination Data Form for detailed conditions within Wetland #3 and TP28 Data Form for upland conditions around Wetland #3. Wetland #3 appears to be an isolated wetland with no evident above-ground connectivity to other features.

A small anthropogenic feature with three wetland parameters was found along the north side of Alderpoint Road near the CalFire Station. Exploratory pits were used to investigate this feature. It was determined not to be jurisdictional as the three-parameters are due only to its use as a stormwater conveyance feature for Alderpoint Road. It is actively maintained with regular mowing. There are tire tracks through it from road use. The substrate is composed of compacted gravel and asphalt.

No streams occur within Section 2 of the study area. A small ephemeral stream was observed just outside of the northwest corner of the study area near the CalFire entrance. This stream is culverted under Alderpoint Road and the CalFire Station and the outfall for this stream is unknown. No project activities are proposed in this area and the stream was not mapped due to lack of access to private property on the north side of Alderpoint Road.

11.3 Section 3—Tobin Well Site and Hurlbutt/Main Tank Sites

Seven wetlands and four streams occur within this portion of the study area (Figure 4) reflecting the more natural conditions and moist forested hillslope conditions surrounding downtown Garberville. All seven wetlands are in forested settings with seasonal to perennial saturation, and many have a history of excavation or other disturbance. Streams are seasonal intermittent or ephemeral streams. Wetlands are discussed in Section 11.3.1 and streams are described in Section 11.3.2.

No wetlands were observed within the Tobin Well portion of the study area. An undeveloped lot displayed weak hydrophytic vegetation dominance and evidence of hydrology as a result of stormwater flows from adjacent developed lots. This area was investigated with a test pit (Appendix 5, TP5) but no hydric soils indicators were observed, indicating transitory hydrology, which does not persist long enough for the development of hydric soils; therefore, no wetland is mapped at this location.

11.3.1 Section 3 Wetland Descriptions

Wetland #4 occurs within a roadside swale and on a portion of the slope above the east side of Hillcrest Drive (Figure 4). Wetland conditions begin on a slope above Hillcrest Drive within a naturally-occurring wetland seep; however, wetland hydrology was captured by the inboard ditch along Hillcrest Drive, which has caused the entire inboard ditch to develop persistent and pronounced wetland conditions (Appendix 6, Photo 8). Although the inboard ditch portion of the wetland was constructed, natural hydrologic input from the wetland seep and connectivity to the existing natural wetland has caused the inboard ditch to become a naturally-occurring wetland with artificial conditions present. Wetland conditions are restricted to a 564-sqft area. Stormwater input likely enhances wetland conditions within the inboard ditch portion of the wetland during storm events; however, the disappearance of wetland conditions within the inboard ditch further downslope suggests that persistent wetland conditions are a result of hydrologic input from the natural portion of the wetland on the slope above Hillcrest Drive. All three wetland parameters are present in Wetland #4. Dominant species include arroyo willow (*Salix lasiolepis* [FACW]), Pacific willow (*Salix lasiandra* var. *lasiandra* [FACW]), Himalayan blackberry, Henderson's sedge, and tall fescue. Hydric soil indicator Depleted Matrix (F3) indicates localized long-term saturation and wetland hydrology indicators of Saturation (A3) a Dry Season Water Table (C2), and a vegetation community meeting the FAC-Neutral Test (D5) were present. This wetland appears to be isolated with no observed above-ground connectivity to other wetland or other waters. See Table 3 for the Cowardin classification and location of Wetland #4. See Appendix 5, TP8 Wetland Determination Data Form for detailed conditions within Wetland #4, TP9 Data Form for upland conditions within the inboard ditch immediately downslope of Wetland #4, and TP7 Data Form for transitional conditions on the hillslope adjacent to Wetland #4.

Wetland #5 occurs on an embankment above the east side of Hilcrest Drive (Figure 4; Appendix 6, Photo 9). Wetland conditions are restricted to a 189-sqft area, some of which is outside of the study area. Hydrology is likely provided by groundwater at the surface as a result of a historical bank cut for the development of Hillcrest Drive. Although excavation of the slope for road development likely exposed groundwater, natural hydrologic input and the development of wetland conditions makes this an artificially induced but naturally-occurring wetland. All three wetland parameters are present in Wetland #5. Dominant species include California blackberry, pennyroyal, and velvet grass. Hydric soil indicator Depleted Matrix (F3) indicates localized long-term saturation and wetland hydrology indicators of Saturation (A3), Water-Stained Leaves (B9), and a vegetation community meeting the FAC-Neutral Test (D5) were present. Wetland #5 has above-ground connectivity to Stream #2, which flows through a series of streams to the Eel River (a TNW); however, wetland conditions are restricted to the area shown on Figure 4. See Table 3 for the Cowardin classification and location of Wetland #5. See Appendix 5, TP10 Wetland Determination Data Form for detailed conditions within Wetland #5, and TP11 Data Form for surrounding upland conditions.

Wetland #6 occurs within a basin created by historical fill placement for the Hillcrest Road prism within a naturally-occurring ravine containing Stream #2 (Figure 4; Appendix 6, Photo 10). Development of the roadway blocked Stream #2 (Appendix 6, Photo 11), which flows into Wetland #6 causing water to pool and develop wetland conditions. No culvert was observed within the basin and it appears that Stream

#2 flows are directed into the inboard ditch on the southeast side of Hillcrest Drive/Melville Road. Wetland conditions are restricted to the lowest elevations within the basin for a total of 385 sqft and the entire wetland is just outside of the study area. While development of Hillcrest Drive/Melville Road created a basin in which water can collect, it is located within a naturally-occurring ravine with a naturally-occurring stream making this an artificially induced but naturally-occurring wetland. Two wetland parameters are present in Wetland #6, with hydrophytic vegetation dominance lacking. Vegetation composition was determined to be problematic and does not reflect the wetland conditions evidenced by the presence of hydric soil and wetland hydrology. Dominant species include Himalayan blackberry, fringe cups (*Tellima grandiflora* [FACU]), sword fern, and English ivy. Recent vegetation removal and dominance by English ivy likely obscure hydrophytic vegetation dominance or have altered cover within the area such that it does not currently reflect wetland conditions. Hydric soil indicator Depleted Matrix (F3) indicates localized long-term saturation and wetland hydrology indicators of High-Water Table (A2), Saturation (A3), Drainage Patterns (B10), and Geomorphic Position (D2) were present. Wetland #6 has above-ground connectivity to Stream #2, which flows through a series of streams to the Eel River (a TNW); however, wetland conditions are restricted to the area shown on Figure 4. See Table 3 for Cowardin classification and location of Wetland #6. See Appendix 5, TP12 Wetland Determination Data Form for detailed conditions within Wetland #6, and TP13 Data Form for surrounding upland conditions.

Wetland #7 is located in a shallow swale between a trailer park and a motel at the base of a forested hillslope (Figure 4). Stormwater runoff from the trailer park above the wetland is directed to a swale that runs behind the motel building and into Wetland #7 (Appendix 6, Photo 12) likely enhancing wetland hydrologic conditions. All three wetland parameters occur within this wetland which is approximately 1,362 sqft. Dominant vegetation species are mostly non-native invasive species, including Himalayan blackberry, tall fescue, London plane tree (*Platanus hispanica* [NL]), and the native Harford's sedge. The soils have hydric indicators of Depleted Below Dark Surface (A11) and Depleted Matrix (F3), with hydrology indicators of Surface Water (A1), High Water Table (A2), Saturation (A3), and Geomorphic Position (D2). Because of the minimal swale depression in this graded surface, the outer boundaries of Wetland #7 were poorly defined with transitional edges, and the wetland appears to be artificially induced as a result of surrounding development. Wetland #7 appears to be an isolated wetland with no above-ground connectivity to additional wetlands or other waters. See Appendix 5, TP21 Wetland Determination Data Form for detailed conditions within Wetland #7, and TP22 Data Form for surrounding upland conditions. See Table 3 for the Cowardin classification and location of Wetland #7.

Wetland #8 is located midslope within a dry, steeply-sloping forested hillside. Wetland #8 represents unique wetland seep habitat and appears to be naturally formed within a slope failure slump which has exposed the groundwater table to the surface (Figure 4; Appendix 6, Photo 13). It is approximately 483 sqft, and it is confined to the narrow slump feature. Wetland conditions diminish downslope of the slope failure slump and disappear as groundwater infiltrates back into the soil. All three wetland parameters were met at this site and are strongly developed. Dominant vegetation included arroyo willow, Himalayan blackberry, giant chain fern (*Woodwardia fimbriata* [FACW], western lady fern (*Athyrium filix-femina* var. *cyclosorum* [FAC], and English Ivy. Hydric soil indicators included Depleted Below Dark Surface (A11), Loamy Gleyed Matrix (F2), and Depleted Matrix (F3), with hydrology indicators of Surface Water (A1), Saturation (A3), Oxidized Rhizospheres along Living Roots (C3), Water-Stained Leaves (B9), Drainage Patterns (B10), Geomorphic Position (D2), and FAC-Neutral Test (D5). Wetland #8 appears to be an isolated wetland with no above-ground connectivity to additional wetlands or other waters. See Appendix 5, TP23 Wetland Determination Data Form for detailed conditions within Wetland #8, and TP24 Data Form for surrounding upland conditions. See Table 3 for the Cowardin classification and location of Wetland #8.

Wetland #9 is located on a slope above Redwood Drive. The hillslope has been cut to form a bank and graded pad for the existing motel, which is immediately downslope from the wetland (Figure 4; Appendix 6, Photo 14). The historical excavation appears to have intercepted a wet season water table, which seeps into and pools within the flat graded area below the excavated slope, creating an approximate 306-sqft wetland. All three wetland parameters were met at this site. Dominant vegetation within the wetland included arroyo willow, Himalayan blackberry, Scotch broom (*Cytisus scoparius* [NL]), spreading rush, and bigleaf periwinkle (*Vinca major* [FACU]). Hydric soil indicators observed included Depleted Below Dark Surface (A11) and Depleted Matrix (F3), with the wetland hydrology indicator, Saturation (A3), present at 10 inches. Wetland #9 appears to be an isolated wetland with no above-ground connectivity to additional wetlands or other waters. See Appendix 5, TP27 Wetland Determination Data Form for detailed conditions within Wetland #9, and TP28 Data Form for surrounding upland conditions. See Table 3 for the Cowardin classification and location of Wetland #9.

Wetland #10 is a small 401-sqftwetland directly above U.S. Highway 101 (Figure 4; Appendix 6, Photo 15). This entire area was excavated for the construction of U.S. Highway 101, and the excavation appears to have intercepted a groundwater table, allowing for saturation at the surface even on a steep excavated slope. A naturally-occurring porous gravel layer over a thin clay duripan at 18 inches helps hold the seepage water long enough to create wetland habitat and support the development of wetland conditions. All three wetland parameters occur within this wetland. Dominant vegetation species included Douglas fir, arroyo willow, Scotch broom, Himalayan blackberry, and lady fern [FAC]. Hydric soil indicators observed were the Depleted Below Dark Surface (A11) and the Depleted Matrix (F3), with the primary wetland hydrology indicator Saturation (A3) at 10 inches. Wetland #10 appears to be an isolated wetland with no above-ground connectivity to additional wetlands or other waters. See Appendix 5, TP19 Wetland Determination Data Form for detailed conditions within Wetland #10, and TP20 Data Form for surrounding upland conditions. See Table 3 for the Cowardin classification and location of Wetland #10.

One additional wetland is shown outside of the study area on Figure 4 near the Stream #5 drainage inlet (DI) east of U.S. Highway 101. This is shown for reference and setback and avoidance purposes only. This feature was not delineated, and the boundary and extent shown is an estimate.

11.3.2 Section 3 Stream Descriptions

Stream #2 is a seasonal intermittent stream flowing northwest toward the town of Garberville. The stream originates upslope of Hillcrest Drive outside of the study area, and this portion of the stream is not mapped. The stream flows through a culvert under Hillcrest Drive and into a steep ravine (Appendix 6, Photo 11). The stream passes in and out of the study area; however, a portion of the stream is mapped for approximately 255 feet as shown on Figure 4. The stream flows into Wetland #6 where OHWM conditions disappear. It is likely that most flows are infiltrated into the soil within the wetland and that larger stormwater related flows are directed into an inboard ditch along Melville Road, as no culvert exists under Hillcrest Drive. Stream flows are contained within the inboard ditch along the road for approximately 270 feet before flowing into a DI at the bottom of the slope. It is unknown where the culvert takes the stream flows and connectivity to other streams including the Eel River (a TNW), while assumed, is unknown. See Appendix 5, OHWM Datasheet 5 for detailed conditions within Stream #2.

Stream #3 is a seasonal intermittent stream flowing northwest toward the town of Garberville. The stream originates upslope of a private paved driveway outside of the study area, and this portion of the stream is not mapped. The stream flows through a culvert under the private driveway and into a steep ravine (Appendix 6, Photo 16), which is outside of the study area; however, a small portion of the stream

is mapped for approximately 84 feet as shown on Figure 4. It is unknown where the stream flows to beyond what is shown on Figure 4, and connectivity to other streams including the Eel River (a TNW), while assumed, is unknown. See Appendix 5, OHWM Datasheet 3 for detailed conditions within Stream #3.

Stream #4 is an ephemeral stream dependent upon storm events for flows. The stream headwaters occur within a partially excavated and manipulated swale that collects water from impervious surfaces associated with a residence and a sloping pasture surrounded by forested slopes. Stream conditions become more pronounced and incised with natural conditions down slope (Appendix 6, Photo 17) where pooled water was observed even during the July botanical surveys. A total of 427.72 linear feet of Stream #4 is mapped on Figure 4, which is the entire stream reach between the headwaters and the culvert under U.S. Highway 101. It is assumed that the stream flows under U.S. Highway 101 via the culvert and eventually into the Eel River (a TNW). See Appendix 5, OHWM Datasheet 2 for detailed conditions within Stream #4.

Stream #5 is a seasonal intermittent stream flowing west along the southern edge of the study area. No portion of this stream is within the study area and it was mapped for reference and setback purposes. The stream appears minimally disturbed within the mapped portion before it enters a culvert under U.S. Highway 101 (Appendix 6, Photo 18). Although the stream is outside of the study area, approximately 853 feet was mapped, as shown on Figure 4. It is unknown where the stream flows to beyond what is shown on Figure 4, and connectivity to other streams while assumed, is unknown; however, it likely flows to the Eel River (a TNW) on the west side of the highway. See Appendix 5, OHWM Datasheet 4 for detailed conditions within Stream #5.

12.0 Conclusions

12.1 Biological Results

This section summarizes the results of the research and field investigations conducted within the study area.

A total of 315 botanical species were observed within the study area (Appendix 3, Table 3), however no special-status botanical species were observed within the study area. Although potential habitat exists for several special-status botanical species, existing and surrounding development, and continuing and historical disturbance associated with roadsides, urban development, and water distribution maintenance make it unlikely that special-status species exist within the study area. See the Recommendations section for measures to reduce potential impacts to botanical species during the life of the proposed project.

Two sensitive vegetation communities were observed during seasonally-appropriate protocol surveys. This included purple needlegrass grassland and California oatgrass meadow, both of which are S3 sensitive vegetation communities. These vegetation communities were observed in multiple locations throughout the study area for a total of 26,977.87 sqft (0.62 ac) of purple needlegrass grassland mapped and a total of 5,063.86 sqft (0.12 ac) of California oatgrass meadow mapped. These sensitive vegetation communities should be avoided, and measures taken to reduce impacts. If impacts are unavoidable then the measures included in the Recommendations section of this report should be followed.

Although potential habitat exists for a number of special-status animal species (see Appendix 3, Table 2), existing and surrounding development, and continuing and historic disturbance in the majority of the

study area make it unlikely that any special-status animal species exist within the project footprint. The project activities will be conducted primarily within existing developed areas with temporary disturbance to wildlife. Critical habitat for Steelhead, Chinook salmon, and Marbled murrelet is mapped at such a distance and without direct connectivity from the study area to not be affected by the project (USFWS, 2022a). Some bats may have the potential to roost in crevices of the water tanks proposed for demolition, as well as any trees that may require trimming or removal as part of the project activities. Nearly all areas of the project may support native nesting birds during the breeding season (generally March 15 to August 31) and may be affected by construction activities. See the Recommendations section for measures to reduce potential impacts to roosting bats and nesting birds during the life of the proposed project.

12.2 Wetland and OHWM Results

A total of ten wetlands were observed within or immediately adjacent to the study area (Figures 2-4 and Table 3). Wetlands ranged between 176 and 2,244 sqft in open herbaceous dominated or forested settings for a total of 6,538 sqft of wetlands mapped, of which 5,838 sqft occurs within the study area (see Table 3). Of the 10 wetlands occurring within the study area, 3 are palustrine emergent (herbaceous dominated), 6 are palustrine forested, and 1 is palustrine shrub-scrub wetland. All wetlands displayed some form of historical or on-going anthropogenic disturbance mostly related to road development, reflecting the proximity of the study area to roadsides. Four of the wetlands (Wetland #1, #2, #5, and #6) have above-ground connectivity to a TNW; the remaining six wetlands appear to be isolated with no above-ground connectivity to additional wetlands or other waters. Wetlands with above-ground connectivity to a TNW have a total area of 1,178 sqft.

A total of five streams were mapped within the study area and the immediate vicinity of the study area (Figures 2-4 and Table 3). Of the five streams, four are seasonal intermittent (Streams #1, #2, #3, and #5) and one of the streams is ephemeral (Stream #4). Of the five streams, two do not enter the study area, but flow within the immediate vicinity of the study area. These were mapped for planning and setback purposes. Streams #2 and #4 have portions of the stream within the study area for a total of 538 linear feet of stream occurring within the study area. A total of 1,543 linear feet of streams have been mapped within and immediately adjacent to the study area. This represents a fraction of the total stream length within the area, as only sections of streams within or immediately adjacent to the study area were mapped.

All streams and wetlands are sensitive to disturbance and are protected within the state of California. Wetlands within roadside ditches and other regularly maintained areas that are subject to regular maintenance may not be impacted by the project beyond the normal disturbance regimes experienced in any given year. Impacts to streams and wetlands can be reduced using the measures included in Section 13. Table 2 lists all test pits excavated within the study area and includes the location and wetland parameters observed. Table 3 includes all wetlands and streams observed within or immediately adjacent to the study area, including a center point and Cowardin classification. The conclusions in this report represent conditions at the time of field work and it is possible that some species or wetland conditions were not present at the time of the fieldwork. This report documents the investigation conducted using the best professional judgment of SHN's biologists, botanists, and soil scientist.

Table 2. Parameters at Each Test Pit, April 2022, and February and April 2023 Garberville, Humboldt County, California

TP[a] Number	Parameters Present	Parameter Type	Latitude/Longitude
TP1	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.107328°/ -123.785234°
TP2	1	Hydrology	40.107276°/ -123.785288°
TP3	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.105849°/ -123.786279°
TP4	0	None	40.105832°/ -123.786248°
TP5	2	Hydrophytic Vegetation, Hydrology	40.100379°/ -123.792372°
TP6	0	None	40.095421°/-123.793278°
TP7	2	Hydrophytic vegetation, Hydrology	40.097236°/-123.791489°
TP8	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.097243°/-123.791494°
TP9	0	None	40.097868°/-123.791623°
TP10	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.097096°/-123.791654°
TP11	0	None	40.097116°/-123.791507°
TP12	2	Hydric soils, Hydrology	40.097742°/-123.792291°
TP13	0	None	40.097752°/-123.792331°
TP14	0	None	40.095442°/-123.793774°
TP15	0	None	40.095160°/-123.792261°
TP16	2	Hydrophytic vegetation, Hydrology	40.094943°/-123.792644°
TP17	0	None	40.094654°/-123.793137°
TP18	0	None	40.095018°/-123.793193°
TP19	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.095418°/-123.794582°
TP20	0	None	40.095396°/-123.794566°
TP21	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.096789°/-123.794666°
TP22	0	None	40.096873°/-123.794747°
TP23	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.096128°/-123.793953°
TP24	0	None	40.096152°/-123.793930°
TP25	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.105112°/-123.789426°
TP26	1	Hydric soils	40.105163°/-123.789394°
TP27	3	Hydrophytic vegetation, Hydric soils, Hydrology	40.096135°/-123.794846°
TP28	1	Hydric soils	40.096109°/-123.794837°

[a] TP: test pit

Table 3. Wetland and OHWM Delineation Results
Garberville, Humboldt County, California

Wetland	Cowardin Type	Latitude/Longitude	Area Mapped (Sq ft)	In Study Area (Sq ft)
Wetland #1	PEM1Bx0n[a]	40.107323°/ -123.785221°	176	26
Wetland #2	PEM1Bx0n[a]	40.105844°/ -123.786265°	428	428
Wetland #3	PEM1B0n[b]	40.105112°/-123.789426°	2,244	2,198
Wetland #4	PFO1Bx0n[c]	40.097241°/ -123.791494°	564	564
Wetland #5	PFO1Bx0n[d]	40.097097°/ -123.791654°	189	70
Wetland #6	PFO4Dx0n[d]	40.097741°/ -123.792289°	385	0
Wetland #7	PFO1Bx0n[d]	40.096789°/-123.794666°	1,362	1,362
Wetland #8	PFO1+3D0n[e]	40.096128°/-123.793953°	483	483
Wetland #9	PSS1Bx0n[f]	40.096135°/-123.794846°	306	306
Wetland #10	PFO4BxOn[g]	40.095418°/-123.794582°	401	401
Total Wetland Area			**6,538**	**5,838**

Stream	Cowardin Type	Latitude/Longitude	Segment Mapped (feet)	In Study Area (feet)
Stream #1	R4SB3+4[h]	40.107649°, -123.769978°	191	0
Stream #2	R4SB3+5[i]	40.097571°, -123.791894°	255	110
Stream #3	R4SB3+4[h]	40.096173°, -123.792022°	84	0
Stream #4	R6SB4+5[j]	40.095392°, -123.793482°	160	428
Stream #5	R4SB3+4[h]	40.093909°, -123.793151°	853	0
Total Stream Segments Mapped			**1,543**	**538**

[a] PEM1Bx0n: Palustrine emergent persistent seasonally saturated, excavated, freshwater, mineral soils
[b] PEM1B0n: Palustrine emergent persistent seasonally saturated, freshwater, mineral soils
[c] PFO1Bx0n: Palustrine forested broad-leaved deciduous seasonally saturated, excavated, freshwater, mineral soils
[d] PFO4Dx0n: Palustrine forested needle-leaved evergreen continuously saturated, excavated, freshwater, mineral soils
[e] PFO1+3D0n: Palustrine forested broad-leaved deciduous seasonally and continuously saturated, excavated, freshwater, mineral soils
[f] PSS1Bx0n: Palustrine scrub-shrub broad-leaved deciduous seasonally saturated, excavated, freshwater, mineral soils
[g] PFO4BxOn: Palustrine forested needle-leaved evergreen seasonally saturated, excavated, freshwater, mineral soils
[h] R4SB3+4: Riverine, intermittent, streambed cobble-gravel and sand.
[i] R4SB3+5: Riverine, intermittent, streambed cobble-gravel and mud
[j] R6SB4+5: Riverine, ephemeral, streambed sand and mud

13.0 Recommendations

SHN recommends that the following measures be implemented prior to or during project activities to minimize the potential impacts to special-status plant and animal species, sensitive habitat, and wetlands:

- Implement the following avoidance and protection measures for sensitive natural communities (purple needlegrass grassland and California oatgrass grassland) that would not be impacted during project construction:
    1. Attempt to avoid or minimize impacts to sensitive natural communities to the greatest extent feasible in the final design plans.
    2. Sensitive natural communities should be clearly identified in the construction documents and reviewed by the District prior to issuing for bid to ensure they are clearly marked as equipment exclusion zones during construction.
    3. Prior to construction, temporary fencing should be installed between the sensitive vegetation communities and the project if construction activities will occur within 50 feet of the sensitive vegetation community, to prevent accidental incursion.
- If impacts to mapped sensitive natural communities (purple needlegrass grassland and California oatgrass grassland) are unavoidable and mapped purple needlegrass grassland or California oatgrass grassland is removed or detrimentally impacted, mitigation should occur. A Mitigation and Monitoring Plan should be prepared in coordination with the CDFW. The Plan should be acceptable to the CDFW and include the following elements: proposed mitigation ratios; description and size of the restoration or compensatory area; site preparation and design; plant species; planting design and techniques; maintenance activities; plant storage; irrigation requirements; success criteria; monitoring schedule; and remedial measures. The ratio and conditions of mitigation would be negotiated in consultation with the CDFW. The Plan would be implemented by the District.
- Implement the following avoidance and protection measures for Waters of the United States and Waters of the State that would not be impacted (filled or excavated) during project construction:
    1. The District should attempt to avoid or minimize impacts to wetlands/waters to the greatest extent feasible in the final design plans.
    2. Wetlands/waters should be clearly identified in the construction documents and reviewed by the District prior to issuing for bid to ensure they are clearly marked as equipment exclusion zones during construction.
    3. Suitable perimeter control BMPs, such as silt fences, or straw wattles should be placed below all construction activities at the edge of surface water features to intercept sediment before it reaches the waterway. These BMPs should be installed prior to any clearing or grading activities.
- Avoid fill of jurisdictional wetlands and waters to the extent feasible. If fill cannot be avoided, the District should compensate for the loss of wetland habitat so that there is no net loss in wetlands. The District should compensate for impacts to identified wetlands through restoration, rehabilitation, and/or creation of wetland at a ratio of no less than 1:1. A Mitigation and Monitoring Plan should be prepared in coordination with the North Coast Regional Water Quality Control Board (NCRWQCB), the USACE and CDFW. Compensation for wetlands should

occur so there is no net loss of wetland habitat at ratios to be determined in consultation with the NCRWQCB. The Plan should be acceptable to the regulatory agencies with jurisdiction over wetlands and waters and include the following elements: proposed mitigation ratios; description and size of the restoration or compensatory area; site preparation and design; plant species; planting design and techniques; maintenance activities; plant storage; irrigation requirements; success criteria; monitoring schedule; and remedial measures. The Plan would be implemented by the District.

- Within two weeks prior to construction, a qualified bat biologist should conduct habitat surveys for special-status bats. Survey methodology should include visual examination of suitable habitat areas and signs of bat use. Trees, water tanks, Pump Stations, and other potential bat habitats within at least 100 feet of construction activities should be examined. If habitat exists, species presence and site use patterns should be documented by using ultrasonic detectors to determine if special-status bat species are present on site. Bat presence in the project area may vary seasonally and annually. Surveys should be conducted in a manner to detect the presence of hibernating or torpid bats, reproductive colonies and/or migratory stop-over roosts. If no bat utilization or roosts are found, then no further study or action is required. If bats are found to be present within an area of potential impact, or presence is assumed, a bat specialist should be engaged to advise the best method to prevent impact. This may include, but would not be limited to:
    - Consultation with the CDFW to determine appropriate measures for protecting bats with young if present, and for implementing measures to exclude non-breeding bat colonies during construction process.
    - For trees, phased removal of trees where selected limbs and branches not containing cavities are removed on the first day, with the remainder of the tree removed on the second day.
    - For structures, gradual modification of the habitat itself discouraging continued roosting by any bats that may be present, followed by installing physical barriers to prevent bats from entering the structure(s).
- To avoid potential impacts to nesting birds, in accordance with the Migratory Bird Treaty Act (MBTA), one of the following shall be implemented:
    - Conduct vegetation removal and other ground-disturbance activities associated with any construction activities between September and mid-March, when birds are not typically nesting,
    - If vegetation removal, structure modification or removal, or ground-disturbing activity is to take place during the nesting season (March 15 to August 31 for most birds), a qualified biologist shall conduct a pre-construction nesting bird survey. Preconstruction surveys for nesting pairs, nests, and eggs shall occur within the construction limits and within 100 feet (200 feet for raptors) of the construction limits. If active nests are encountered, species-specific measures shall be prepared by a qualified biologist in consultation with the USFWS and CDFW, and implemented to prevent abandonment of the active nest.

14.0 References Cited

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, D.H. Wilken (eds). (2012). *The Jepson Manual: Vascular Plants of California, Second Edition*. Berkeley, CA:University of California Press, Berkeley.

Calflora. (2022). Information on California plants for education, research and conservation. California: The Calflora Database. Accessed July 2022 at: URL:http://www.calflora.org/.

California Department of Conservation. (2010). Geologic Map of California. California Geological Survey. Accessed April 2022 at: https://maps.conservation.ca.gov/cgs/gmc/.

California Department of Fish and Wildlife (CDFW). (2018). Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities. Sacramento, CA:CDFW.

---. (2020). VegCamp. Accessed at: https://wildlife.ca.gov/Data/VegCAMP.

---. (2022a). California Natural Diversity Database (CNDDB). Accessed September 2019 at: URL: http://www.dfg.ca.gov/biogeodata/cnddb/.

---. (2022b). Biogeographic Information and Observation System. Accessed at:URL:http://bios.dfg.ca.gov/.

---. (2022c). Special Animals List. Accessed at:URL: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline.

California Native Plant Society (CNPS). (2022). Inventory of Endangered Plants (online edition v8-03). Accessed September 2019 at: http://www.cnps.org/inventory.

Consortium of California Herbaria (CCH). (2022). Data provided by the participants of the Consortium of California Herbaria. Accessed September 2019 at: URL:http://ucjeps.berkeley.edu/consortium/.

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

Google Earth. (April 2022). 40.097983°/-123.794282° central location. Accessed April 2022 NR:Google Earth.

Maxar Technologies. (2021). Images from 9/24/2022.

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

National Drought Monitoring Center (NDMC). (2022). https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA.

National Oceanic and Atmospheric Administration (NOAA). (2023). Climate Graphs. National Weather Service Forecast Office, Eureka, California. Accessed at: https://www.weather.gov/wrh/Climate?wfo=eka

Sawyer, J.O., T. Keeler-Wolf, and J Evans. (2009). A Manual of California Vegetation, Second Edition. Sacramento, CA:CNPS Press.

University of California, Berkeley (UCB). (2022). "Jepson eFlora." Accessed April 2022 at: http://ucjeps.berkeley.edu/eflora/.

U.S. Army Corps of Engineers (USACE). (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.

---. (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. Department of Agriculture, Natural Resources Conservation Service. (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.

---. (2022a). WETS Database. Scotia, CA. Accessed at: http://agacis.rcc-acis.org/?fips=06023.

---. (2022b). Web Soil Survey. Accessed at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

U.S. Fish and Wildlife Service. (USFWS). (April 2022a). National Wetlands Inventory. Accessed at: http://www.fws.gov/wetlands/data/mapper.HTML/.

---. (2022b). "IPaC Trust Resources Report." Accessed September 2022 at: https://ecos.fws.gov/ipac/.

---. (2022c). "Critical Habitat Portal." Accessed September 2022 at: http://ecos.fws.gov/crithab/.

National Wetland Inventory and Drought Monitor

1

U.S. Fish and Wildlife Service

National Wetlands Inventory

Alderpr-WallanRd

April 11, 2022

Wetlands

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

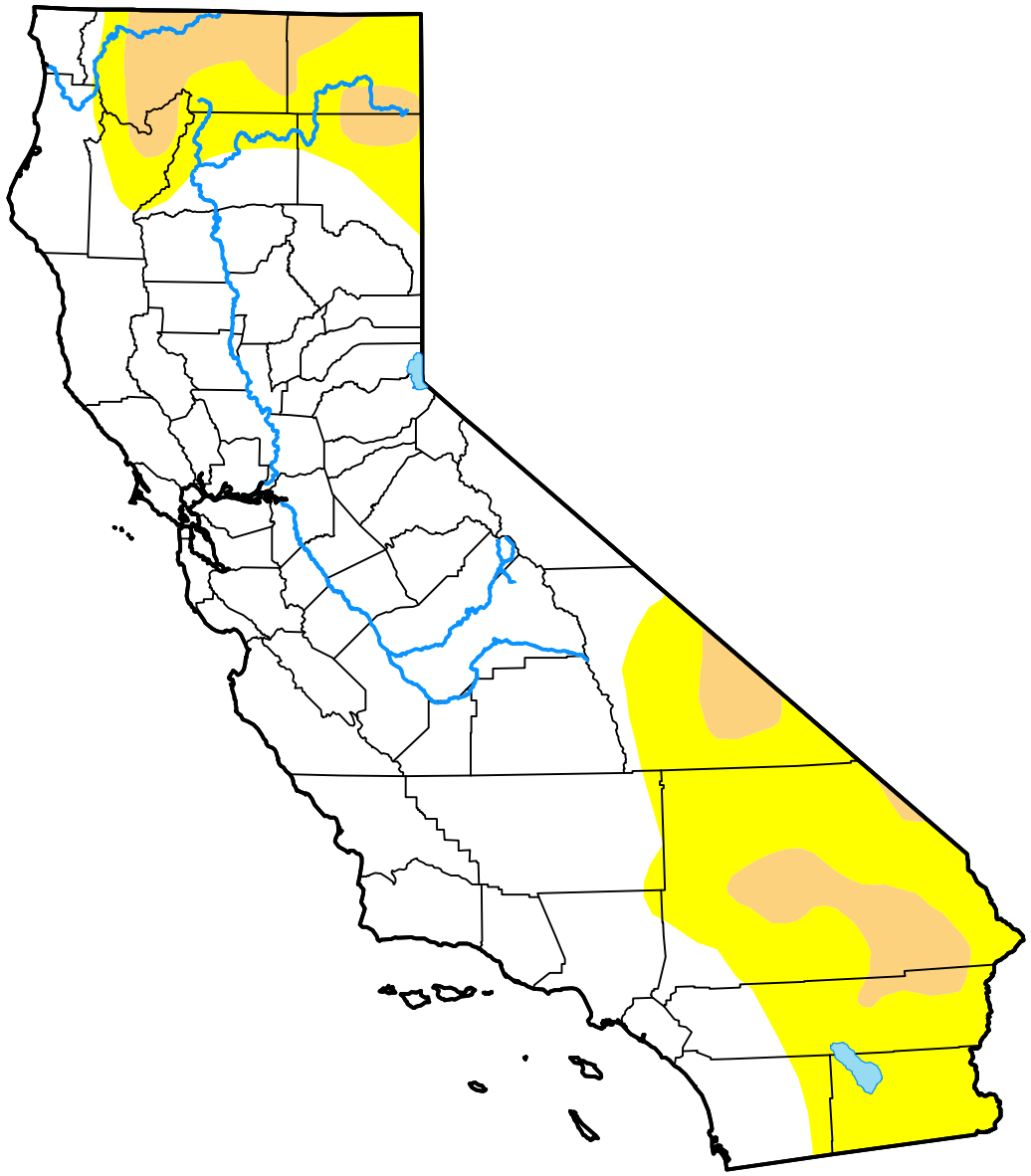
U.S. Drought Monitor

California

April 11, 2023

(Released Thursday, Apr. 13, 2023)

Valid 8 a.m. EDT



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:

David Simeral
Western Regional Climate Center

droughtmonitor.unl.edu

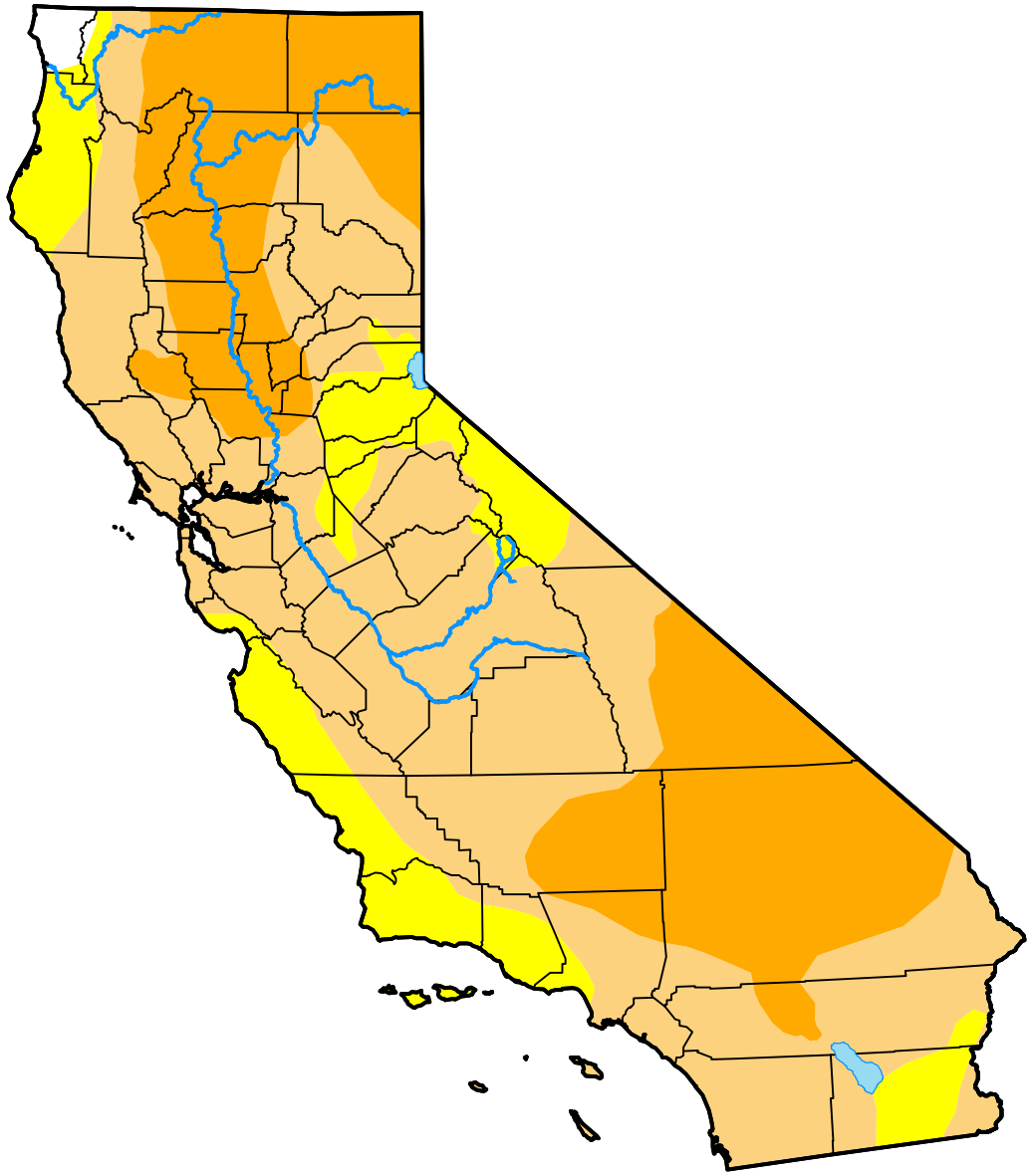
U.S. Drought Monitor

California

February 14, 2023

(Released Thursday, Feb. 16, 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:

Brian Fuchs
National Drought Mitigation Center

droughtmonitor.unl.edu

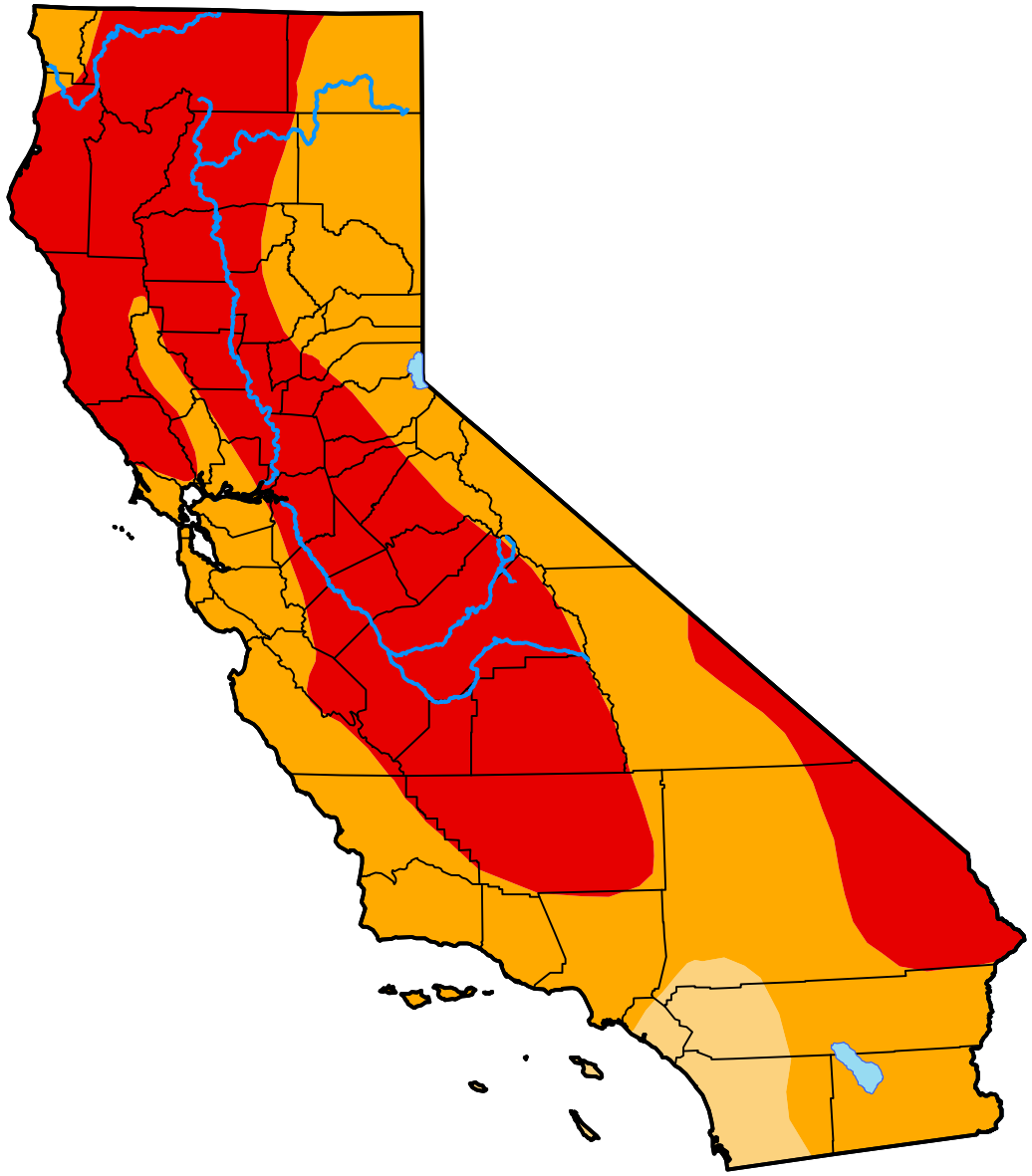
U.S. Drought Monitor

California

April 12, 2022

(Released Thursday, Apr. 14, 2022)

Valid 8 a.m. EDT



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:

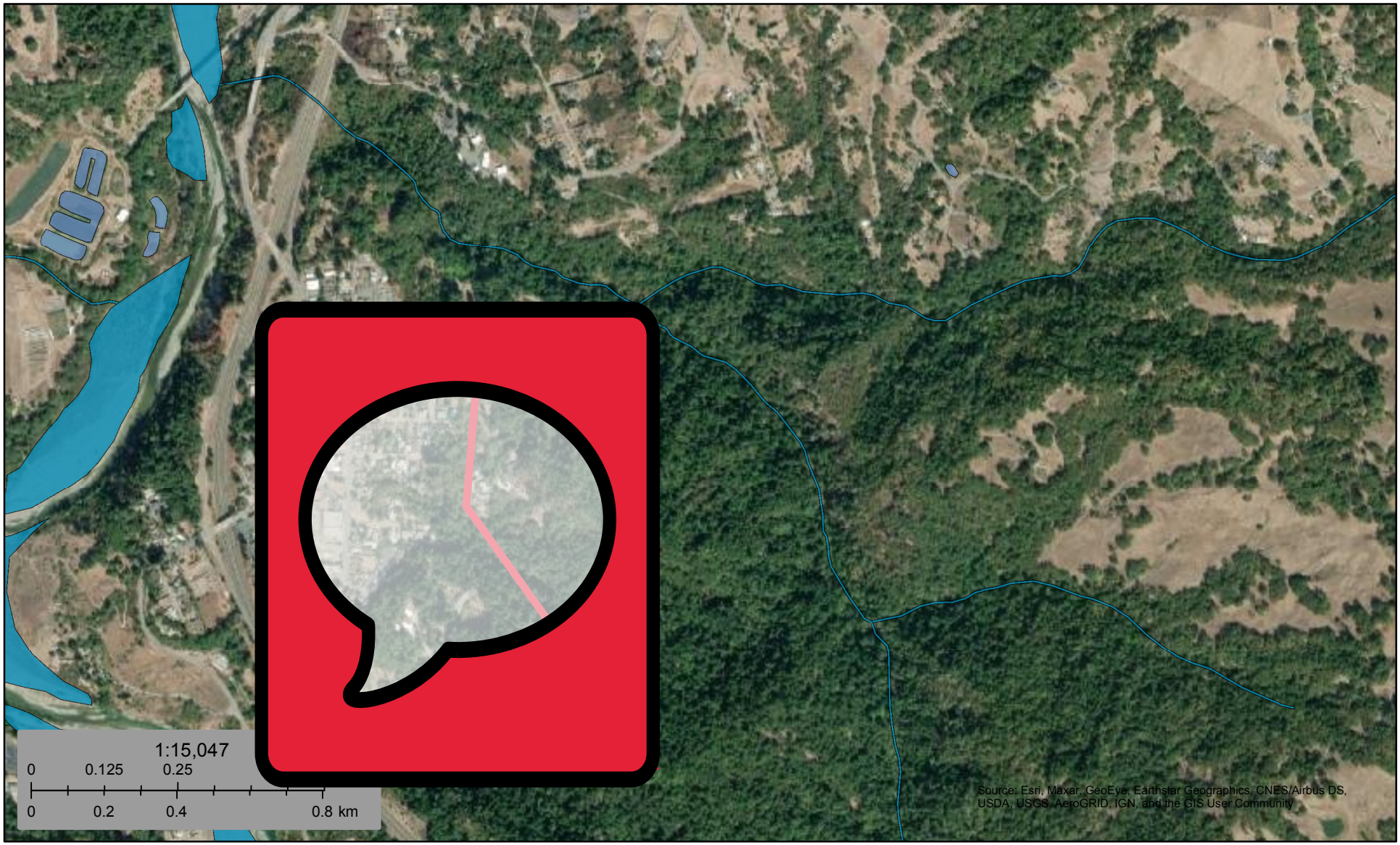
Richard Tinker
CPC/NOAA/NWS/NCEP

droughtmonitor.unl.edu

U.S. Fish and Wildlife Service

National Wetlands Inventory

Garberville town



April 11, 2022

Wetlands

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

Web Soil Survey Map 2

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, South Part, California

AlderpointRd

April 11, 2022

Preface

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

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

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

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

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

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

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

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 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, South Part, California
Survey Area Data: Version 10, Sep 6, 2021

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

Date(s) aerial images were photographed: May 8, 2019—Jun 21, 2019

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
402	Tannin-Wohly-Rockyglen complex, 50 to 75 percent slopes	0.1	1.2%
452	Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes	0.3	3.5%
667	Dryfield-Yorknorth-Witherell complex, 5 to 30 percent slopes	6.9	95.3%
Totals for Area of Interest		**7.2**	**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, South Part, California

402—Tannin-Wohly-Rockyglen complex, 50 to 75 percent slopes

Map Unit Setting

National map unit symbol: hs6x
Elevation: 330 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Tannin and similar soils: 50 percent
Wohly and similar soils: 20 percent
Rockyglen and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 6 inches: gravelly loam
Bt1 - 6 to 15 inches: gravelly loam
Bt2 - 15 to 27 inches: gravelly loam
Bt3 - 27 to 43 inches: gravelly loam
Bt4 - 43 to 68 inches: gravelly loam
Bt5 - 68 to 79 inches: gravelly loam

Properties and qualities

Slope: 50 to 75 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: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B

Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Wohly

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Residuum weathered from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: loam
Bt1 - 3 to 8 inches: paragravelly loam
Bt2 - 8 to 19 inches: paragravelly clay loam
BCt - 19 to 36 inches: gravelly sandy clay loam
Ct - 36 to 79 inches: paragravel

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 20 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F005XZ009CA - Very Deep Mesic Hills 40-60"ppt
Hydric soil rating: No

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 1 inches: very gravelly slightly decomposed plant material
A - 1 to 3 inches: very gravelly loam
ABt - 3 to 9 inches: very gravelly loam

Bt - 9 to 24 inches: very gravelly loam
Bw - 24 to 47 inches: extremely cobbly loam
C - 47 to 79 inches: extremely cobbly loam

Properties and qualities

Slope: 50 to 75 percent
Surface area covered with cobbles, stones or boulders: 5.0 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 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Burgsblock

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Chalkmountain

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

452—Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hs7g
Elevation: 200 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Burgsblock and similar soils: 35 percent
Coolyork and similar soils: 30 percent
Tannin and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Burgsblock

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: gravelly loam
Bt1 - 4 to 14 inches: very gravelly clay loam
Bt2 - 14 to 51 inches: very gravelly clay loam
Bt3 - 51 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 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 (0.20 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 7.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Coolyork

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from schist

Typical profile

A1 - 0 to 8 inches: loam
A2 - 8 to 14 inches: loam
Bt1 - 14 to 23 inches: clay loam
Bt2 - 23 to 41 inches: clay
Bt3 - 41 to 57 inches: clay
Bt4 - 57 to 63 inches: clay

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 20 to 39 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 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C/D
Ecological site: F005XZ020CA - Very Deep Mesic Mountains 40-60"ppt
Hydric soil rating: No

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: loam
ABt - 7 to 13 inches: loam
Bt1 - 13 to 26 inches: sandy clay loam
Bt2 - 26 to 38 inches: sandy clay loam
Bt3 - 38 to 79 inches: sandy clay loam

Properties and qualities

Slope: 30 to 50 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 (0.20 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 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Rockyglen

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Wohly

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Chalkmountain

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Yorknorth

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

667—Dryfield-Yorknorth-Witherell complex, 5 to 30 percent slopes

Map Unit Setting

National map unit symbol: v6lh
Elevation: 200 to 2,490 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Dryfield and similar soils: 40 percent
Yorknorth and similar soils: 30 percent
Witherell and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dryfield

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Colluvium derived from sandstone and/or residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: fine sandy loam
Bt1 - 4 to 19 inches: fine sandy loam
Bt2 - 19 to 41 inches: fine sandy loam
Bt3 - 41 to 59 inches: fine sandy loam
Bt4 - 59 to 79 inches: loam

Properties and qualities

Slope: 5 to 30 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: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F005XZ013CA - Thermic Mountains
Hydric soil rating: No

Description of Yorknorth

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Colluvium derived from sandstone and/or earthflow deposits derived from schist

Typical profile

A1 - 0 to 6 inches: loam
A2 - 6 to 19 inches: loam
ABt - 19 to 26 inches: silt loam
Bt1 - 26 to 35 inches: clay loam
Bt2 - 35 to 53 inches: clay
C1 - 53 to 60 inches: clay loam
C2 - 60 to 79 inches: paragravelly clay loam

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well 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 20 to 39 inches
Frequency of flooding: None

Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Description of Witherell

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

A - 0 to 3 inches: loam
Bw - 3 to 8 inches: loam
Bt - 8 to 12 inches: gravelly loam
C - 12 to 79 inches: gravel

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Minor Components

Coolyork

Percent of map unit: 10 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex

Hydric soil rating: No

Burgsblock

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Tannin

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

United States Department of Agriculture

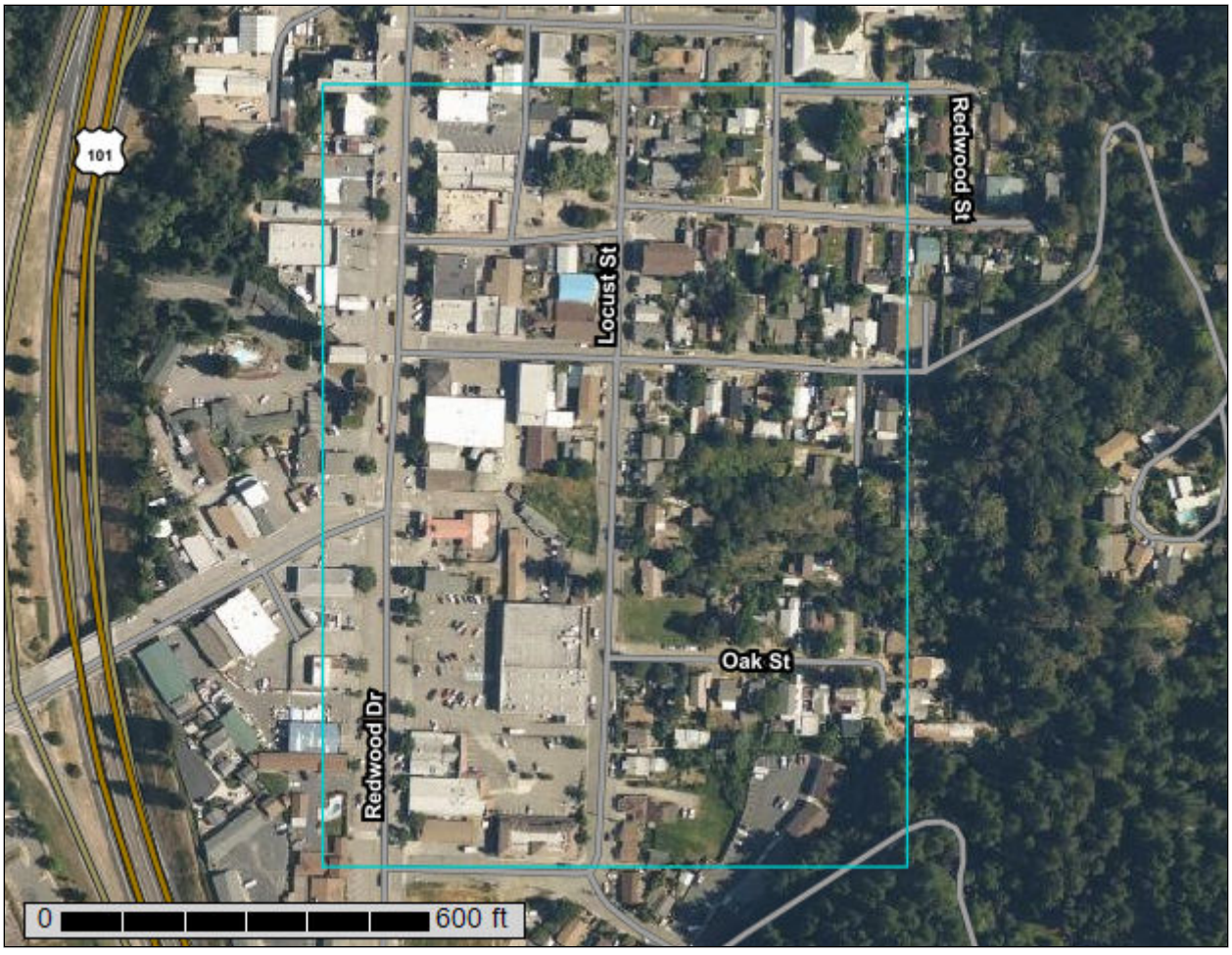
NRCS

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, South Part, California

Garberville town soils



April 11, 2022

Preface

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

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

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

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

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

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

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

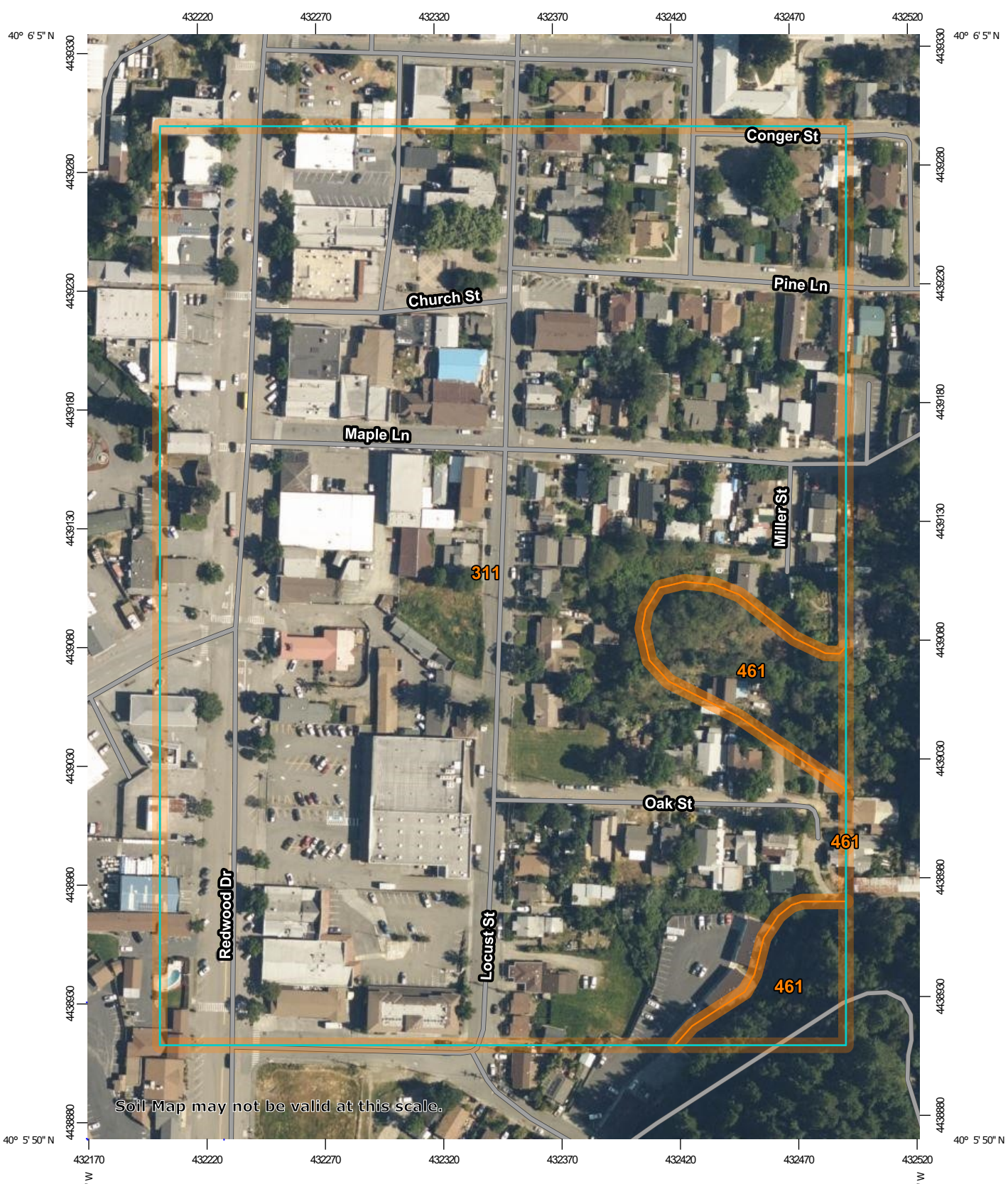
alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington,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

Contents

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: 1:2,270 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

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, South Part, California
Survey Area Data: Version 10, Sep 6, 2021

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

Date(s) aerial images were photographed: May 8, 2019—Jun 21, 2019

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
311	Urban land-Garberville complex, 5 to 15 percent slopes	26.2	94.0%
461	Tannin-Burgsblock-Rockyglen complex, 30 to 50 percent slopes	1.7	6.0%
Totals for Area of Interest		**27.8**	**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, South Part, California

311—Urban land-Garberville complex, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2qds5
Elevation: 200 to 660 feet
Mean annual precipitation: 49 to 70 inches
Mean annual air temperature: 48 to 59 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 50 percent
Garberville and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

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

Description of Garberville

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 7 inches: loam
AB - 7 to 20 inches: loam
Bw1 - 20 to 33 inches: loam
Bw2 - 33 to 47 inches: sandy clay loam
Bw3 - 47 to 71 inches: sandy clay loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 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 10.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R004BI202CA - Loamy Uplands
Hydric soil rating: No

Minor Components

Parkland

Percent of map unit: 10 percent
Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Gibsoncreek

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Leggettcreek

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

461—Tannin-Burgsblock-Rockyglen complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: xhvy
Elevation: 200 to 4,000 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 240 to 280 days

Farmland classification: Not prime farmland

Map Unit Composition

Tannin and similar soils: 40 percent
Burgsblock and similar soils: 25 percent
Rockyglen and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: loam
AB - 7 to 24 inches: loam
Bt1 - 24 to 43 inches: gravelly loam
Bt2 - 43 to 59 inches: gravelly clay loam
Bt3 - 59 to 79 inches: gravelly clay loam

Properties and qualities

Slope: 30 to 50 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 (0.20 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 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Burgsblock

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex

Parent material: Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile

Oi - 0 to 1 inches: gravelly slightly decomposed plant material
A - 1 to 8 inches: very gravelly silt loam
AB - 8 to 22 inches: very gravelly silt loam
Bt1 - 22 to 47 inches: very gravelly clay loam
Bt2 - 47 to 67 inches: very gravelly clay loam
Bt3 - 67 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 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 (0.20 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 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: very gravelly slightly decomposed plant material
A1 - 2 to 6 inches: gravelly loam
A2 - 6 to 12 inches: very gravelly loam
Bw1 - 12 to 26 inches: extremely gravelly loam
Bw2 - 26 to 45 inches: extremely gravelly loam
C - 45 to 79 inches: extremely gravelly loam

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 5.0 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: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Wohly

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Chalkmountain

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

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, South Part, California

Garberville tank sites

April 11, 2022

Preface

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

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

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

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

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

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

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

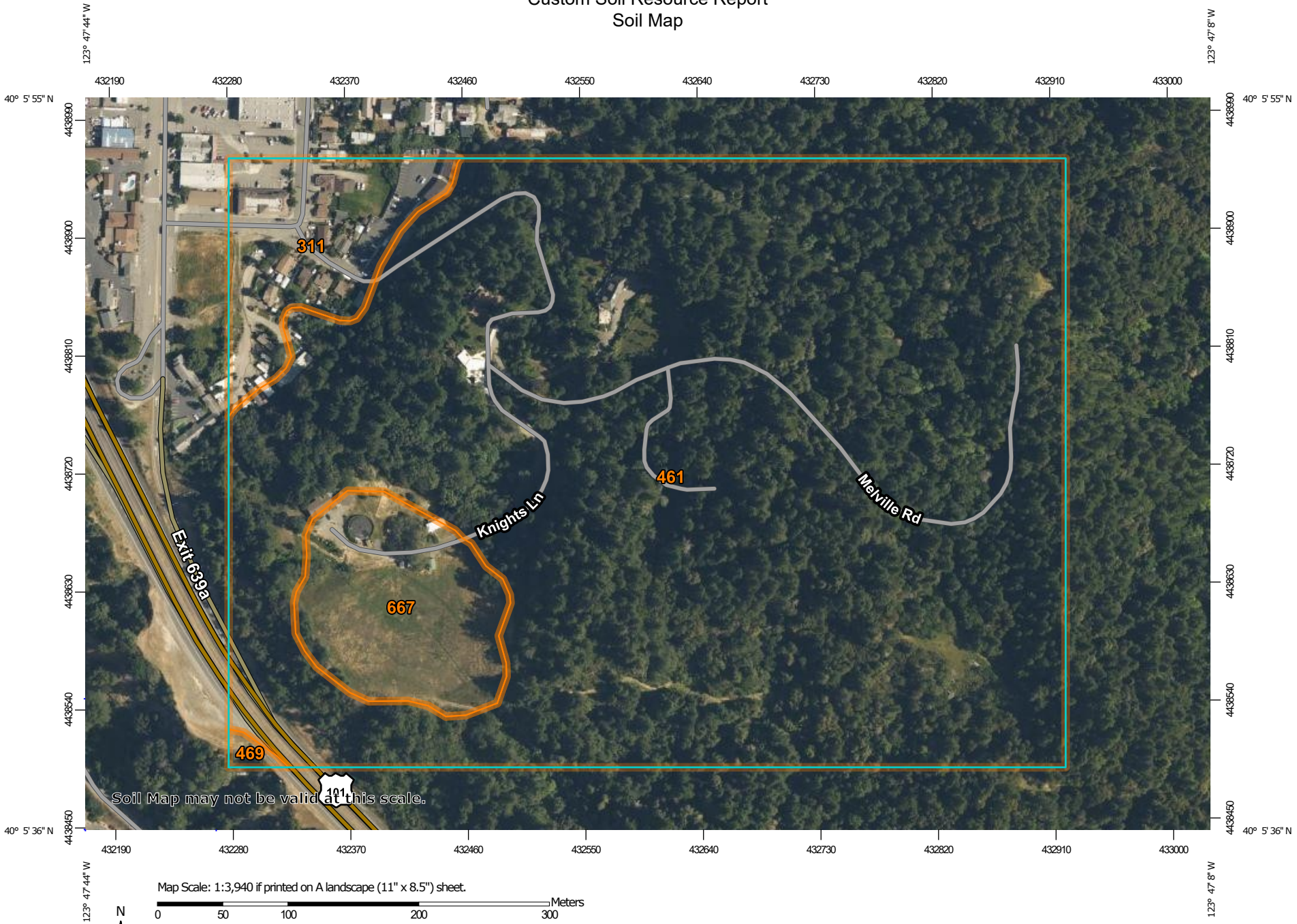
alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington,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

Contents

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: 1:3,940 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

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, South Part, California
Survey Area Data: Version 10, Sep 6, 2021

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

Date(s) aerial images were photographed: May 8, 2019—Jun 21, 2019

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
311	Urban land-Garberville complex, 5 to 15 percent slopes	4.7	6.3%
461	Tannin-Burgsblock-Rockyglen complex, 30 to 50 percent slopes	63.8	86.3%
469	Tannin-Burgsblock-Rockyglen complex, 50 to 75 percent slopes	0.2	0.3%
667	Dryfield-Yorknorth-Witherell complex, 5 to 30 percent slopes	5.3	7.2%
Totals for Area of Interest		**73.9**	**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, South Part, California

311—Urban land-Garberville complex, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2qds5
Elevation: 200 to 660 feet
Mean annual precipitation: 49 to 70 inches
Mean annual air temperature: 48 to 59 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 50 percent
Garberville and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

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

Description of Garberville

Setting

Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 7 inches: loam
AB - 7 to 20 inches: loam
Bw1 - 20 to 33 inches: loam
Bw2 - 33 to 47 inches: sandy clay loam
Bw3 - 47 to 71 inches: sandy clay loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 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 10.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R004BI202CA - Loamy Uplands
Hydric soil rating: No

Minor Components

Parkland

Percent of map unit: 10 percent
Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Gibsoncreek

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Leggettcreek

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

461—Tannin-Burgsblock-Rockyglen complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: xhvy
Elevation: 200 to 4,000 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 240 to 280 days

Farmland classification: Not prime farmland

Map Unit Composition

Tannin and similar soils: 40 percent
Burgsblock and similar soils: 25 percent
Rockyglen and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: loam
AB - 7 to 24 inches: loam
Bt1 - 24 to 43 inches: gravelly loam
Bt2 - 43 to 59 inches: gravelly clay loam
Bt3 - 59 to 79 inches: gravelly clay loam

Properties and qualities

Slope: 30 to 50 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 (0.20 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 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Burgsblock

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex

Parent material: Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile

Oi - 0 to 1 inches: gravelly slightly decomposed plant material
A - 1 to 8 inches: very gravelly silt loam
AB - 8 to 22 inches: very gravelly silt loam
Bt1 - 22 to 47 inches: very gravelly clay loam
Bt2 - 47 to 67 inches: very gravelly clay loam
Bt3 - 67 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 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 (0.20 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 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: very gravelly slightly decomposed plant material
A1 - 2 to 6 inches: gravelly loam
A2 - 6 to 12 inches: very gravelly loam
Bw1 - 12 to 26 inches: extremely gravelly loam
Bw2 - 26 to 45 inches: extremely gravelly loam
C - 45 to 79 inches: extremely gravelly loam

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 5.0 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: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Wohly

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Chalkmountain

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

469—Tannin-Burgsblock-Rockyglen complex, 50 to 75 percent slopes

Map Unit Setting

National map unit symbol: xhw0
Elevation: 200 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Tannin and similar soils: 40 percent
Burgsblock and similar soils: 25 percent
Rockyglen and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 9 inches: loam
ABt - 9 to 22 inches: loam
Bt1 - 22 to 35 inches: sandy clay loam
Bt2 - 35 to 67 inches: gravelly sandy clay loam
BCt - 67 to 79 inches: gravelly sandy clay loam

Properties and qualities

Slope: 50 to 75 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 (0.20 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 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Burgsblock

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile

A - 0 to 7 inches: very gravelly loam
Bt1 - 7 to 24 inches: very gravelly loam
Bt2 - 24 to 39 inches: very gravelly clay loam
Bt3 - 39 to 55 inches: very gravelly clay loam
Bt4 - 55 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 50 to 75 percent
Surface area covered with cobbles, stones or boulders: 0.0 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 (0.20 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 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: gravelly slightly decomposed plant material
A - 2 to 9 inches: very gravelly loam
AB - 9 to 22 inches: very gravelly loam
Bt1 - 22 to 39 inches: very gravelly loam
Bt2 - 39 to 63 inches: extremely gravelly loam
BC - 63 to 79 inches: extremely gravelly sandy clay loam

Properties and qualities

Slope: 50 to 75 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 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Wohly

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Chalkmountain

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

667—Dryfield-Yorknorth-Witherell complex, 5 to 30 percent slopes

Map Unit Setting

National map unit symbol: v6lh
Elevation: 200 to 2,490 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Dryfield and similar soils: 40 percent
Yorknorth and similar soils: 30 percent
Witherell and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dryfield

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from sandstone and/or residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: fine sandy loam
Bt1 - 4 to 19 inches: fine sandy loam
Bt2 - 19 to 41 inches: fine sandy loam
Bt3 - 41 to 59 inches: fine sandy loam
Bt4 - 59 to 79 inches: loam

Properties and qualities

Slope: 5 to 30 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: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F005XZ013CA - Thermic Mountains
Hydric soil rating: No

Description of Yorknorth

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Colluvium derived from sandstone and/or earthflow deposits derived from schist

Typical profile

A1 - 0 to 6 inches: loam
A2 - 6 to 19 inches: loam
ABt - 19 to 26 inches: silt loam
Bt1 - 26 to 35 inches: clay loam
Bt2 - 35 to 53 inches: clay
C1 - 53 to 60 inches: clay loam
C2 - 60 to 79 inches: paragravelly clay loam

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well 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 20 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Description of Witherell

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

A - 0 to 3 inches: loam
Bw - 3 to 8 inches: loam
Bt - 8 to 12 inches: gravelly loam
C - 12 to 79 inches: gravel

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Minor Components

Coolyork

Percent of map unit: 10 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Burgsblock

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Tannin

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

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, South Part, California

WallanRd

April 11, 2022

Preface

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

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

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

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

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

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

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: 1:2,160 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

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, South Part, California
Survey Area Data: Version 10, Sep 6, 2021

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

Date(s) aerial images were photographed: May 8, 2019—Jun 21, 2019

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
452	Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes	0.0	0.1%
667	Dryfield-Yorknorth-Witherell complex, 5 to 30 percent slopes	5.3	70.4%
673	Coolyork-Yorknorth complex, 30 to 50 percent slopes	2.2	29.4%
Totals for Area of Interest		**7.6**	**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, South Part, California

452—Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hs7g
Elevation: 200 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Burgsblock and similar soils: 35 percent
Coolyork and similar soils: 30 percent
Tannin and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Burgsblock

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: gravelly loam
Bt1 - 4 to 14 inches: very gravelly clay loam
Bt2 - 14 to 51 inches: very gravelly clay loam
Bt3 - 51 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 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 (0.20 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 7.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C

Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Coolyork

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from schist

Typical profile

A1 - 0 to 8 inches: loam
A2 - 8 to 14 inches: loam
Bt1 - 14 to 23 inches: clay loam
Bt2 - 23 to 41 inches: clay
Bt3 - 41 to 57 inches: clay
Bt4 - 57 to 63 inches: clay

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 20 to 39 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 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C/D
Ecological site: F005XZ020CA - Very Deep Mesic Mountains 40-60"ppt
Hydric soil rating: No

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: loam
ABt - 7 to 13 inches: loam

Bt1 - 13 to 26 inches: sandy clay loam
Bt2 - 26 to 38 inches: sandy clay loam
Bt3 - 38 to 79 inches: sandy clay loam

Properties and qualities

Slope: 30 to 50 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 (0.20 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 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Rockyglen

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Wohly

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Chalkmountain

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Yorknorth

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank

Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

667—Dryfield-Yorknorth-Witherell complex, 5 to 30 percent slopes

Map Unit Setting

National map unit symbol: v6lh
Elevation: 200 to 2,490 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Dryfield and similar soils: 40 percent
Yorknorth and similar soils: 30 percent
Witherell and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dryfield

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from sandstone and/or residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: fine sandy loam
Bt1 - 4 to 19 inches: fine sandy loam
Bt2 - 19 to 41 inches: fine sandy loam
Bt3 - 41 to 59 inches: fine sandy loam
Bt4 - 59 to 79 inches: loam

Properties and qualities

Slope: 5 to 30 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: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F005XZ013CA - Thermic Mountains
Hydric soil rating: No

Description of Yorknorth

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Colluvium derived from sandstone and/or earthflow deposits derived from schist

Typical profile

A1 - 0 to 6 inches: loam
A2 - 6 to 19 inches: loam
ABt - 19 to 26 inches: silt loam
Bt1 - 26 to 35 inches: clay loam
Bt2 - 35 to 53 inches: clay
C1 - 53 to 60 inches: clay loam
C2 - 60 to 79 inches: paragravelly clay loam

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well 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 20 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Description of Witherell

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

A - 0 to 3 inches: loam
Bw - 3 to 8 inches: loam
Bt - 8 to 12 inches: gravelly loam
C - 12 to 79 inches: gravel

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Minor Components

Coolyork

Percent of map unit: 10 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Burgsblock

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex

Hydric soil rating: No

Tannin

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

673—Coolyork-Yorknorth complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: v6lj
Elevation: 200 to 2,490 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Coolyork

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from schist

Typical profile

A - 0 to 6 inches: loam
ABt - 6 to 19 inches: clay loam
Bt1 - 19 to 31 inches: clay loam
Bt2 - 31 to 49 inches: clay
C1 - 49 to 63 inches: gravelly clay loam
C2 - 63 to 79 inches: gravelly clay

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 20 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: F005XZ020CA - Very Deep Mesic Mountains 40-60"ppt
Hydric soil rating: No

Description of Yorknorth

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Colluvium derived from sandstone and/or residuum weathered from schist and/or earthflow deposits derived from mudstone

Typical profile

A - 0 to 2 inches: loam
ABt - 2 to 12 inches: loam
Bt1 - 12 to 29 inches: clay loam
Bt2 - 29 to 33 inches: clay
Bt3 - 33 to 46 inches: clay
Bt4 - 46 to 50 inches: gravelly clay
BCt - 50 to 71 inches: gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well 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 20 to 39 inches

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Minor Components

Witherell

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Dryfield

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Burgsblock

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Tannin

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex

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

Species List 3

Appendix 3, Table 1 Regionally Occurring Special-status Plant Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/23 Garberville and Surrounding 7.5 min Quadrangles												
Scientific Name	**Common Name**	**Family**	**Fed List**	**Cal List**	**Other Status**	**GRank**	**SRank**	**RPlant Rank**	**Bloom Period**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Arabis mcdonaldiana	McDonald's rockcress	Brassicaceae	E	E	SB_BerrySB; SB_CalBG/RSABG	G3	S3	1B.1	May-Jul	Lower montane coniferous forest, upper montane coniferous forest.	Rocky outcrops, ridges, slopes, and flats on serpentine. 150-1830 m.	low
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Ericaceae	None	None	BLM_S; SB_CalBG/RSABG; SB_USDA	G3T2	S2	1B.1	Feb-Apr	Chaparral, Lower montane coniferous forest.	Disturbed openings in partially timbered forest lands; also along ridgelines; south aspects. 115-670 m.	low
Astragalus agnicidus	Humboldt County milk-vetch	Fabaceae	None	E	SB_BerrySB; SB_CalBG/RSABG	G2	S2	1B.1	Apr-Sep	Broadleaved upland forest, North Coast coniferous forest.	Disturbed areas, Openings, Roadsides (sometimes). 120-800 m above sea level.	low
Astragalus rattanii var. rattanii	Rattan's milk-vetch	Fabaceae	None	None	-	G4T4	S4	4.3	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest.	30-825 m above sea level.	low
Calamagrostis bolanderi	Bolander's reed grass	Poaceae	None	None	-	G4	S4	4.2	May-Aug	Bogs and fens, broadleaved upland forest, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest.	Mesic. Up to 455 m above sea level.	low

Appendix 3, Table 1 Regionally Occurring Special-status Plant Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/23 Garberville and Surrounding 7.5 min Quadrangles												
Scientific Name	**Common Name**	**Family**	**Fed List**	**Cal List**	**Other Status**	**GRank**	**SRank**	**RPlant Rank**	**Bloom Period**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Calamagrostis foliosa	leafy reed grass	Poaceae	None	None	-	G3	S3	4.2	May-Sep	Coastal bluff scrub, North Coast coniferous forest.	Rocky cliffs and ocean-facing bluffs. 0-1220 m.	low
Carex arcta	northern clustered sedge	Cyperaceae	None	None	IUCN_LC	G5	S1	2B.2	Jun-Sep	Bogs and fens, North Coast coniferous forest.	Mesic sites. 60-1405 m.	moderate
Castilleja litoralis	Oregon coast paintbrush	Orobranchaceae	None	None	-	G3	S3	2B.2	Jun	Coastal bluff scrub, Coastal dunes, Coastal scrub.	15-100 m above sea level.	none
Castilleja mendocinensis	Mendocino Coast paintbrush	Orobranchaceae	None	None	BLM_S	G2	S2	1B.2	Apr-Aug	Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub.	Often on sea bluffs or cliffs in coastal bluff scrub or prairie. 3-70 m.	none
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	Rhamnaceae	None	None	-	G3T1	S1	1B.1	Mar-May	Chaparral.	Sandy, acidic soil in chaparral. 45-305 m.	none
Ceanothus gloriosus var. exaltatus	glory brush	Rhamnaceae	None	None	-	G4T4	S4	4.3	Mar-Jun (Aug)	Chaparral.	30-610 m above sea level.	none
Coptis laciniata	Oregon goldthread	Ranunculaceae	None	None	-	G4?	S3?	4.2	(Feb) Mar-May	Meadows and seeps.	Mesic sites such as moist streambanks. 0-1000 m.	low
Cypripedium californicum	California lady's-slipper	Orchidaceae	None	None	IUCN_EN	G4	S4	4.3	Jul-Sep	Broadleaved upland forest, North Coast coniferous forest.	Rocky (sometimes), Sandy (sometimes). 45-1800 m above sea level.	low

Appendix 3, Table 1 Regionally Occurring Special-status Plant Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/23 Garberville and Surrounding 7.5 min Quadrangles												
Scientific Name	**Common Name**	**Family**	**Fed List**	**Cal List**	**Other Status**	**GRank**	**SRank**	**RPlant Rank**	**Bloom Period**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Epilobium septentrionale	Humboldt County fuchsia	Onagraceae	None	None	-	G4	S4	3	Jun-Oct	Broadleaved upland forest, Cismontane woodland, North Coast coniferous forest.	Mesic, Rocky. 30-1100 m above sea level.	moderate
Erigeron biolettii	streamside daisy	Asteraceae	None	None	-	G3?	S3?	3	Jun-Oct	Broadleaved upland forest, Cismontane woodland, North Coast coniferous forest.	Mesic, Rocky. 30-1100 m.	moderate
Erigeron robustior	robust daisy	Asteraceae	None	None	-	G3	S3	4.3	Jun-Jul	Lower montane coniferous forest, Meadows and seeps.	Serpentinite (sometimes). 200-610 m.	low
Eriogonum kelloggii	Kellogg's buckwheat	Polygonaceae	None	E	BLM_S	G2	S2	1B.2	(May) Jun-Aug	Lower montane coniferous forest.	Rocky, serpentine sites. 910-1190 m.	low
Erythronium citrinum var. citrinum	lemon-colored fawn lily	Liliaceae	None	None	-	G4T3T4	S3	4.3	Mar-May	Chaparral, Lower montane coniferous forest.	Serpentinite (usually). 150-1300 m above sea level.	low
Erythronium oregonum	giant fawn lily	Liliaceae	None	None	-	G4G5	S2	2B.2	Mar-Jun (Jul)	Cismontane woodland, Meadows and seeps.	Openings, Rocky, Serpentinite (sometimes). 100-1150 m.	low
Erythronium revolutum	Coast fawn lily	Liliaceae	None	None	-	G4G5	S3	2B.2	Mar-Jul (Aug)	Bogs and fens, Broadleaved upland forest, North Coast coniferous forest.	Mesic, Streambanks. 0-1600 m above sea level.	moderate
Gentiana setigera	Mendocino gentian		None	None	BLM_S	G2	S2	1B.2	(Apr-Jul) Aug-Sep	Lower montane coniferous forest, meadows and seeps.	Meadows, seeps and bogs. Serpentine substrates. 120-1070 m.	low

Appendix 3, Table 1 Regionally Occurring Special-status Plant Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/23 Garberville and Surrounding 7.5 min Quadrangles												
Scientific Name	**Common Name**	**Family**	**Fed List**	**Cal List**	**Other Status**	**GRank**	**SRank**	**RPlant Rank**	**Bloom Period**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Gilia capitata ssp. pacifica	Pacific gilia	Polemoniceae	None	None	-	G5T3	S2	1B.2	Apr-Aug	Chaparral, Coastal bluff scrub, Coastal prairie, Valley and foothill grassland.	5-1665 m above sea level.	low
Hemizonia congesta ssp. tracyi	Tracy's tarplant	Asteraceae	None	None	-	G5T4	S4	4.3	(Mar) May-Oct	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest.	Openings, Serpentinite (sometimes). 120-1200 m.	low
Hosackia gracilis	harlequin lotus	Fabaceae	None	None	SB_CalBG/RSABG; SB_UCSC	G3G4	S3	4.2	Mar-Jul	Broadleaved upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland.	Roadsides. 0-700 m.	low
Howellia aquatilis	water howellia	Fabaceae	Del	None	-	G3	S2	2B.2	Jun	Marshes and swamps.	1085-1290 m above sea level.	none
Kopsiopsis hookeri	small groundcone	Polemoniaceae	None	None	-	G4?	S1S2	2B.3	Apr-Aug	North coast coniferous forest.	Open woods, shrubby places, generally on Gaultheria shallon. 120-1435 m.	low
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	None	None	-	G4?	S4?	4.2	Apr-Jul	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland.	55-1500 m above sea level.	moderate

Appendix 3, Table 1 Regionally Occurring Special-status Plant Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/23 Garberville and Surrounding 7.5 min Quadrangles												
Scientific Name	**Common Name**	**Family**	**Fed List**	**Cal List**	**Other Status**	**GRank**	**SRank**	**RPlant Rank**	**Bloom Period**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	None	None	-	G4	S4	4.3	May-Jul	Cismontane woodland, Lower montane coniferous forest.	Gravelly (sometimes), Rocky (sometimes). 1700-2000 m.	moderate
Leptosiphon rattanii	Rattan's leptosiphon	Polemoniaceae	None	None	-	G4	S4	4.3	May-Jul	Cismontane woodland, Lower montane coniferous forest.	Gravelly (sometimes), Rocky (sometimes). 1700-2000 m.	low
Lilium rubescens	redwood lily	Liliaceae	None	None	SB_USDA	G3	S3	4.2	Apr-Aug (Sep)	Broadleaved upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest.	Roadsides (sometimes), Serpentinite (sometimes). 30-1910 m.	low
Listera cordata	heart-leaved twayblade	Orchidaceae	None	None	-	G5	S4	4.2	Feb-Jul	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest.	5-1370 m.	moderate
Lomatium engelmannii	Engelmann's lomatium	Apiaceae	None	None	-	G4	S3	4.3	May-Aug	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest.	870-2740 m.	low
Lycopus uniflorus	Northern bugleweed	Lamiaceae	None	- None	-	G5	S4	4.3	Jul-Sep	Bogs and fens, Marshes and swamps.	5-2000 m above sea level.	low
Mitellastra caulescens	leafy-stemmed miterwort	Saxifrgiaceae	None	None	-	G5	S4	4.2	(Mar) Apr-Oct	Broadleaved upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest.	Mesic, Roadsides (sometimes). 5-1700 m.	low

Appendix 3, Table 1 Regionally Occurring Special-status Plant Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/23 Garberville and Surrounding 7.5 min Quadrangles												
Scientific Name	**Common Name**	**Family**	**Fed List**	**Cal List**	**Other Status**	**GRank**	**SRank**	**RPlant Rank**	**Bloom Period**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Montia howellii	Howell's montia	Montiaceae	None	None	-	G3G4	S2	2B.2	(Feb) Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools.	Roadsides (sometimes), Vernally Mesic. 0-835 m.	low
Piperia candida	white-flowered rein orchid	Orchidaceae	None	None	-	G3	S3	1B.2	(Mar) May-Sep	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest.	Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 20-1615 m.	Moderate
Pityopus californicus	California pinefoot	Ericaceae	None	None	-	G4G5	S4	4.2	(Mar-Apr) May-Aug	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	15-2225 m above sea level.	low
Pleuropogon hooverianus	North Coast semaphore grass	Poaceae	None	T	SB_BerrySB; SB_CalBG/RSABG	G2	S2	1B.1	Apr-Jun	Broadleaved upland forest, Meadows and seeps, North Coast coniferous forest.	10-671 m above sea level.	moderate
Sedum eastwoodiae	Red Mountain stonecrop	Crassulaceae	None	None	BLM_S	G5T2	S2	1B.2	May-Jul	Lower montane coniferous forest.	600-1200 m above sea level.	low
Sidalcea malachroides	maple-leaved checker-bloom	Malvaceae	None	None	-	G3	S3	4.2	(Mar) Apr-Aug	Broadleaf upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland.	Woodlands and clearings near coast; often in disturbed areas. 4-765 m.	low
Sidalcea malviflora ssp. patula	Siskiyou checker-bloom	Malvaceae	None	None	-	G5T2	S2	1B.2	(Mar) May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest.	15-1230 m above sea level.	moderate

Appendix 3, Table 1 Regionally Occurring Special-status Plant Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/23 Garberville and Surrounding 7.5 min Quadrangles												
Scientific Name	**Common Name**	**Family**	**Fed List**	**Cal List**	**Other Status**	**GRank**	**SRank**	**RPlant Rank**	**Bloom Period**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Silene bolanderi	Bolander's catchfly	Caryophyllaceae	None	None	-	G2	S2	1B.2	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest.	Openings (usually), Roadsides (sometimes), Rocky (sometimes), Serpentinite (sometimes). 420-1150 m.	low
Silene greenei ssp. angustifolia	Red Mountain catchfly	Caryophyllaceae	None	E	BLM_S	G5T1	S1	1B.2	May-Jun	Chaparral, Lower montane coniferous forest.	Peridotite, Rocky, Serpentinite (usually). 425-2085 m.	low
Tracyina rostrata	Beaked tracyina	Asteraceae	None	None	USFS_S	G2	S2	1B.2	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland.	Open grassy meadows usually within oak woodland and grassland habitats. 150-795 m.	low
Usnea longissimi	Methuselah's beard lichen		None	None	BLM_S	G4	S4	4.2	N/A	Broadleaf upland forest, North Coast coniferous forest.	Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.	moderate
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	None	None	-	G4G5	S3?	2B.3	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest.	215-1400 m above sea level.	low

Appendix 3, Table 1
Regionally Occurring Special-status Plant Species Scoping List CNDDB, CNPS, IPaC
Garberville Sanitation District 5/1/23
Garberville and Surrounding 7.5 min Quadrangles

Scientific Name	Common Name	Family	Fed List	Cal List	Other Status	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence

1. Species indicator status as assigned by Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and California Department of Fish and Wildlife (CDFW)

C: candidate
CT: candidate threatened
D: delisted
DPS: distinct population segment
E: endangered
ESU: evolutionarily significant unit
FP: fully protected
PT: proposed threatened
SSC: species of special concern
T: threatened
WL: watch list

2. Species Heritage rank as assigned by California Department of Fish and Wildlife (CDFW)

G1/S1: critically imperiled
G2/S2: imperiled
G3/S3: vulnerable
G4/S4: apparently secure
G5/S5: secure

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Amphibians									
Ascaphus truei	Pacific tailed frog	None	None, SSC	G4	S3S4	Aquatic, Klamath/ N. coast flowing waters, Lower montane conifer, N. coast conifer, Redwood, and Riparian forests	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	None. No suitable habitat present.
Rana boylii	foothill yellow-legged frog	None	E (excluding the North Coast Clade), SSC	G3	S3	Aquatic, Chaparral, Cismontane woodland, coast scrub, Klamath/N. coast flowing waters, lower montane conifer forest, meadow & seep, riparian forest and woodland	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.	Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	Low. Dispersal/wintering habitat
Rhyacotriton variegatus	southern torrent salamander	None	None, SSC	G3G4	S2S3	Lower montane conifer forest, old-growth, redwood forest, riparian forest.	Coastal redwood, Douglas-fir, mixed conifer, montane riparian and montane hardwood-conifer habitats. Old growth forest.	Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rock within trickling water.	None. No suitable habitat present.

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Taricha rivularis	Red-bellied newt	None	None, SSC	G2	S2	Broadleaved upland forest, North coast coniferous forest, Redwood, Riparian forest, Riparian woodland	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County.	Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.	Moderate. Suitable non-breeding habitat available.
Birds									
Accipiter cooperii	Cooper's hawk	None	None, WL	G5	S4	Cismontane woodland, riparian forest, upper montane coniferous forest.	Woodland, chiefly of open, interrupted, or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood plains; also, live oaks.	High. Suitable habitat present in forested areas of study area.
Brachyramphus marmoratus	marbled murrelet	T	E	G3G4	S1	Lower montane conifer forest, Old growth Redwood	Feeds near-shore; nests inland along coast from Eureka to Oregon border.	Nests in old-growth redwood-dominated forests, up to 6 mi. inland, often in Douglas-fir.	None. No suitable habitat present.
Charadrius alexandrinus nivosus	western snowy plover	T	None, SSC	G3T3	S2S3	Great Basin standing waters, Sand shore, Wetland	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	None. No suitable habitat present.

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Coccyzus americanus occidentalis	western yellow-billed cuckoo	T	E	G5T2T3	S1	Riparian forest	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.	None. No suitable habitat present.
Contopus cooperi	Olive-sided flycatcher	None	None, SSC	G4	S3	Occupy various forest and woodland habitats, including mixed coniferous-deciduous forest, burned-over forest, forested wetlands, and forested edges of riparian areas.	During non-breeding season, occupy wide variety of habitats from forested woodland to open areas with scattered trees, especially snags.	Nests are placed most often in conifers on horizontal limbs. Most nesting sites contain dead standing trees, used for singing and feeding perches.	High. Suitable habitat present in forested areas and forest edges within study area.
Empidonax traillii brewsteri	little willow flycatcher	None	E, BCC	G5T3T4	S1S2	Meadow & seep, Riparian woodland	Mountain meadows and riparian habitats in the Sierra Nevada and Cascades.	Nests near the edges of vegetation clumps and near streams.	Low. Potential migration stop over habitat, no suitable nesting habitat.
Falco peregrinus anatum	American peregrine falcon	D	D	G4T4	S3S4	Coniferous, hardwood and mixed woodlands, cliffs, bare rock.	Often near water bodies (lagoon, bay, river mouth), herbaceous wetland. Often forages in urban areas.	Nests on cliff leges, sometimes in hollow or broken snags or large trees. Also uses ledges of buildings, bridges, or other structures.	Moderate. Suitable habitat present in portions of the study area.

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Haliaeetus leucocephalus	Bald eagle	D	E	G5	S3	Lower montane coniferous forest Old growth.	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Low. Suitable habitat may be available in the forested portion of the study area, foraging habitat adjacent.
Pandion haliaetus	osprey	None	None, WL	G5	S4	Riparian forest	Ocean shore, bays, fresh-water lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Moderate. Suitable habitat may be available in the forested portion of the study area, foraging habitat adjacent.
Pelecanus occidentalis californicus	California brown pelican	D	D, FP	G4T3T4	S3	Offshore islands, harbors, estuaries and bays. Sometimes hunt at sea.	Rocky or vegetated islands, marinas, and shallow breakwaters.	Nest in colonies in secluded areas (often islands), vegetated sand dunes, shrubs and mangroves.	None. No suitable habitat present.
Psiloscops flammeolus	Flammulated owl	None	None	G4	S2S4	Mature mountain forests.	Relatively open, mature stands of Douglas-fir, fir, limber pine, and yellow pine, including burned forests. Prefer middle and upper slopes, avoiding lower elevations and valleys.	Breeds in dry mature mountain forests of ponderosa pine or other large coniferous trees.	Low. No typical habitat within the study area, though possibly surrounding.

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Strix occidentalis caurina	northern spotted owl	T	T	G3T3	S2S3	North coast conifer forest, Old growth Redwood	Old-growth forests or mixed stands of old-growth & mature trees. Occasional in younger forests w/ patches of big trees.	High, multistory canopy dominated by big trees, many trees w/cavities or broken tops, woody debris & space under canopy.	Low. Isolated and no typical habitat within the study area, though possibly surrounding.
Fish									
Accipenser meditostris pop. 2	Green sturgeon (northern DPS)	None	None, SSC	G2T1	S1	Aquatic. Spends most of its life cycle in coastal marine waters, estuaries, and lower reaches of large rivers. Travels upriver to spawn.	Spawns in the Klamath, Trinity, South Fork Trinity, and Eel Rivers in California.	Specific spawning and rearing habitats are poorly known and increasingly uncommon in major rivers within its range.	None. No suitable habitat present. No adequate aquatic connectivity.
Entosphenus tridentatus	Pacific lamprey	None	None, SSC	G4	S3	Aquatic, river mouth, tidal river, bay/sound	Pacific Coast streams north of San Luis Obispo County, however, regularly runs in Santa Clara River. Size of runs is declining.	Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Amnocetes need soft sand or mud.	None. No suitable habitat present.
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	T	T	G4T2Q	S2?	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters	Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.	State listing refers to populations between the Oregon border and Punta Gorda, California.	None. No suitable habitat present. No adequate aquatic connectivity.
Oncorhynchus mykiss irideus pop. 16	steelhead – N. California DPS	T	None	G5T2-T3Q	S2S3	Aquatic Sacramento/San Joaquin flowing waters	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	Cool, swift, shallow water & clean loose gravel for spawning	None. No suitable habitat present. No adequate aquatic connectivity.

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	None	C, SSC	G5T4Q	S2	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters	No. Calif coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns province DPS & No. Calif DPS.	Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools in which to spend the summer.	None. No suitable habitat present. No adequate aquatic connectivity.
Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	T	None	G5T2Q	S2	Aquatic, Northern California flowing waters.	Includes naturally spawned populations spawning in streams from Redwood Creek, Humboldt County, south through the Russian River, Sonoma County, California	Major limiting factor for juvenile chinook salmon is temperature, which strongly effects growth and survival.	None. No suitable habitat present. No adequate aquatic connectivity.
Insects									
Bombus caliginosus	Obscure bumblebee	None	None	G2G3	S1S2	Coastal prairies and coast range meadows.	Coastal areas from Santa Barbara County to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	Low. Limited suitable habitat available.
Bombus occidentalis	western bumble bee	None	None	G2G3	S1	Pollinates a wide variety of flowers. Will gnaw through flowers to obtain nectar their tongues are too short to reach.	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Nest in cavities or abandoned burrows.	Low. Limited suitable habitat available.

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Danaus plexippus	Monarch butterfly	C	None	G4	SNR	North American populations highly migratory.	Overwintering habitats include coastal California conifer or Eucalyptus groves.	Breeding areas virtually all patches of milkweed in North America.	Low. No milkweed present. Limited suitable overwintering habitat available.
Mammals									
Antrozous pallidus	Pallid bat	None	None	G4	S3	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland.	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate. Suitable habitat available in portions of the study area.
Arborimus pomo	Sonoma tree vole	None	None, SSC	G3	S3	North coast conifer forest, old-growth, redwood forest	N. coast fog belt from Oregon border to Sonoma Co. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	Low. No typical habitat within the study area, though possibly surrounding.
Erethizon dorsatum	North American porcupine	None	None	G5	S3	Broadleaf upland forest, cismontane woodland, closed-cone & N Coast conifer forest, lower & upper montane conifer forest	Forested habitat in the Sierra Nevada, Cascade, and Coast ranges, scattered observations from forested areas in the Transverse Ranges	Wide variety of coniferous and mixed woodland habitat.	Moderate. Suitable habitat available in forested portions of the study area.

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Martes caurina humboldtensis	Humboldt marten	None	E, SSC	G4G5T1	S1	North coast conifer forest, old-growth, Redwood forest	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	None. No suitable habitat present.
Myotis evotis	long-eared myotis	None	None	G5	S3	Roosts in a wide range of substrate.	Found in all brush, woodland & forest habitats from sea level to about 9000 ft. prefers coniferous woodlands & forests.	Nursery colonies in buildings, crevices, spaces under bark, & snags. Caves used primarily as night roosts.	Moderate. Suitable habitat within portions of the study area.
Myotis thysanodes	Fringed myotis	None	None	G4	S3	Low desert scrub, montane evergreen forest, and oak woodlands.	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer.	Uses caves, mines, buildings or crevices for maternity colonies and roosts.	Moderate. Suitable habitat within portions of the study area.
Myotis yumanensis	Yuma myotis	None	None	G5	S4	Lower montane coniferous forest, Riparian forest, Riparian woodland, Upper montane coniferous forest.	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Moderate. Suitable habitat within portions of the study area.
Pekania pennanti	fisher (No. Calif./So. Oregon DPS)	None	None, SSC	G5	S2S3	North coast conifer forest, old-growth, riparian forest	Intermediate to large-tree stages of conifer forests & deciduous-riparian areas w/ high % canopy closure.	Uses cavities, snags, logs & rocky areas for cover & denning. Needs large areas of mature, dense forest.	Low. No typical habitat within the study area, though possibly surrounding.

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**
Reptiles									
Emys marmorata	western pond turtle	None	None, SSC	G3G4	S3	Aquatic, artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Wetland	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Low. Minimal, seasonal habitat available.
Mollusks									
Anodonta californiensis	California floater	None	None	G3Q	S2?	Freshwater, shallow rivers, pools, creeks	Low elevation species found in both lakes and lake-like stream environments.	Slow-moving freshwater streams with mud or sand substrates, though have been found in rivers and creeks with gravel substrates.	None. No suitable habitat present. No adequate aquatic connectivity.
Anodonta oregonensis	Oregon floater	None	None	G5	S2?	Aquatic	Low gradient rivers, lakes, and reservoirs.	Often share habitat with *A. californiensis* where their ranges overlap.	None. No suitable habitat present. No adequate aquatic connectivity.
Noyo interessa	Ten mile shoulderband	None	None	G2	S2	Coastal dunes, Coastal scrub, Redwood, Riparian forest.	Found in coastal dunes, coastal scrub, and riparian redwood forest habitats.		None. No suitable habitat present. No adequate aquatic connectivity.

1. Species indicator status as assigned by Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and California Department of Fish and Wildlife (CDFW)

C: candidate
CT: candidate threatened
D: delisted
DPS: distinct population segment
E: endangered
ESU: evolutionarily significant unit
FP: fully protected
PT: proposed threatened
SSC: species of special concern
T: threatened
WL: watch list

Appendix 3, Table 2 Regionally Occurring Special-status Animal Species Scoping List CNDDB, CNPS, IPaC Garberville Sanitation District 5/1/2023 Garberville and Surrounding 7.5 min Quadrangles									
Scientific Name	**Common Name**	**FedList**	**CalList**	**GRank**	**SRank**	**Habitats**	**General Habitat**	**Micro-Habitat**	**Potential of Occurrence**

2. Species Heritage rank as assigned by California Department of Fish and Wildlife (CDFW)
   - G1/S1: critically imperiled
   - G2/S2: imperiled
   - G3/S3: vulnerable
   - G4/S4: apparently secure
   - G5/S5: secure

Appendix 3, Table 3 Botanical Species Observed 4/27/22, 5/9, 5/10, 7/5 and 7/6/2023 Garberville Sanitary District Study Area			
Scientific Name	**Common Name**	**Family**	**Native?**
Trees			
Acacia dealbata	silver wattle	Fabaceae	I
Acer macrophyllum	big leaf maple	Aceraceae	Y
Aesculus californica	California buckeye	Sapindaceae	Y
Alnus rhombifolia	white alder	Betulaceae	Y
Arbutus menziesii	madrone	Ericaceae	Y
Betula papyrifera	paper birch	Betulaceae	N
Crataegus monogyna	English hawthorne	Rosaceae	I
Fraxinus latifolia	Oregon ash	Oleaceae	Y
Liquidamber styraciflua	liquid amber	Hamamelidaceae	N
Malus pumila	cultivated apple	Rosaceae	N
Notholithocarpus densiflorus var. *densiflorus*	tanoak	Fagaceae	Y
Pinus ponderosa	ponderosa pine	Pinaceae	Y
Pinus radiata	Monterey pine	Pinaceae	N
Pinus sylvestris	Scotch pine	Pinaceae	N
Platanus x *hispanica*	London plane tree	Platanaceae	N
Populus alba	white cottonwood	Salicaceae	N
Prunus avium	sweet cherry	Rosaceae	N
Prunus cerasifera	wild plum	Rosaceae	I
Pseudotsuga menziesii var. *menziesii*	Douglas fir	Pinaceae	Y
Quercus chrysolepis	canyon live oak	Fagaceae	Y
Quercus garryana var. *garryana*	Oregon white oak	Fagaceae	Y
Quercus kelloggii	California black oak	Fagaceae	Y
Rosa californica	California wild rose	Rosaceae	Y
Salix lasiandra var. *lasiandra*	Pacific willow	Salicaceae	Y
Salix lasiolepis	arroyo willow	Salicaceae	Y
Salix sitchensis	Sitka willow	Salicaceae	Y
Sequoia sempervirens	coast redwood	Cupressaceae	Y
Umbellularia californica	California bay tree	Lauraceae	Y
Shrubs			
Arctostaphylos manzanita ssp. *manzanita*	common manzanita	Ericaceae	Y
Baccharis pilularis ssp. *consanguinea*	coyote brush	Asteraceae	Y
Ceanothus thyrsiflorus var. *thyrsiflorus*	blue blossom	Rhamnaceae	Y
Corylus cornuta ssp. *californica*	beaked hazelnut	Betulaceae	Y
Cotoneaster franchetii	Franchett cotoneaster	Rosaceae	I
Cytisus scoparius	Scotch broom	Fabaceae	I
Diplacus aurantiacus	sticky monkey flower	Phrymaceae	Y
Frangula californica ssp. *californica*	California coffee berry	Rhamnaceae	Y
Genista monspessulana	French broom	Fabaceae	I
Heteromeles arbutifolia	toyon	Rosaceae	Y
Holodiscus discolor var. *discolor*	ocean spray	Rosaceae	Y
Phoradendron leucarpum ssp. *tomentosum*	oak mistletoe	Viscaceae	Y
Pyracantha angustifolia	firethorn	Rosaceae	I

Appendix 3, Table 3 Botanical Species Observed 4/27/22, 5/9, 5/10, 7/5 and 7/6/2023 Garberville Sanitary District Study Area			
Scientific Name	**Common Name**	**Family**	**Native?**
Rosa californica	California rose	Rosaceae	Y
Rosa gymnocarpa var. *gymnocarpa*	wood rose	Rosaceae	Y
Rosa rubiginosa	sweetbriar	Rosaceae	N
Rubus armeniacus	Himalayan blackberry	Rosaceae	I
Rubus leucodermis	California raspberry	Rosaceae	Y
Rubus parviflorus	thimbleberry	Rosaceae	Y
Rubus ursinus	California blackberry	Rosaceae	Y
Symphoricarpos albus	snowberry	Caprifoliaceae	Y
Vaccinium ovatum	evergreen huckleberry	Ericaceae	Y
Sedges and Rushes			
Carex globosa	round fruit sedge	Cyperaceae	Y
Carex harfordii	Harford sedge	Cyperaceae	Y
Carex hendersonii	Henderson's sedge	Cyperaceae	Y
Carex leptopoda	slender foot sedge	Cyperaceae	Y
Carex tumulicola	foothill sedge	Cyperaceae	Y
Cyperus eragrostis	tall flat sedge	Cyperaceae	Y
Isolepis cernua	low bulrush	Cyperaceae	Y
Juncus bolanderi	Bolander's rush	Juncaceae	Y
Juncus bufonius var. *bufonius*	toad rush	Juncaceae	Y
Juncus capitatus	leafy bracted dwarf rush	Juncaceae	N
Juncus effusus ssp. *pacificus*	Pacific rush	Juncaceae	Y
Juncus occidentalis	Western rush	Juncaceae	Y
Juncus patens	spreading rush	Juncaceae	Y
Juncus tenuis	slender rush	Juncaceae	Y
Luzula comosa var. *comosa*	hairy woodrush	Juncaceae	Y
Luzula subsessilis	Pacific woodrush	Juncaceae	Y
Scirpus microcarpus	small fruit bulrush	Cyperaceae	Y
Ferns and Allies			
Adiantum jordanii	maidenhair fern	Pteridaceae	Y
Athyrium filix-femina var. *cyclosorum*	lady fern	Athyriaceae	Y
Cystopteris fragilis	brittle fern	Cystopteridaceae	Y
Dryopteris arguta	California wood fern	Dryopteridaceae	Y
Equisetum telmateia var. *braunii*	large horsetail	Equisetaceae	Y
Equistum arvense	common horsetail	Equisetaceae	Y
Pentagramma triangularis ssp. *triangularis*	gold back fern	Pteridaceae	Y
Polypodium glycyrrhiza	licorice fern	Polypodiaceae	Y
Polystichum munitum	Western sword fern	Dryopteridaceae	Y
Pteridium aquilinum var. *pubescens*	hairy bracken fern	Dennstaedtiaceae	Y
Woodwardia fimbriata	Western chain fern	Blechnaceae	Y
Grasses			
Agrostis stolonifera	creeping bentgrass	Poaceae	I
Aira caryophyllea	silver hairgrass	Poaceae	N
Alopecurus pratensis	meadow foxtail	Poaceae	I

Appendix 3, Table 3 Botanical Species Observed 4/27/22, 5/9, 5/10, 7/5 and 7/6/2023 Garberville Sanitary District Study Area			
Scientific Name	**Common Name**	**Family**	**Native?**
Anthoxanthum odoratum	sweet vernal grass	Poaceae	I
Avena barbata	wild oat	Poaceae	I
Briza maxima	large quaking grass	Poaceae	I
Briza minor	small quaking grass	Poaceae	N
Bromus catharticus	rescue grass	Poaceae	I
Bromus diandrus	ripgut brome	Poaceae	I
Bromus hordeaceus	softchess	Poaceae	I
Bromus laevipes	narrow flowered brome	Poaceae	Y
Bromus madritensis ssp. *madritensis*	foxtail chess	Poaceae	I
Bromus sitchensis var. *carinatus*	California brome	Poaceae	Y
Bromus sterilis	poverty brome	Poaceae	N
Bromus vulgaris	common brome	Poaceae	Y
Cortaderia jubata	jubata grass	Poaceae	I
Cortaderia selloana	pampas grass	Poaceae	I
Cynodon dactylon	Bermuda grass	Poaceae	I
Cynosurus echinatus	dogtail grass	Poaceae	I
Dactylis glomerata	orchard grass	Poaceae	I
Danthonia californica	California oatgrass	Poaceae	Y
Deschampsia elongata	slender hairgrass	Poaceae	Y
Elymus caput-medusae	Medusa head	Poaceae	I
Elymus glaucus ssp. *glaucus*	blue wildrye	Poaceae	Y
Festuca arundinacea	tall fescue	Poaceae	I
Festuca bromoides	brome fescue	Poaceae	N
Festuca californica	California fescue	Poaceae	Y
Festuca myuros	rattail sixweeks grass	Poaceae	N
Festuca occidentalis	Western fescue	Poaceae	Y
Festuca perennis	Italian ryegrass	Poaceae	I
Festuca rubra	red fescue	Poaceae	Y
Gastridium phleoides	nit grass	Poaceae	N
Holcus lanatus	velvet grass	Poaceae	I
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	Poaceae	N
Hordeum murinum ssp. *glaucum*	blue foxtail	Poaceae	I
Hordeum murinum ssp. *murinum*	wall barley	Poaceae	N
Hordeum vulgare	common barley	Poaceae	N
Melica geyeri	Geyer's melic	poaceae	Y
Melica subulata	Alaska melic	Poaceae	Y
Paspalum dilatatum	dallis grass	Poaceae	N
Phalaris aquatica	harding grass	Poaceae	I
Poa annua	annual bluegrass	Poaceae	N
Poa bulbosa ssp. *vivipara*	bulbous bluegrass	Poaceae	N
Poa trivialis	rough bluegrass	Poaceae	N
Polypogon monspeliensis	rabbits foot grass	Poaceae	I
Rhytidosperma penicillatum	hairy oat grass	Poaceae	I

Appendix 3, Table 3 Botanical Species Observed 4/27/22, 5/9, 5/10, 7/5 and 7/6/2023 Garberville Sanitary District Study Area			
Scientific Name	**Common Name**	**Family**	**Native?**
Stipa pulchra	purple needlegrass	Poaceae	Y
Trisetum cernuum	nodding trisetum	Poaceae	Y
Herbs			
Acmispon brachycarpus	short podded lotus	Fabaceae	Y
Acmispon parviflorus	hill lotus	Fabaceae	Y
Adenocaulen bicolor	trail plant	Asteraceae	Y
Agapanthus praecox	African lily	Liliaceae	N
Allium triquetrum	three cornered leek	Alliaceae	N
Anisocarpus madioides	woodland madia	Asteraceae	Y
Aphanes occidentalis	Western lady's mantle	Rosaceae	Y
Apocynum cannabinum	Indian hemp	Apocynaceae	Y
Asyneuma prenanthoides	California hairbell	Campanulaceae	Y
Bellis perennis	English daisy	Asteraceae	N
Brassica nigra	black mustard	Brassicaceae	I
Callitriche heterophylla var. *heterophylla*	water starwort	Plantaginaceae	Y
Calochortus tolmiei	hairy star tulip	Liliaceae	Y
Calypso bulbosa var. *occidentalis*	fairy slipper	Orchidaceae	Y
Calystegia occidentalis ssp. *occidentalis*	chaparral false bindweed	Convulvaceae	Y
Capsella bursa-pastoris	shepherds' purse	Brassicaceae	N
Cardamine californica	California milkmaids	Brassicaceae	Y
Cardamine oligosperma	bitter cress	Brassicaceae	Y
Carduus pycnocephalus ssp. *pynocephalus*	Italian thistle	Asteraceae	I
Centaurea solstitialis	yellow star thistle	Asteraceae	I
Centranthus ruber	Jupiter's beard	Valerianaceae	N
Cerastium fontanum ssp. *vulgare*	mouse ear chickweed	Caryophyllaceae	N
Chlorogalum pomeridianum var. *pomeridianum*	common soaproot	Agavaceae	Y
Cichorium intybus	chicory	Asteraceae	N
Cirsium vulgare	bull thistle	Asteraceae	I
Claytonia parviflora ssp. *parviflora*	miner's lettuce	Montiaceae	Y
Clinopodium douglasii	yerba buena	Lamiaceae	Y
Conium maculatum	poison hemlock	Apiaceae	I
Convolvulus arvensis	field bindweed	Convolvulaceae	N
Crassula connata	sand pigmy weed	Crassulaceae	Y
Crocosmia x crocosmiiflora	montebretia	Iridaceae	I
Croton setiger	turkey mullein	Euphorbiaceae	Y
Daucus carota	Queen Anne's lace	Apiaceae	N
Delphinium nudicaule	canyon larkspur	Ranunculaceae	Y
Dicentra formosa ssp. *formosa*	bleeding heart	Papaveraceae	Y
Dichelostemma ida-maia	firecracker brodiaea	Themidaceae	Y
Diplacus douglasii	purple mouse ears	Phrymaceae	Y
Dipsacus fullonum	wild teasel	Dipsacaceae	I
Dipterostemon capitatus	blue dicks	Themidaceae	Y
Drymocallis glandulosa var. *glandulosa*	sticky cinquefoil	Rosaceae	Y

Appendix 3, Table 3 Botanical Species Observed 4/27/22, 5/9, 5/10, 7/5 and 7/6/2023 Garberville Sanitary District Study Area			
Scientific Name	**Common Name**	**Family**	**Native?**
Epilobium brachycarpum	annual fireweed	Onagraceae	Y
Epilobium ciliatum ssp. *ciliatum*	willowherb	Onagraceae	Y
Epilobium densiflorum	willowherb	Onagraceae	Y
Erigeron canadensis	Canada horseweed	Asteraceae	Y
Erigeron karvinskianus	fleabane	Asteraceae	N
Eriophyllum lanatum var. *achilleoides*	yarrow leaved woolly sunflower	Asteraceae	Y
Erodium circutarium	common stork's bill	Geraniaceae	I
Erodium moschatum	white stem filaree	Geraniaceae	N
Erythranthe guttata	seep monkeyflower	Phrymaceae	Y
Eschscholzia californica	California poppy	Papaveraceae	Y
Euphorbia maculata	spotted spurge	Euphorbiaceae	N
Euphorbia oblongata	eggleaf spurge	Euphorbiaceae	N
Euphorbia peplus	petty spurge	Euphorbiaceae	N
Euphorbia serpillifolia ssp. *serpillifolia*	thyme leaf spurge	Euphorbiaceae	Y
Eurybia radulina	rough leaf aster	Asteraceae	Y
Foeniculum vulgare	fennel	Apiaceae	I
Fragaria vesca	wild strawberry	Rosaceae	Y
Galium aparine	cleaver plant	Rubiaceae	Y
Galium californicum ssp. *californicum*	California bedstraw	Rubiaceae	Y
Galium muricatum	Humboldt bedstraw	Rubiaceae	Y
Galium parisiense	wall bedstraw	Rubiaceae	N
Gamochaeta ustulata	featherweed	Asteraceae	Y
Geranium dissectum	cutleaf geranium	Geraniaceae	I
Geranium molle	crane's bill	Geraniaceae	N
Geranium robertianum	Robert geranium	Geraniaceae	N
Heuchera micrantha	alum root	Saxifragaceae	Y
Hieracium albiflorum	white hawksbeak	Asteraceae	Y
Hirschfeldia incana	Mediterranean hoary mustard	Brassicaceae	I
Hyacinthioides nonscripta	bluebells	Asparagaceae	N
Hypericum calycinum	St. John's wort	Hypericaceae	N
Hypericum perforatum ssp. *perforatum*	Klamathweed	Hypericaceae	I
Hypochaeris glabra	smooth cat's-ear	Asteraceae	N
Hypochaeris radicata	hairy cat's-ear	Asteraceae	I
Iris douglasii	Douglas iris	Iridaceae	Y
Iris germanica	German iris	Iridaceae	N
Iris purdyi	Purdy's iris	Iridaceae	Y
Kickxia elatine	sharp point fluellin	Plantaginaceae	N
Kniphofia uvaria	firepoker	Asphodelaceae	I
Lactuca serriola	prickly lettuce	Asteraceae	N
Lamium purpureum	purple dead nettle	Lamiaceae	N
Lapsana communis	common nipplewort	Asteraceae	N

Appendix 3, Table 3 Botanical Species Observed 4/27/22, 5/9, 5/10, 7/5 and 7/6/2023 Garberville Sanitary District Study Area			
Scientific Name	**Common Name**	**Family**	**Native?**
Lathyrus angulatus	angled pea vine	Fabaceae	N
Lathyrus latifolius	sweet pea	Fabaceae	N
Lathyrus sulphureus	sulphur pea	Fabaceae	Y
Lathyrus vestitus var. *vestitus*	hillside pea	Fabaceae	Y
Leontodon saxatilis ssp. *saxatilis*	hawkbit	Asteraceae	N
Lepidium didymum	lesser swinecress	Brassicaceae	N
Leptosiphon bicolor	true babystars	Polemoniaceae	Y
Leucanthumum vulgare	oxeye daisy	Asteraceae	I
Linum bienne	flax	Linaceae	N
Lippia nodiflora	common lippia	Verbenaceae	Y
Logfia gallica	narrowleaf cottonrose	Asteraceae	N
Lotus corniculatus	bird's foot trefoil	Fabaceae	N
Lupinus bicolor	annual lupine	Fabaceae	Y
Lysimachia arvensis	scarlet pimpernel	Myrsinaceae	N
Lysimachia latifolia	Pacific starflower	Myrsinaceae	Y
Lythrum hyssopifolia	hyssop loosestrife	Lythraceae	I
Madia gracilis	gumweed	Asteraceae	Y
Malva neglecta	dwarf mallow	Malvaceae	N
Marah oregana	coast man-root	Cucurbitaceae	Y
Matricaria discoidea	pineapple weed	Asteraceae	Y
Medicago polymorpha	bur clover	Fabaceae	I
Melilotus albus	white sweet clover	Fabaceae	N
Melissa officinalis	lemon balm	Lamiaceae	N
Mentha pulegium	pennyroyal	Lamiaceae	I
Modiola caroliniana	Carolina bristle mallow	Malvaceae	N
Myosotis latifolia	forget-me-not	Boraginaceae	I
Narcissus pseudonarcissus	daffodil	Amaryllidaceae	N
Navarretia squarrosa	skunkweed	Polemoniaceae	Y
Nemophila heterophylla	canyon nemophila	Hydrophyllaceae	Y
Osmorhiza berteroi	sweet cicely	Apiaceae	Y
Oxalis articulata ssp. *rubra*	windowbox sorrel	Oxalidaceae	N
Oxalis corniculata	creeping wood sorrel	Oxalidaceae	N
Oxalis pes-caprae	Bermuda butterup	Oxalidaceae	I
Pedicularis densiflora	indian warrior	Orobanchaceae	Y
Phacelia bolanderi	redwood phacelia	Hydrophyllaceae	Y
Phacelia heterophylla var. *virgata*	varied leaf phacelia	Hydrophyllaceae	Y
Pisum sativum	garden pea	Fabaceae	N
Plantago lanceolata	English plantain	Plantaginaceae	I
Plantago major	common plantain	Plantaginaceae	N
Polycarpon tetraphyllum var. *tetraphyllum*	all seed	Caryophyllaceae	N
Polygonum aviculare ssp. *aviculare*	prostrate knotweed	Polygonaceae	N
Poterium sanguisorba	garden burnet	Rosaceae	N
Prosartes smithii	large fairy bells	Liliaceae	Y

Appendix 3, Table 3 Botanical Species Observed 4/27/22, 5/9, 5/10, 7/5 and 7/6/2023 Garberville Sanitary District Study Area			
Scientific Name	**Common Name**	**Family**	**Native?**
Prunella vulgaris var. *lanceolata*	selfheal	Lamiaceae	Y
Prunella vulgaris var. *vulgaris*	selfheal	Lamiaceae	N
Pseudognaphalium beneolens	cudweed	Asteraceae	Y
Pseudognaphalium californicum	ladies' tobacco	Asteraceae	Y
Pseudognaphalium luteoalbum	Jersey cudweed	Asteraceae	N
Pseudognaphalium stramineum	cottonbatting plant	Asteraceae	Y
Psilocarphus tenellus	slender woolly marbles	Asteraceae	Y
Ranunculus muricatus	sunshine buttercup	Ranunculaceae	N
Ranunculus occidentalis var. *occidentalis*	Western buttercup	Ranunculaceae	Y
Ranunculus repens	creeping buttercup	Ranunculaceae	I
Rhinotropis californica	California milkwort	Polygalaceae	Y
Rumex acetosella	sheep sorrel	Polygonaceae	I
Rumex conglomeratus	green dock	Polygonaceae	N
Rumex crispus	curly dock	Polygonaceae	I
Rumex pulcher	fiddleleaf dock	Polygonaceae	N
Sagina decumbens ssp. *occidentalis*	pearlwort	Caryophyllaceae	Y
Sanicula bipinnatifida	purple sanicle	Apiaceae	Y
Sanicula crassicaulis	Pacific sanicle	Apiaceae	Y
Scrophularia californica	California bee plant	Scrophulariaceae	Y
Senecio vulgaris	common groundsel	Asteraceae	N
Silene gallica	common catchfly	Caryophyllaceae	N
Sisyrinchium bellum	Western blue-eyed grass	Iridaceae	Y
Soleirolia soleirolii	babies tears	Urticaceae	N
Soliva sessilis	South American soliva	Asteraceae	N
Sonchus asper ssp. *asper*	prickly sow thistle	Asteraceae	N
Sonchus oleraceus	common sow thistle	Asteraceae	N
Spergula arvensis	corn spurrey	Caryophyllaceae	N
Spergularia rubra	purple sand spurrey	Caryophyllaceae	N
Stachys arvensis	field hedenettle	Lamiaceae	N
Stachys rigida var. *quercetorum*	rough nettle	Lamiaceae	Y
Stachys rigida var. *rigida*	rough hedge nettle	Lamiaceae	Y
Stellaria media	chickweed	Caryophyllaceae	N
Taraxacum officinale	dandelion	Asteraceae	N
Tellima grandiflora	fringe cups	Saxifragaceae	Y
Torilis arvensis	field hedge parsley	Apiaceae	I
Trifolium dubium	shamrock clover	Fabaceae	N
Trifolium fragiferum	strawberry clover	Fabaceae	N
Trifolium gracilentum	pinpoint clover	Fabaceae	Y
Trifolium hirtum	rose clover	Fabaceae	I
Trifolium incarnatum	crimson clover	Fabaceae	N
Trifolium repens	white clover	Fabaceae	N
Trifolium subterraneum	subterranean clover	Fabaceae	N
Trifolium willdenovii	tomcat clover	Fabaceae	Y

Appendix 3, Table 3 Botanical Species Observed 4/27/22, 5/9, 5/10, 7/5 and 7/6/2023 Garberville Sanitary District Study Area			
Scientific Name	**Common Name**	**Family**	**Native?**
Trillium ovatum ssp. *ovatum*	western trillium	Melanthiaceae	Y
Triphysaria pusilla	little owl's clover	Orobranchaceae	Y
Triteleia laxa	Ithuriel's spear	Themidaceae	Y
Veronica arvensis	speedwell	Plantaginaceae	N
Vicia hirsuta	hairy vetch	Fabaceae	N
Vicia sativa ssp. *nigra*	small common vetch	Fabaceae	N
Vicia sativa ssp. *sativa*	spring vetch	Fabaceae	N
Vicia tetrasperma	four-seeded vetch	Fabaceae	N
Vicia villosa ssp. *villosa*	hairy vetch	Fabaceae	N
Vinca major	vinca	Apocynaceae	I
Vinca minor	common periwinkle	Apocynaceae	N
Viola glabella	stream violet	Violaceae	Y
Viola odorata	English white violet	Violaceae	N
Yabea macrocarpa	California hedge parsley	Apiaceae	Y
Zantedeschia aethiopica	calla lily	Araceae	I
Zeltnera muehlenbergii	Muehlenberg's centaury	Gentianaceae	Y
Vines			
Hedera helix	English ivy	Araliaceae	I
Lonicera hipsidula	pink honeysuckle	Caprifoliaceae	Y
Symphoricarpos mollis	creeping snowberry	Caprifoliaceae	Y
Toxicodendron diversilobum	poison oak	Anacardiaceae	Y
Vitis californica	California grape	Vitaceae	Y
Vitis vinifera	cultivated grape	Vitaceae	N
Whipplea modesta	modesty	Hydrangeaceae	Y
Total: 315 Species			**50% Native**

Appendix 3, Table 4 Animal Species Observed 7/1/2022 Garberville Sanitary District Study Areas				
Scientific Name	**Common Name**	**Family**	**Nesting/Breeding Habit**	**Status**
Amphibians				
Pseudacris regilla	Northern Pacific tree-frog	Hylidae	freshwater	NL
Birds				
Aphelo	California scrub-jay	Corvidae	trees	NL
Buteo jamaicensis	red-tailed hawk	Accipitridae	trees	NL
Buteo lineatus	red-shouldered hawk	Accipitridae	trees	NL
Cardellina pusilla	Wilson's warbler	Parulidae	ground	NL
Catharus guttatus	hermit thrush	Turdidae	ground	NL
Cathrates aura	turkey vulture	Cathartidae	cliffs	NL
Chamaea faciata	wrentit	Sylviidae	shrub	NL
Corvus brachyrhynchos	American crow	Corvidae	Trees	NL
Corvus corax	common raven	Corvidae	Cliffs, trees & man-made structures	NL
Cyanocitta stelleri	Steller's jay	Corvidae	trees and shrubs	NL
Empidonax difficilis	Pacific-slope flycatcher	Tyrannidae	cavities	NL
Geothlypis tolmiei	MacGillivray's warbler	Parulidae	shrubs	NL
Haemorhous mexicanus	house finch	Fringillidae	trees	NL
Junco hyemalis	dark-eyed junco	Passerellidae	ground	NL
Melanerpes formicivorus	acorn woodpecker	Picidae	cavities	NL
Passer domesticus	house Sparrow	Passeridae	Cavities, eves, crevices, buildings	NN
Patagioenas fasciata	band-tailed pigeon	columbidae	trees	NL
Pipilo maculatus	spotted towhee	Passerellidae	ground	NL
Piranga ludoviciana	western tanager	Cardinalidae	trees	NL
Poecile rufescens	chestnut-backed chickadee	Paridae	cavities	NL
Sitta canadensis	red-breasted nuthatch	Sittidae	cavities	NL
Streptopelia decaocto	Eurasian collared dove	Columbidae	trees	NN
Tachycineta bicolor	tree swallow	Hirundinidae	cavities	NL
Vireo gilvus	warbling vireo	Vireonidae	trees	NL
Vireo huttoni	Hutton's vireo	Vireonidae	trees	NL
Mammals				
Sciurus griseus	western gray squirrel	Sciuridae	trees	NL
Urocyon cinereoargenteus	gray fox (sign)	Canidae	burrows	NL
Reptiles				
Sceloporus occidentalis	western fence lizard	Phrynosomatidae	N/A	NL
Insects				
Libellula saturate	flame skimmer	Libellulidae	N/A	NL
Papilio zelicaon	anise swallowtail	Papilionidae	N/A	NL

NL=Not Listed NN=Not Native

Vegetation Rapid Assessment and Releve' Forms

4

Attribution Method: Air Photo Interpretation
Field Survey
Field Reconnaissance

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

For Office Use:	Final database #:	Final vegetation type:	Alliance Association

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION — circle: **Relevé or RA**

Database #:	Date: 4/27/22	Name of recorder: Joseph Slater
		Other surveyors:
	UID:	Location Name: Releve 1 Purple Needle Grass

GPS name: Trimble R1 — For Relevé only: **Bearing°**, left axis at ID point____ **of Long / Short** side

UTME _____ **UTMN** _____ **Zone: 11 NAD83** GPS error: **ft./ m./ PDOP** 1.7m

Decimal degrees: **LAT** 40.107322 **LONG** -123.770689

GPS within stand? Yes / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: **Base point ID** _____ **Projected UTMs: UTME** _____ **UTMN** _____

Camera Name: Samsung **Cardinal photos at ID point:** 4 ***See notes on bottom of pg 2; record info on photo sheet

Other photos:

Stand Size (acres): (<1,) 1-5, >5 | **Plot Area (m²):** 100 / _____ | **Plot Dimensions** 3 x 3 m | **RA Radius**___ m

Exposure, Actual °: _____ NE NW SE (SW) Flat Variable | **Steepness, Actual °:** 30 0° 1-5° > 5-25° (>25)

Topography: Macro: top (upper) mid lower bottom | **Micro:** (convex) flat (concave) undulating

Geology code: _____ **Soil Texture code:** _____ | (Upland) or **Wetland/Riparian** (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H₂0: 0 **BA Stems:** 50 **Litter:** 43 **Bedrock:** 5 **Boulder:** 0 **Stone:** 0 **Cobble:** 0 **Gravel:** 0 **Fines:** 2 =100%

% Current year bioturbation 2 **Past bioturbation present?** (Yes) / No | **% Hoof punch** <1

Fire evidence: (Yes) / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

Purple needle grass is restricted to SW facing slope, looks to have been minimally disturbed. Historically disturbed areas are dominated by non-native annual grasses + forbs. Burn marks and debris on old Douglas fir nearby < 50 yrs ago.

Roadedness, Clearing, or other conditions (disturbances, sudden oak death, ect.)

A driveway forms the Western edge of the stand. A dirt road nearly bisects the stand.

Disturbance code / Intensity (L,M,H): ___/___ ___/___ ___/___ ___/___ ___/___ **"Other"** _____/___

II. HABITAT DESCRIPTION

Tree DBH : T1 (<1" dbh), **T2** (1-6" dbh), **T3** (6-11" dbh), **T4** (11-24" dbh), **T5** (>24" dbh), **T6** multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), **S2** young (<1% dead), **S3** mature (1-25% dead), **S4** decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), **H2** (>12" ht.)

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), **2** (2-10ft. ht.), **3** (10-20ft. ht.), **4** (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), **2** (1.5-6" diam.), **3** (>6" diam.)

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name: [1, 2] _____

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: _____/_____, _____/_____

Confidence in Alliance identification: L M (H) Explain: _____

Phenology (E,P,L): Herb P **Shrub**___ **Tree**___ **Other identification or mapping information:**

# of individual target species (e.g. redwood within Redwood Forest Alliance)

>1000 purpleneedle grass individuals

1) Sensitive or herbaceous map to alliance - note sensitive associations within each stand.
2) Non-sensitive upland map to alliance - map sensitive associations.

Attribution Method: Air Photo Interpretation
Field Survey
Field Reconnaissance

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

For Office Use:	Final database #:	Final vegetation type:	Alliance Association

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION — circle: **Relevé or RA**

Database #:	Date: 4/27/22	Name of recorder: Joseph Sala
		Other surveyors:
	UID:	Location Name: Relevé 2, Danthonia californica

GPS name: Trimble R1 — For Relevé only: **Bearing°**, left axis at ID point____ **of Long / Short** side

UTME _____ **UTMN** _____ **Zone: 11** **NAD83** GPS error: **ft./ m./ PDOP** ____

Decimal degrees: **LAT** 40.107534 **LONG** -123.770332

GPS within stand? (Yes) / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: **Base point ID** _____ **Projected UTMs: UTME** _____ **UTMN** _____

Camera Name: Samsung **Cardinal photos at ID point:** Yes ***See notes on bottom of pg 2; record info on photo sheet

Other photos:

Stand Size (acres): (<1) 1-5, >5 | **Plot Area (m²):** 100 / _____ | **Plot Dimensions** 2 x 10 m | **RA Radius**____ m

Exposure, Actual °: _____ NE NW (SE) SW Flat Variable | **Steepness, Actual °:** 35 0° 1-5° >5-25° (>25)

Topography: Macro: top (upper) mid lower bottom | Micro: convex flat (concave) undulating

Geology code: _____ **Soil Texture code:** _____ | (Upland) or **Wetland/Riparian** (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H_20: 0 **BA Stems:** 40 **Litter:** 40 **Bedrock:** 0 **Boulder:** 0 **Stone:** 0 **Cobble:** 0 **Gravel:** 0 **Fines:** 20 =100%

% Current year bioturbation <1% **Past bioturbation present?** (Yes) / No | **% Hoof punch** 0

Fire evidence: (Yes) / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

Small, remnant Danthonia californica grassland. Surrounded by non-native grassland (S+W) hardwood woodland (Quercus kelloggii, Arbutus menziesii, Umbellularia californica, +/Pseudotsuga menziesii)(E) and Development (N). Stand restricted to edge of woodland

Roadedness, Clearing, or other conditions (disturbances, sudden oak death, ect.)

Grading in pad for tank pad likely eliminated portions of this veg. community. Dirt ATV path W of Danthonia further threatens remnant.

Disturbance code / Intensity (L,M,H): ___/___ ___/___ ___/___ ___/___ ___/___ ___/___ **"Other"** _____ /___

II. HABITAT DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: (H1) (<12" plant ht.), H2 (>12" ht.)

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name:[1, 2] _____

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: Hardwood forest, E. Non-native Annual grassland, S+W

Confidence in Alliance identification: L M (H) **Explain:** _____

Phenology (E,P,L): Herb P **Shrub**____ **Tree**____ **Other identification or mapping information:**

# of individual target species (e.g. redwood within Redwood Forest Alliance)

~200 Danthonia californica

1) Sensitive or herbaceous map to alliance - note sensitive associations within each stand.

2) Non-sensitive upland map to alliance - map sensitive associations.

Wetland Determination and Ordinary High Water Mark Data Forms

5

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville | City/County: Humboldt | Sampling Date: 4/12/22
Applicant/Owner: Garberville Sanitary District | State: CA | Sampling Point: TP 1
Investigator(s): Joseph Saler, Cindy Wilcox | Section, Township, Range:
Landform (hillslope, terrace, etc.): Hillslope swale | Local relief (concave, convex, none): Concave | Slope (%): 5
Subregion (LRR): A, MLRA-4B | Lat: 40.107328° | Long: -123.785234° | Datum: WGS 84
Soil Map Unit Name: 667: Dryfield-Yorknorth-Witherell Complex 5-30% | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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 ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____
Is the Sampled Area within a Wetland? Yes X No ____

Remarks: Study area is experiencing extreme drought (U.S. Drought Monitoring).
TP excavated in roadside swale which is primarily dry, except at this location.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Tree Stratum on Dry slope above swale			
3.			
4. Not Counted			
	\	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	15	✓	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5ft)			
1. Juncus effusus ssp. pacificus	40	✓	FACW
2. Holcus lanatus	5		FAC
3. Festuca arundinacea	40	✓	FAC
4. Rumex crispus	2		FAC
5. Vicia sativa	15		UPL
6. Briza maxima	5		NL
7. Geranium dissectum	1		NL
8. Sonchus oleraceus	1		UPL
9. Hypochaeris radicata	1		FACU
10. Carex hendersonii	2		FAC
11.			
	112	= Total Cover 56 / 22.4	
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: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (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:
Tree stratum does not reflect isolated wetland conditions.

SOIL

Sampling Point: TP 1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 3/2	100					Loam	
3-15	10YR 4/2	85	7.5YR 4/6	15	C	M/PL	SiL	
15-17+	2.5Y 6/2	70	7.5YR 4/6	30	C	M/PL	SiCL	

[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 X No ____

Remarks:

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)
- X 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 X No ___ Depth (inches): 11 in

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 3 in

Wetland Hydrology Present? Yes X No ____

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

Remarks: ~ Extreme drought conditions, however approx. 1 inch of rainfall in preceeding week.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville | City/County: Humboldt | Sampling Date: 4/12/22
Applicant/Owner: Garberville Sanitary District | State: CA | Sampling Point: TP 2
Investigator(s): Joseph Saler, Cindy Wilcox | Section, Township, Range:
Landform (hillslope, terrace, etc.): Hillslope Swale | Local relief (concave, convex, none): Concave | Slope (%): 7
Subregion (LRR): A, MLRA-4B | Lat: 40.107276° | Long: -123.785288° | Datum: WGS 84
Soil Map Unit Name: 667: Dryfield-Yorknorth-Witherell Complex 5-30% | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes X No ____
Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: Study area is experiencing severe drought (U.S. Drought Monitoring).
TP excavated in roadside swale approx 18ft downslope from TP 1

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	2		FAC
2.			
3.			
4.			
5.			
	2 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Briza maxima	70	✓	NL
2. Bromus diandrus	20		NL
3. Foeniculum vulgare	10		NL
4. Bromus hordeaceus	2		FACU
5. Geranium dissectum	1		NL
6. Sonchus oleraceus	5		UPL
7. Vicia sativa	1		UPL
8. Festuca arundinacea	7		FAC
9. Cardus pycnocephalus			NL
10.			
11.			
	116 = Total Cover 58 / 23.2		
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: 1 (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:
Tree stratum does not reflect swale conditions and are not included in dominance calcs.

SOIL

Sampling Point: TP 2

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	99	7.5YR 4/4	1	C	M	SiCL	
9-17+	2.5Y 4/3	96	10YR 4/6	4	C	M	SiCL	

[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:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ 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): N/A

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 6 in

Wetland Hydrology Present? Yes X No ___

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

Remarks:

fieldwork conducted during extreme drought, however ~1 in of rainfall in preceding week giving hydrology indicators.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville | City/County: Humboldt | Sampling Date: 4/12/22

Applicant/Owner: Garberville Sanitary District | State: CA | Sampling Point: TP 3

Investigator(s): Joseph Saler, Cindy Wilcox | Section, Township, Range:

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

Subregion (LRR): A, MLRA-4B | Lat: 40.105849° | Long: -123.786279° | Datum: WGS 84

Soil Map Unit Name: 667: Dryfield-Yorknorth-Witherell Complex 5-30% | NWI classification: None

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

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

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

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

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

Remarks: Study area is experiencing extreme drought (U.S. Drought Monitoring).
TP excavated within wetland likely influenced by former leaking tank upslope.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30ft)			
1. Fraxinus latifolia	10	✓	FACW
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	3		FAC
2.			
3.			
4.			
5.			
	3	= Total Cover	
Herb Stratum (Plot size: 5ft)			
1. Juncus patens	70	✓	FACW
2. Lythrum hyssopifolia	2		OBL
3. Mentha pulegium	25	✓	OBL
4. Festuca arundinacea	10		FAC
5. Juncus bolanderi	3		OBL
6. Vicia sativa	1		UPL
7. Cyperus eragrostis	2		FACW
8.			
9.			
10.			
11.			
	113	= Total Cover	565/226
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: 3 (A)

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

SOIL

Sampling Point: TP3

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
0-2	10YR 3/2	100					SiL	
2-20+	2.5Y 4/2	88	10YR 5/8	6	C	M/PL	SiL	occ. charcoal
			10YR 4/6	6	C	M/PL		

[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 ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X 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)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ 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 ___	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 X No ___

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

Remarks:

Delineation conducted during extreme drought, likely obscuring hydrology.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville | City/County: Humboldt | Sampling Date: 4/12/22
Applicant/Owner: Garberville Sanitary District | State: CA | Sampling Point: TP 4
Investigator(s): Joseph Saler, Cindy Wilcox | Section, Township, Range:
Landform (hillslope, terrace, etc.): Hillslope flat | Local relief (concave, convex, none): None | Slope (%): 2
Subregion (LRR): A, MLRA-4B | Lat: 40.105832° | Long: -123.786248 | Datum: WGS 84
Soil Map Unit Name: 667: Dryfield-Yorknorth-Witherall Complex 5-30% | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology X significantly disturbed? Y/S 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: Study area is experiencing extreme drought (U.S. Drought Monitoring).
Upland test pit to TP3. wetland from watertank leaking above. No more water leaking & not seeing hydrology

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus latifolia	2		FACW
2.			
3.			
4.			
	2	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5ft)			
1. Lathyrus latifolius	22	✓	NL
2. Bromus hordeaceus	15		FACU
3. Bromus diandrus	1		NL
4. Lysimachia arvensis	20	✓	FAC
5. Geranium dissectum	18		NL
6. Festuca myuros	20	✓	NL
7. Erodium / Cicutarium	2		NL
8. Avena barbata	4		NL
9. Rytidosperma penicillatum	7		NL
10.			
11.			
	109	= Total Cover	54.5 / 21.8

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: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (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:

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
0-3	2.5Y 4/3	100					SiL	
3-11	2.5Y 5/4	80	10YR 4/6	10	C	M	SiCL	Fill
			asphalt chunks	2				
11-19	Asphalt chunks	90						
	2.5Y 5/4	10						Fill
19-24	2.5Y 5/4	95	2.5Y 4/3	5	-	-	SiCL	

[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 ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ 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:

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville | City/County: Humboldt | Sampling Date: 4/12/22
Applicant/Owner: Garberville Sanitary District | State: CA | Sampling Point: TP 5
Investigator(s): Joseph Saler, Cindy Wilcox | Section, Township, Range:
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0-1
Subregion (LRR): A, MLRA-4B | Lat: 40.100379° | Long: -123.792372 | Datum: WGS 84
Soil Map Unit Name: 311: Urban Land-Garberville Complex, 5-15% | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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 ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Study area is experiencing extreme drought (U.S. Drought Monitoring).
In vacant lot. Drainage from upslope property. Barely forming wetland. Hydric soils not quite developed and therefore not classified as 3-parameter wetland.

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: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Plantago major	40	✓	FAC
2. Poa trivialis	12		FAC
3. Cyperus eragrostis	10		FACW
4. Poa annua	8		FAC
5. Rumex crispus	2		FAC
6. Holcus lanatus	20	✓	FAC
7. Juncus bufonius	3		FACW
8. Medicago polymorpha	5		FACU
9. Madiola gardinioni	1		FACU
10. Allium triquetrum	3		NL
11.			
	105 = Total Cover		52.5/21
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 15%

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:
Vegetation composition reflects in town, disturbed conditions.

Sampling Point: TP5

SOIL

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
0-13	7.5YR 3/1	100					SiL	
13-24+	10YR 5/2	85	7.5YR 4/6	15	C	M	SiCL	

[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 ✓

Remarks:

Soils close to hydric - not an indicator - A12 yet.

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)
- ___ 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 X No _____ Depth (inches): 0.25 in

Water Table Present? Yes X No _____ Depth (inches): 11.75

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:

- Extreme drought conditions, however ~1 in of precipitation in preceding week.
- Hydrology inputs from adj. impervious surfaces.

Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 4/15/22

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 6

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope swale Local relief (concave, convex, none): None Slope (%): 8

Subregion (LRR): A, MLRA-4B Lat: 40.095421° Long: -123.793278 Datum: WGS 84

Soil Map Unit Name: Dry field-Yorknorth-Witherell complex 5-30% slope NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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: Study area is experiencing extreme drought (U.S. Drought Monitoring).
TP excavated in hillslope swale excavated for drainage of adj. driveway and impervious surfaces.

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. Quercus kelloggii	3	____	NL
2.			
3.			
4.			
5.			
	3 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Festuca arundinacea	72	✓	FAC
2. Vicia sativa	4	____	UPL
3. Geranium dissectum	7	____	NL
4. Festuca myuros	25	✓	FACU
5. Daucus carota	1	____	FACU
6. Poa trivialis	5	____	FAC
7.			
8.			
9.			
10			
11.			
	114 = Total Cover		57 / 22.8
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: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[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 representative of pasture + sloping hillside.

SOIL

Sampling Point: TP 6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	>99	7.5YR 5/8	<1	C	M	SiL	fill, abundant charcoal throughout
15-24+	2.5Y 6/3	50					SICL	Mixed Matrices
	7.5YR 5/8	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:

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)
- X 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): 7

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 4/15/22

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 7

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10

Subregion (LRR): A, MLRA-4B Lat: 40.097236° Long: -123.791489° Datum: WGS 84

Soil Map Unit Name: Tannin-Burgsblock-Reckyglen complex 30-50% slope NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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 ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Study area is experiencing extreme drought (U.S. Drought Monitoring).
TP excavated in wet slope adjacent to roadway

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30ft)			
1. Fraxinus latifolia	40	✓	FACW
2. Salix lasiolepis	40	✓	FACW
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	15	✓	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5ft)			
1. Carex hendersonii	50	✓	FAC
2. Taraxacum officinale	2		FACU
3. Festuca arundinacea	30	✓	FAC
4. Vinca Major	12		FACU
5. Juncus patens	5		FACW
6. Rumex crispus	2		FAC
7. Fragaria vesca	1		FACU
8.			
9.			
10.			
11.			
	102	= Total Cover	51/20.4
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 13

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

SOIL

Sampling Point: TP 7

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
0-8	10YR 4/2	~99	7.5YR 5/8	<1	C	M	SiL	Redox at bottom 1in of horizon
8-24+	7.5YR 5/8	50	10YR 6/3	25			SiL	Mixed Matrices Fill
			2.5Y 6/2+	25				

[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: Transitional soils

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ 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)
- X Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ 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 ____ No X Depth (inches): N/A

Water Table Present? Yes ____ No X Depth (inches): 18

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 8in

Wetland Hydrology Present? Yes X No ____

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

Remarks:

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 4/15/22

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 8

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10

Subregion (LRR): A, MLRA-4B Lat: 40.097243° Long: -123.791494° Datum: WGS 84

Soil Map Unit Name: Tannin-Burgsblock-Rockyglen complex 30-50% slope NWI classification: None

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

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

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

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

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

Remarks: Study area is experiencing extreme drought (U.S. Drought Monitoring).
TP excavated in roadside ditch / cut wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	30	✓	FACW
2. Salix lasiandra var. lasiandra	20	✓	FACW
3. Fraxinus latifolia	5		FACW
4.			
	55	= Total Cover	27.5

Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	13	✓	FAC
2.			
3.			
4.			
5.			
	13	= Total Cover	

Herb Stratum (Plot size: 5ft)			
1. Carex hendersonii	20	✓	FAC
2. Festuca arundinacea	50	✓	FAC
3. Juncus patens	2		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10			
11.			
	72	= Total Cover	36

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 30%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

- X 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:
Veg cover limited by automobile disturbance

SOIL

Sampling Point: TP 8

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
0-2	10YR 3/2						L	
2-10	10YR 3/2	20	7.5Y 4/6	10	C	M/PL	SiL	
/	10YR 4/2	70	/	/	/	/	/	
10-18	2.5Y 6/2	60	10YR 5/8	35	C	M	SiCL	10YR 5/8 incr. w/ depth
/	10YR 4/2	5	/	/	/	/	/	Mixed matrix
18-24+	2.5Y 6/2	50	/	/	/	/	SiCL	Colominat matrices
/	10YR 5/8	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 X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ 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)
- X Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ 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 ____ No X Depth (inches): N/A

Water Table Present? Yes ____ No X Depth (inches): 17 in

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 8-15 in

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 4/15/22

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 9

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope, road ditch Local relief (concave, convex, none): None Slope (%): 15

Subregion (LRR): A, MLRA-4B Lat: 40.097868° Long: -123.791623° Datum: WGS 84

Soil Map Unit Name: Tanning-Burgsblock-Rockyglen complex 30-50% slope NWI classification: None

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

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

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

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

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

Remarks: Study area is experiencing extreme drought (U.S. Drought Monitoring).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	30	✓	FACU
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	3		
2.			
3.			
4.			
5.			
	3 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Phalaris aquatica	15		FACU
2. Cyperus eragrostis	3		FACW
3. Cordyline pyrocephalus	20	✓	NL
4. Galium aparine	2		FACU
5. Lathyrus latifolius	10		NL
6. Briza maxima	10		NL
7. Bromus diandrus	25	✓	NL
8. Geranium dissectum	1		NL
9. Stellaria media	2		FACU
10.			
11.			
	91 = Total Cover		45.5 / 18.2
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: 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:
Bare ground from automobile disturbance

SOIL

Sampling Point: TP 9

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
0-13	10YR 3/2	100					sicL	occ. gravel
13-16	7.5YR 5/6	50	10YR 6/2	5	D	M	grLS	Fill
	7.5YR 5/6	45						

[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:

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:

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 4/15/22
Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 10
Investigator(s): Cindy Wilcox, Joseph Salar Section, Township, Range:
Landform (hillslope, terrace, etc.): Hillslope, road cut Local relief (concave, convex, none): Concave Slope (%): 7
Subregion (LRR): AMLRA - 4B Lat: 40.097096° Long: -123.791654° Datum: WGS 84
Soil Map Unit Name: Tannin – Burgsblock, Reelyglen complex 30-50% slope NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Drought monitoring index puts this area in "extreme" drought conditions
TP excavated in flat area adjacent to roadway. Impervious surface + seepage provide hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. tree stratum			
3. not included. Does not			
4. represent conditions			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft)			
1. Rubus ursinus	7	✓	FAC
2.			
3.			
4.			
5.			
	7 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Mentha pulegium	12	✓	OBL
2. Epilobium ciliatum	3		FACW
3. Equisetum arvense	3		FAC
4. Cyperus eragrostis	3		FACW
5. Juncus effusus	1		FACW
6. Holcus lanatus	6	✓	FAC
7.			
8.			
9.			
10.			
11.			
	28 = Total Cover 14 / 5.0		
Woody Vine Stratum (Plot size: 5 ft)			
1. Hedera helix	1		FACU
2.			
	1 = Total Cover		

% Bare Ground in Herb Stratum 72%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (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:
Tree stratum not included in dominance calcs. Trees are rooted in dry hillslope + extend over isolated wetland feature. Sparse veg due to shading + vehicle disturbance.

SOIL

Sampling Point: TP10

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	2.5Y 4/2	95	5YR 4/6	5	C	M/PL	SiL	
7-12	2.5Y 5/2	70	5YR 4/6	20	C	M	SiCL	
—	—	—	10YR 5/8	10	C	M	—	
12-24+	10YR 5/8	50	/	/	/	/	SiCL	Mixed co-dominant matrices
	2.5Y 5/2	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)
- 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)
- ___ 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 X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ 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)

- X 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)
- X 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 X No ____ Depth (inches): 0-7in.

Wetland Hydrology Present? Yes X No ____

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

Remarks: Saturation limited to 0-7 inches.

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

Project/Site: Carlotville City/County: Humboldt Sampling Date: 4/15/22
Applicant/Owner: Carlotville Sanitary District State: CA Sampling Point: TP11
Investigator(s): Cindy Willcox, Joseph Sailer Section, Township, Range:
Landform (hillslope, terrace, etc.): Hillslope, roadcut drainage Local relief (concave, convex, none): None Slope (%): 8
Subregion (LRR): A, MLRA - 4B Lat: 40.097116° Long: -123.791507° Datum: WGS84
Soil Map Unit Name: Tannin-Burgsblock-Rockyglen complex 30-50% slope NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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: On road fill prism above culvert crossing road.
Drought monitoring index shows this area as "extreme drought" conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	30	✓	FACW
2. Pseudotsuga menziesii	20	✓	FACU
3.			
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus ursinus	7	✓	FACU
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 5ft.)			
1. Carex hendersonii	15	✓	FAC
2. Equisetum arvense	2		FAC
3. Vinca major	7	✓	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	24	= Total Cover	12 / 4.8
Woody Vine Stratum (Plot size: 5ft.)			
1. Hedera helix	25	✓	FACU
2.			
	25	= Total Cover	

% Bare Ground in Herb Stratum 76%.

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (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: Bare ground as a result of shading & vehicular/mechanical disturbance

SOIL

Sampling Point: TP11

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
0-12.5	10YR 3/2	99	10YR 4/6	<1	C	M	SiL	
12.5-24+	2.5Y 6/3	60	10YR 4/6	10	C	M	SCL	
	2.5Y 6/2	30						

[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:

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:

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 4/15/22
Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP12
Investigator(s): Cindy Wilcox, Joseph Sabler Section, Township, Range:
Landform (hillslope, terrace, etc.): Hillslope, roadside ravine Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): A, MLRA-4B Lat: 40.097742° Long: -123.792291° Datum: WGS84
Soil Map Unit Name: Tannin-Burgerblock-Rockyglen 30-50% slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation X, 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*
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____
Is the Sampled Area within a Wetland? Yes X* No ____

Remarks: Drought monitoring index puts this area in "extreme drought" conditions
At bottom of drainage swale above Melville Rd *Best professional judgement. Veg. does not reflect wetland conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Trees not included in dominance			
3. calcs			
4.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 5ft.)			
1. Rubus armeniacus	20	✓	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		

Herb Stratum (Plot size: 5ft.)			
1. Tellima grandiflora	15	✓	FACU
2. Cardium arvense	6		FACU
3. Nemophila	5		?
4. Stellaria media	8		FACU
5. Polystichum munitum	10	✓	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	44 = Total Cover		22 / 8.8

Woody Vine Stratum (Plot size: 5ft.)			
1. Hedera helix	15	✓	FACU
2.			
	15 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	54	x 4 =	216
UPL species		x 5 =	
Column Totals:	74 (A)		276 (B)

Prevalence Index = B/A = 3.7

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:
High % bare ground due to shading & leaf litter. Tree stratum not included in dominance calcs as they are rooted in dry hillslope above wetland

SOIL

Sampling Point: TP12

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	10YR 4/2	100					SiL	
6-20+	10YR 4/2	90	5YR 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)
- ___ 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 X No ____

Remarks:

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)**
- X 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): N/A

Water Table Present? Yes X No ____ Depth (inches): 10

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:

small hillside stream appears to drain into this wetland feature, supporting wetland hydrology.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 4/15/22

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP13

Investigator(s): Cindy Wilcox, Joseph Sale Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillside, roadside Local relief (concave, convex, none): None Slope (%): 15

Subregion (LRR): A, MLRA-4B Lat: 40.097752° Long: -123.792331° Datum: WGS84

Soil Map Unit Name: Tannin-Burgsblock-Rockyglen Complex 30-50% NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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: On fill prism above

Drought monitoring index puts this area in "extreme drought" conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	30	✓	FACU
2. Arbutus menziesii	25	✓	NL
3.			
4.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 5 ft.)			
1. Acer macrophyllum	2		FACU
2. Rubus armeniacus	13	✓	FAC
3. Rosa nutkana	2		FAC
4.			
5.			
	17 = Total Cover		3.2 / 3.4

Herb Stratum (Plot size: 5 ft.)			
1. Holcus lanatus	2		FAC
2. Trisetum cernuum	2		FACU
3. Myrrhis sylvatica	15	✓	FAC
4. Carex hendersonii	2		FAC
5. Stellaria media	2		FACU
6. Nemophila heterophylla	2		NF
7. Polystichum munitum	7	✓	FACU
8.			
9.			
10.			
11.			
	31 = Total Cover		15.5 / 6.2

Woody Vine Stratum (Plot size: 5 ft.)			
1. Hedera helix	70	✓	FACU
2.			
	70 = Total Cover		

% Bare Ground in Herb Stratum 76

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (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:

Bare ground in herb stratum as a result of dense Hedera helix cover

SOIL

Sampling Point: TP 13

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
0-3	10YR 3/2	100	/	/	/	/	SRL	
3-24+	10YR 4/3	100	mixed					fill w/asphalt
	10YR 6/6	20	fill matrix					
	10YR 3/2	20	colors - not redox					
			10YR 4/6	1	C	M		

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

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

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

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)
- X 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:

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 2/17/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 14

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

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

Subregion (LRR): A, MLRA-4B Lat: 40.095442° Long: -123.793774° Datum: WGS 84

Soil Map Unit Name: Dyfield-York north-Witherell complex 5-30% (66) 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: TP excavated at low point in hillslope swale. Stream is ~ 20 ft south of TP, ephemeral

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Quercus hellaggii	15	✓	NL
2. Prunus cerasifera	10	✓	NL
3.			
4.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	8	✓	FAC
2.			
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: 5ft)			
1. Phalaris aquatica	6		FACU
2. Festuca arundinacea	80	✓	FAC
3. Dactylis glomerata	3		FACU
4. Festuca perennis	2		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	91	= Total Cover	45/82
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____	= Total Cover	

% Bare Ground in Herb Stratum 12

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[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: Dense herbaceous cover. Bare ground includes thatch + litter

SOIL

Sampling Point: TP 14

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
1-26+	10YR3/3	80	7.5YR3/4	<1%	C	M	SiCL	Mixed Matrices w/occ. charcoal+glass
	10YR3/2	20						

[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 soils. Evidence of part fill. Glass Shards observed @ 24 inches.

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:

Normal rainfall period. Last rain ~ 3 days prior

Well drained soils and slope.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 2/17/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP15

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 6

Subregion (LRR): A, MLRA-4B Lat: 40.095160° Long: -123.792261° Datum: WGS 84

Soil Map Unit Name: Dry field- Yorknorth-Witherell complex 5-30%(167) 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:
TP excavated at slight break in slope in field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		

Herb Stratum (Plot size: 5ft)			
1. Agrostis stolonifera	70	✓	FAC
2. Festuca arundinacea	9		FAC
3. Anthoxanthum odoratum	25	✓	FACU
4. Rumex acetosella	4		FACU
5. Hypochaeris radicata	2		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		85/22

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: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[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 relatively homogenous within mowed hillslope pasture

SOIL

Sampling Point: TP 15

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	70	/	/	/	/	SiCL	Mixed matrices
—	10YR 3/3	30						
4-24+	10YR 3/3	95	/	/	/	/	SiC	Mixed matrices
—	10YR 3/2	5						

[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 sloping soils, becoming more clay with depth.

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 and sloping. Normal rainfall period. Last rains 3 days prior.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 2/17/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 16

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3%

Subregion (LRR): A, MLRA-4B Lat: 40.094943° Long: -123.792644° Datum: WGS 84

Soil Map Unit Name: 667- Dyfield-Yorknorth-witherell complex 5-30% 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 ____

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
TP excavated within sloping field within pipeline trench which appears to carry saturation and stormwater to the surface giving artificial hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Agrostis stolonifera	87	✓	FAC
2. Rumex acetosella	1		FACU
3. Anthoxanthum odoratum	10		FACU
4. Trifolium subterraneum	4		NL
5. Hypochaeris radicata	1		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	103 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum Ø

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (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

___ 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:
Agrostis cover higher in former trench location where groundwater is intercepted.

SOIL

Sampling Point: TP16

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
0-16+	10YR 4/3	95	7.5YR 3/3	5	C	M	SiC	

[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:

Disturbed from past trenching and fill.

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)
- ___ 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 X No ____ Depth (inches): 6 in

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 1 in

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Hydrology a result of groundwater moving through pipeline trench and coming to the surface.

Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 2/17/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP17

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2-5

Subregion (LRR): A, MLRA-4B Lat: 40.094654° Long: -123.793137° Datum: WGS 84

Soil Map Unit Name: 667-Dryfield-Yorknorth-Witherell complex 5-30% 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: TP excavated in mowed sloping field, near western edge of field in proposed tank location.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 5ft)			
1. Hypochaeris radicata	40	✓	FACU
2. Trifolium subterraneum	42	✓	NL
3. Phalaris aquatica	1		FACU
4. Agrostis stolonifera	3		FAC
5. Anthoxanthum odoratum	5		FACU
6. Festuca myuros	3		FACU
7. Rumex acetosella	2		FACU
8.			
9.			
10.			
11.			
	96 = Total Cover		48 / 19.2

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 4

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 disturbed. Past mowing and vehicle movement. Some soil grading adj.

SOIL

Sampling Point: TP 17

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	7.5YR 4/4	10					SiCL	Mixed matrices
	10YR 3/3	90						
1-24+	7.5YR 4/4	90					SiC	Mixed matrices
	10YR 3/3	10						

[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:

Soils have been disturbed in the past.

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 Slope. No evidence of hydrology. Normal rainfall period, last rains approx. 3 days prior

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 2/17/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 18

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5-10

Subregion (LRR): A, MLRA-4B Lat: 40.095018 Long: -123.793193 Datum: WGS 84

Soil Map Unit Name: 667-Dry field-York north-Witherell complex 5-30% 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:
TP Excavated in sloping, mowed field. well-drained

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: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5ft)			
1. Anthoxanthum odoratum	72	✓	FACU
2. Hypochaeris radicata	14		FACU
3. Festuca Myuros	5		FACU
4. Holcus lanatus	8		FAC
5. Agrostis stolonifera	3		FAC
6.			
7.			
8.			
9.			
10.			
11.			
102 = Total Cover	51	20.4	
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: 1 (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 relatively homogenous surrounding area. Mowed.

SOIL

Sampling Point: TP 18

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
0-24+	7.5YR 4/3	100					SiC	

[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:

Soils homogenous

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 slope. Normal precipitation, most recent rainfall 3 days prior

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/9/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 19

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope, road cut Local relief (concave, convex, none): None Slope (%): 38

Subregion (LRR): A, MLRA-4B Lat: 40.095423° Long: -123.794596° Datum: WGS 84

Soil Map Unit Name: 461: Tannin-Burgsblock-Rockyglen complex 30-50% 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 X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: TP excavated in hillslope, roadcut wetland. Likely a groundwater table intercepted by the roadcut that now produces isolated seep conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Bendorsiga menziesii	40	✓	FACU
2. Salix lasiolepis	15	✓	FACW
3.			
4.			
	55 = Total Cover		27.5 / 11

Sapling/Shrub Stratum (Plot size: 5ft)			
1. Genista monspessulana	1		NL
2. Cytisus scoparius	5	✓	NL
3. Rubus armeniacus	8	✓	FAC
4.			
5.			
	14 = Total Cover		7 / 2.8

Herb Stratum (Plot size: 5ft)			
1. Woodwardia fimbriata	70	✓	FACW
2. Equisetum arvense	3		FAC
3. Polystichum munitum	9		FACU
4. Cortaderia jubata	10		FACU
5. Juncus effusus	1		FACW
6.			
7.			
8.			
9.			
10.			
11.			
	93 = Total Cover		46.5 / 18.6

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 7* rocky gravel.

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- X 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: Herbaceous vegetation composition restricted to isolated seep wetland. Shrub layer reflects roadside conditions.

SOIL

Sampling Point: TP 19

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	10YR 2/1	100					Peat	Duff
1-4	10YR 2/1	100					SiL	
4-18	10YR 4/1	84	10YR 4/6	6	C	M	SiL	
			7.5YR 5/8	10	C	M/PL		increases w/ depth
18+ 19*	10YR 4/1	100					C	

[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)
- X 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)
- ___ 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 X No ____

Remarks:

Hard clay at 18 inches perches seep water and prevents infiltration.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ 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): N/A

Water Table Present? Yes ____ No X Depth (inches): 18 in*

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 10 in

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Hydrology provided by hillslope/roadcut seep. Likely an exposed watertable from historical roadcut activities, now providing hydrology at the surface. TP ~ 25 ft above roadway and 30 ft below top of slope.

* Watertable more accurately described as seep water perched on Bt layer.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/9/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP20

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope, roadcut Local relief (concave, convex, none): None Slope (%): 38

Subregion (LRR): A, MLRA-4B Lat: 40.095401° Long: -123.794579° Datum: WGS 84

Soil Map Unit Name: 461- Tannin-Burgess block-Rockyglen complex 30-50% 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:
TP excavated on steep roadcut hillslope just outside of seep wetland recorded @ TP 19.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	80	✓	FACU
2.			
3.			
4.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 5ft)			
1. Heteromeles arbutifolia	6	✓	NL
2. Rubus armeniacus	10	✓	FAC
3. Umbellularia californica	1		FAC
4.			
5.			
	17	= Total Cover	8.5 3.4

Herb Stratum (Plot size: 5ft)			
1. Briza maxima	6	✓	NL
2. Bromus diandrus	10	✓	NL
3. Torilis arvensis	2		NL
4. Festuca myuros	1		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	19	= Total Cover	9.5 3.1

Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 81

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:
Rock and duff. Veg conditions reflect steep, well drained roadcut slope, forested.

SOIL

Sampling Point: TP 20

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	5YR 2.5/2	100					O.M.	duff - needles
1-2	10YR 2/2	100					L	
2-18+	10YR 4/2	>99	10YR 4/6	>1	C	PL	GbgrSL	Redox on ped faces

[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:

Gravelly, few roots. Roadcut hillslope above TP19.

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:

Dry, well drained slope. Representative of roadcut hillslope.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/9/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP21

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope base Local relief (concave, convex, none): Concave Slope (%): 2-6

Subregion (LRR): A, MLRA-4B Lat: 40.096794 Long: -123.794679 Datum: WGS 84

Soil Map Unit Name: 311: Urban land - Garbenville complex, 5-15% 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 X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: TP excavated in low part of base of hillslope between trailer park and motel. Slight depression captures water from slope.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus x hispanica	70	✓	NL
2.			
3.			
4.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	40	✓	FAC
2. Quercus kelloggii	2		NL
3. Rubus ursinus	5		FACU
4.			
5.			
	47 = Total Cover		23.5 / 9.4
Herb Stratum (Plot size: 5ft)			
1. Carex hartordii	20	✓	OBL
2. Festuca arundinacea	48	✓	FAC
3. Poa trivialis	6		FAC
4. Holcus lanatus	8		FAC
5. Agapanthus praecox	7		NL
6.			
7.			
8.			
9.			
10.			
11.			
	89 = Total Cover		44.5 / 17.8
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 11%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 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: Veg composition reflects wetland within vacant lot between development. Leaf litter over bare ground.

SOIL

Sampling Point: TP 21

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	10YR 3/2	100					L	
1-18	10YR 4/2	85	10YR 4/6	10	C	M	SiCL	Redox increases w/ depth
			7.5YR 4/4	5	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X 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)
- ___ 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 X No _____

Remarks:

Saturated, well formed hydric soils indicate persistent saturation.

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)
- ___ 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 X No ____ Depth (inches): 0.25in

Water Table Present? Yes X No ____ Depth (inches): 5in

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:

Slight geomorphic position captures water from adj hillslope. Wetlands grade into upland in poorly defined edge.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/9/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 22

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): flat Lot Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): A, MLRA-4B Lat: 40.096878 Long: -123.794760 Datum: WGS 84

Soil Map Unit Name: 311: Urbanland-Garberville complex 5-15% 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: TP excavated in vacant lot downslope of wetland recorded at TP 21. Graded lot.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30ft)			
1. Platanus x hispanica	60	✓	NL
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus ursinus	1		NL
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Bromus diandrus	43	✓	NL
2. Festuca arundinacea	30	✓	FAC
3. Poa trivialis	2		FAC
4. Holcus lanatus	2		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	77 = Total Cover		38.5 / 15.4
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 23

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (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 composition reflects slightly sloping undeveloped lot in upland areas. Well drained. Leaf litter abundant

SOIL

Sampling Point: TP 22

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
0-3	10YR 3/2	100					SiL	
3-13	10YR 3/2	60					SiL	Mixed matrices, fill
	10YR 5/4	8						pockets of fill
	10YR 5/6	2						pockets of fill
	2.5Y 5/3	30						pockets of fill
13-18+	2.5Y 5/3	70	10YR 5/6	5	C	M	CL	Mixed fill
			10YR 5/4	25	C	M		

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

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

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

Mixed fill soils in vacant lot. Possible krotovina or grading of terrace.

3-13" horizon w/ pockets of mixed fill from lower surface horizon. Dry-transitional edge of wetland

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 soils, downslope of wetland conditions at TP21. Upland conditions present, no evidence of wetland hydrology.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/9/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 23

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope swale Local relief (concave, convex, none): Concave Slope (%): 22

Subregion (LRR): A, MLRA-4B Lat: 40.096133° Long: -123.793967° Datum: WGS 84

Soil Map Unit Name: 461: Tannin-Burgsblock-Rockyglen 30-50% 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 X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: TP excavated in hillside seep wetland. Wetland conditions restricted to swale bottom, isolated, seep fed.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1. Salix lasiolepis	6	✓	FACW
2. Other tree species			
3. rooted outside wetland. Not			
4. counted in dominance.			
	6 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	35	✓	FAC
2. Corylus cornuta	5		FACU
3.			
4.			
5.			
	40 = Total Cover 20		
Herb Stratum (Plot size: 5ft)			
1. Woodwardia fimbriata	20	✓	FACW
2. Erythronium oregonum	1		OBL
3. Carex harfordii	13		OBL
4. Athyrium filix-femina var. cyclosorum	30	✓	FAC
5. Juncus effusus ssp. pacificus	2		FACW
6.			
7.			
8.			
9.			
10.			
11.			
	66 = Total Cover 33		
Woody Vine Stratum (Plot size: 5ft)			
1. Hedera helix	6	✓	FACU
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 34

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- X 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: Vegetation composition restricted small hillslope seep wetland.

SOIL

Sampling Point: TP 23

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	10YR 3/2	100					Mu	
1-4	2.5Y 4/1	97	10YR 4/6	3	C	PL	GrSL	along living roots
4-18+	10Y 5/1	94	5YR 4/6	6	C	M/PL	CL	

[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)
- X 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)**
- X 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)
- ___ 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 X No ____

Remarks:

Well formed hydric soils indicate persistat saturation.

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)
- ___ 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)
- X 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): 0.25

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

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:

Wetland hydrology provided by natural hillside seep. Hydrology restricted to swale, conditions dry at downslope, likely due to evaporation and infiltration.

Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/9/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 24

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 25

Subregion (LRR): A, MLRA-4B Lat: 40.096157° Long: -123.793943° Datum: WGS 84

Soil Map Unit Name: 461: Tannin-Burgsblock-Reckyglen complex 30-50% 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

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: TP excavated in upland, well drained slope just outside of wildside seep wetland. Conditions representative of upland, well drained slope.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Umbellularia californica	12	✓	FAC
2. Quercus hellogii	10	✓	NL
3.			
4.			
	22 = Total Cover		11/4.4
Sapling/Shrub Stratum (Plot size: ____)			
1. Rubus armeniacus	27	✓	FAC
2. Gaultheria mucronulata	15	✓	NL
3. Pseudotsuga menziesii	5		FACU
4. Rubus parviflorus	1		FACU
5.			
	48 = Total Cover		24/9.6
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	16	✓	FACU
2. Polystichum munitum	18	✓	FACU
3. Pentagramma triangularis	2		NL
4. Pteridium aquilinum var. pubescens	24	✓	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		30/12
Woody Vine Stratum (Plot size: 5ft)			
1. Hedera helix	3		FACU
2.			
	3 = Total Cover		

% Bare Ground in Herb Stratum 40%

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28.5% (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: Well drained upland slope. Grass species and Pteridium aquilinum dominant in understory with tree canopy of Quercus hellogii, Umbellularia californica + Pseudotsuga.

SOIL

Sampling Point: TP 24

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	10YR3/2	100					SiL	
9-13	7.5YR5/4	60	2.5Y5/3	5	D	M	CL	w/occ. gravel
	10YR3/2	20						Mixed matrix, crotovina +
	10YR3/4	15						natural mixing.
13-17+	10YR5/3	60					CL	Mixed Matrices
	7.5YR4/6	40						

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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: Hillslope with mixed soils. Part slope movement?

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.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/10/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 25

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope, swale Local relief (concave, convex, none): Concave Slope (%): 7%

Subregion (LRR): A, MLRA-4B Lat: 40.105117° Long: -123.789439° Datum: WGS 84

Soil Map Unit Name: 452: Burgsblock-Coolyork-Tannin complex 30-50% 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 X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: TP excavated in swale at base of hillslope.

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	40	✓	FAC
2.			
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Carex hartfordii	14	✓	OBL
2. Mentha pulegium	7		OBL
3. Rumex crispus	4		FAC
4. Lythrum hyssopifolia	2		OBL
5. Scirpus microcarpus	4		OBL
6. Cyperus eragrostis	5		FACW
7. Briza maxima	1		NL
8. Juncus patens	5		FACW
9. Juncus effusus ssp. pacificus	1		FACW
10. Poa trivialis	12	✓	FAC
11.			
	55 = Total Cover 27.5		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 45

Dominance Test worksheet:

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

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

Bare mud and thatch in herb stratum. Veg. composition reflects swale condition.

SOIL

Sampling Point: TP 25

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
0-3	10YR 3/2	100					MuSiL	
3-11	2.5Y 4/2	89	7.5YR 4/6	3	C	PL/M	SiCL	
			10YR 4/4	8	C	PL/M		
11-18+	5Y 5/2	60	10YR 5/6	40	C	M	SL	w/occ. gravel

[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)
- X 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)
- ___ 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 X No ____

Remarks:

Well formed hydric soils indicate persistat saturation.

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)
- X 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 X No ____ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 3in

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Hydrology conditions reflect base of slope swale which collect water seeping out of the base of the hillslope. Other areas sloping and well drained upland.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/10/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 26

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 15

Subregion (LRR): A, MLRA-4B Lat: 40.105168° Long: -123.789407° Datum: WGS 84

Soil Map Unit Name: 452: Burgsblock-Coolyork-Tannin complex 30-50% 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 X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: To excavated outside of wetland on dry hillslope. Conditions representative of upland surrounding the wetland.

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	3		FACU
2. Rubus armeniacus	28	✓	FAC
3.			
4.			
5.			
	31 = Total Cover		15.5/6.2

Herb Stratum (Plot size: 5ft)			
1. Briza maxima	50	✓	NL
2. Lathyrus latifolius	3		NL
3. Juncus occidentalis	5		FACW
4. Avena barbata	1		NL
5. Juncus patens	1		FACW
6. Rumex acetosella	15		FACU
7. Bromus hordeaceus	1		FACU
8. Danthonia californica	7		FAC
9. Carex harfordii	2		OBL
10.			
11.			
	85 = Total Cover		42.5/17

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[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: Thatch. Veg composition reflects well drained hillslope and transition out of adj. wetland.

SOIL

Sampling Point: TP26

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
0-3	10YR 3/2	100					SiCL	
3-11	10YR 3/2	90					SiCL	charcoal in horizon
	5Y 5/2	7						Pocket of mixed matrix
	10YR 4/4	3						Pocket of mixed matrix
11-18+	5Y 5/2	70	10YR 4/4	30	C	M/PL	SCL	

[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)
- X 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 X No ___

Remarks:

Evidence of historical manipulation. Second horizon has pockets of mixed material - Krotovina or roadwork upslope tailings. Transitional soils out of wetland boundary

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. Transitioning out of adj. wetland

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/10/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP27

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope bench Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): A, MLRA-4B Lat: 40.096140° Long: -123.794860° Datum: WGS 84

Soil Map Unit Name: 311: Urbanland-Garberville 5-15% 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 X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: TP excavated in hillside bench with Salix and Juncus dominance. Adj. to development.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	30	✓	FACW
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Rubus armeniacus	15	✓	FAC
2. Cytisus scoparius	35	✓	NL
3. Quercus garryana	1		FACU
4.			
5.			
	51 = Total Cover		25.5 / 10.2
Herb Stratum (Plot size: 5ft)			
1. Juncus patens	75	✓	FACW
2. Vinca major	20	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		47.5 / 19
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- X 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: Vegetation composition reflects small bench wetland and invasive/non-native species encroaching from adj. development.

SOIL

Sampling Point: TP 27

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
0-2	10YR 3/2	100					SiL	
2-17	2.5Y 5/1	70	7.5YR 4/6	30	C	M	CL	2.5Y increases in % towards pit bottom

[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)
- X 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)
- ___ 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 X No ___

Remarks:

At base of cutslope, above developed building terrace. seepage

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ 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): N/A

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 10"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Hydrology likely a result of hillside cut that collects water and/or has intercepted a groundwater table allowing for wetland hydrology.

SHN Consulting Engineers & Geologists, Inc.

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

Project/Site: Garberville City/County: Humboldt Sampling Date: 5/10/23

Applicant/Owner: Garberville Sanitary District State: CA Sampling Point: TP 28

Investigator(s): Joseph Saler, Cindy Wilcox Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 45

Subregion (LRR): A, MLRA-4B Lat: 40.096114° Long: -123.794851° Datum: WGS 84

Soil Map Unit Name: 311: Urbanland - Garbanville 5-15% 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 X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
TP excavated on slope just above wetland described in TP 27.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Salix lasiolepis	10	✓	FACW
2. Quercus kelloggii	10	✓	FACU
3.			
4.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5ft)			
1. Baccharis pilularis ssp. consanguinea	20	✓	NL
2. Genista monspessulana	15	✓	NL
3. Rubus armeniacus	18	✓	FAC
4. Heteromeles arbutifolia	5		NL
5.			
	58	= Total Cover	27/11.6
Herb Stratum (Plot size: 5 ft)			
1. Vinca major	50	✓	FACU
2. Pentagramma triangularis	10		NL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	30/12
Woody Vine Stratum (Plot size: 5ft)			
1. Toxicodendron diversilobum	5	✓	FAC
2.			
	5	= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43% (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 reflect upland, well drained conditions. High cover by non-natives as a result of close proximity to development.

SOIL

Sampling Point: TP 28

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
0-12	7.5YR3/2	100					SiL	
12-16+	2.5Y 5/2	70	7.5YR 4/6	10	C	M	CL	
			10YR 5/6	20	C	M		

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X 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 X No ____

Remarks:

Steep slope, eroded, likely in artificial cut. Transitional soils - mid slope above wetland seepage

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 just above seep wetland recorded at TP 27.

OHWM Delineation Cover Sheet Page 1 of 10

Project: Garberville SD **Date:** 4/12/22

Location: Wallan Rd Garberville OHWM #1 **Investigator(s):** Joseph Soler, Cindy Wilcox

Project Description:

Tank and water distribution replacement and repairs

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

Seasonal stream, moderately incised within steep hillside ravine. Ravine slopes are forested, deep litter and debris.

OHWM: 46in

Off-site Information

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

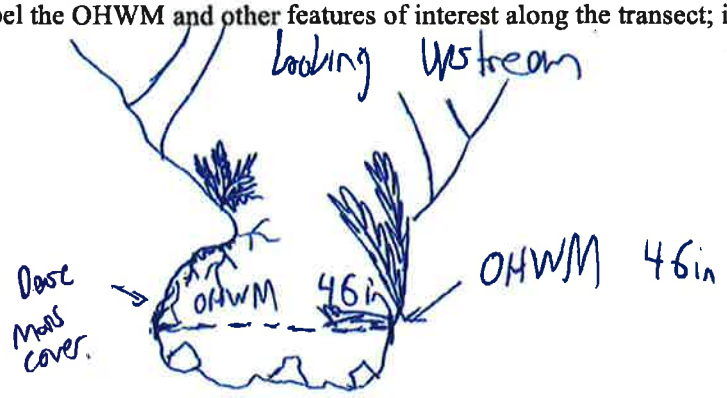
Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

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

Datasheet # 1 **OHWM Delineation Datasheet** Page 2 of 10

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:
Deeply undercut bank on left, minimal break in slope on right

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	50	22	15	10	3	Y
Below OHWM	35	20	28	12	5	N

Notes/Description:
Rocky gravelly silt loam above OHWM. Boulders, cobbles + gravel dominant below OHWM.

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	82	0	15	85 (litter) + moss
Below OHWM	82	0	0	100 gravel + litter

Notes/Description:
Forest canopy extends over small stream. No herbaceous and minimal moss cover below OHWM. ferns + dense moss cover above OHWM.

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

- Drift / wrack
- Undercut banks
- Root exposure
- Erosion / scour
- sediment sorting

OHWM Delineation Cover Sheet Page 3 of 10

Project: Garberville Sanitary District **Date:** 4/15/22

Location: Garberville OHWM #2 **Investigator(s):** Joseph Sater

Project Description:

Water tank and distribution line replacement and repairs.

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

Headwater of small stream. OHWM indicators not present until downslope of small culvert draining residential impervious surfaces. Stream channel excavated at first, becomes natural further downslope.

OHWM 14 inches

Off-site Information

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

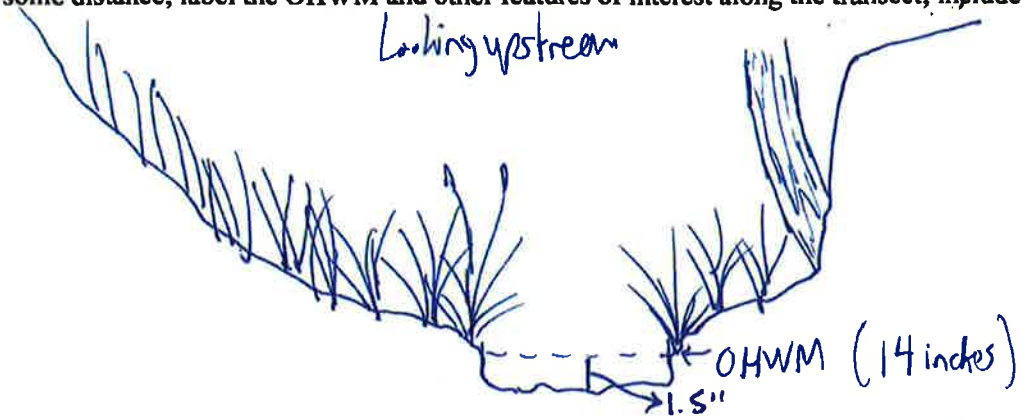
Hydrologic/hydraulic information acquired? ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

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

Datasheet # 2 **OHWM Delineation Datasheet** Page 4 of 10

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:
Small OHWM at bottom of what appears to be a historically excavated channel. Becomes natural ~ 50ft downstream of data point.

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	79	20	1	0	0	Y (Minimal)
Below OHWM	55	30	15	0	0	N

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	50	0	95%	5 (Moss cover)
Below OHWM	50	0	5	95%

Notes/Description:
Dense grass and herb cover above OHWM, minimal annual herb cover below OHWM. Young blackoaks within excavated channel above OHWM.

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

- Erosion/scour
- Drift/wrack
- sediment sorting
- Undercut banks

OHWM Delineation Cover Sheet Page 5 of 10

Project: Garberville Sanitary District **Date:** 4/15/2022

Location: Garberville OHWM # 3 **Investigator(s):** Joseph Sabler, Cindy Wilcox

Project Description:

Water tank and distribution lines replacement and repairs.

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

Small stream, natural condition downstream of study area. Large fill prism in stream for roadway obscures OHWM and stream conditions.

OHWM: 30in

Off-site Information

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

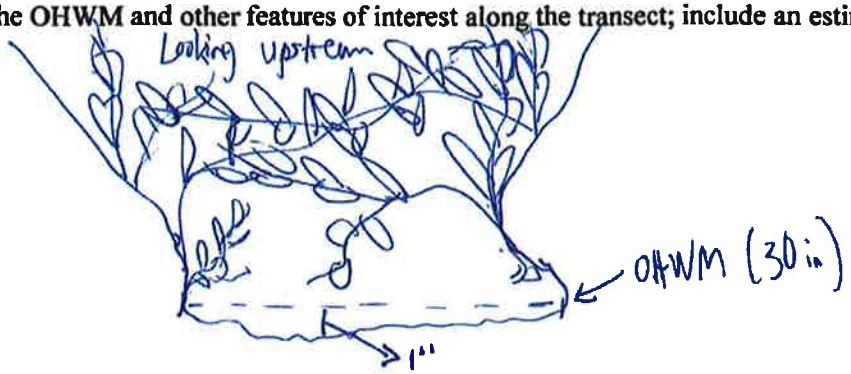
Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

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

Datasheet # 3 **OHWM Delineation Datasheet** Page 6 of 10

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:
Shallow OHWM with sharp breakin slope and undercut bank.

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	57	20	20	3	Ø	Y (minimal)
Below OHWM	15	20	60	5+(concrete)	Ø	N

Notes/Description:
Concrete fill present inchannel, increasing upstream.

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	50	100	Ø	Ø
Below OHWM	50	0	Ø	100

Notes/Description:
Dense bramble cover above OHWM, crosses over stream making movement along the stream nearly impossible. Natural conditions downstream

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

- Undercut banks
- Erosion/scour
- Sediment sorting
- Drift/wrack
- Litter removal

OHWM Delineation Cover Sheet Page 7 of 10

Project: Garberville Sanitary District **Date:** 4/15/22

Location: Garberville OHWM # 4 **Investigator(s):** Joseph Saler, Cindy Wilcox

Project Description:
Water tank and distribution lines replacement and repairs.

Describe the river or stream's condition (disturbances, in-stream structures, etc.):
First segment of drainage w/ water flowing. On steep hillside below proposed GSD water tank ~~entrance~~. Below old roadway w/ juncus & close hydric soils (TP9). Headwaters of stream, becoming progressively larger downslope and away from study area

OHWM 18in, 0.5in above thalweg.

Off-site Information

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

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

List and describe any other supporting information received/acquired:

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

Datasheet # 4 **OHWM Delineation Datasheet** Page 8 of 10

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:
OHWM on steep unstable hillside - many pistol-butted & falling trees. Active? landslide zone.

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	70	30	0	0	0	Y (faint)
Below OHWM	30	50	20	0	0	N

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	80	30	50	20* moss + litter.
Below OHWM	80	0	0	100

Notes/Description:
Tree canopy extends over small stream. Shrubs abundant or are woody vines. Herbaceous + moss abundant above OHWM, non-existant below OHWM.

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

- Erosion / scour
- Undercut banks
- Litter removal
- Exposed roots

OHWM Delineation Cover Sheet Page 9 of 10

Project: Garberville SD **Date:** 4/27/22

Location: Melville Rd Garberville OHWM #5 **Investigator(s):** Joseph Soler

Project Description:

Tank and distribution line replacement and repair.

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

Deeply incised seasonal stream. Flows augmented by roadside runoff diverted through culvert. No OHWM above culvert. Stream occurs w/i natural ravine. OHWM becomes obscured as it flows into porous soils before developing into a wetland as mapped. OHWM: 17 inches across 4 inches above thalweg.

Off-site Information

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

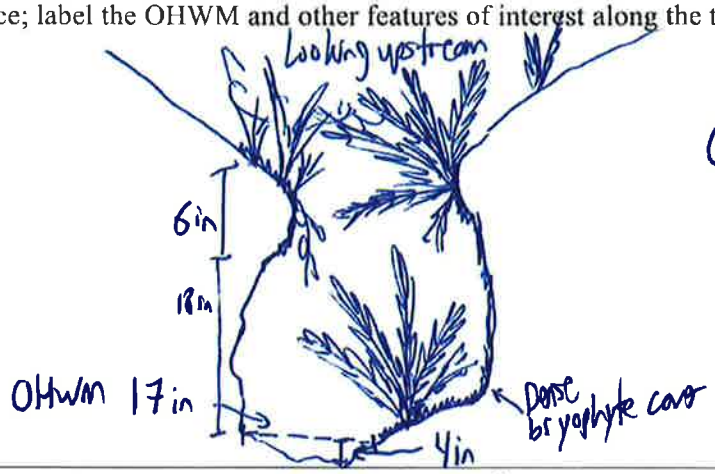
Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

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

Datasheet # 5 **OHWM Delineation Datasheet** Page 10 of 10

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)



OHWM 17 in across, 4 in. above thalweg

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

Notes/Description: steep undercut bank becomes less steep at OHWM on left bank. Small shelf above OHWM and below steep cut on right bank.

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	90	10	0	0	0	Y
Below OHWM	76	5	2	12	5	N

Notes/Description:

Some sediment sorting below OHWM as evidenced by small boulders, cobbles, and gravel with fines inbetween.

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	100	50	50	50*
Below OHWM	0	0	0	100%

* incl. litter + duff

Notes/Description:

Tree canopy extends across small stream as does shrub canopy, making passage along the OHWM difficult. Dense moss cover above OHWM, less than 10% below OHWM. No vascular plants below OHWM.

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

- Drift / Wrack
- Undercut banks
- Sediment sorting
- Erosion / scour
- Exposed roots
- Head cut / knickpoint

Site Photos

6

Photo 1: Wallan tank site looking south. Note upland conditions around the tank with pooled water from tank leak. This area was not considered wetland due to the completely artificial conditions and lack of hydrophytes and hydric soils. Photo taken April 19, 2022.

Photo 2: Stream #1, looking upstream (North). Note steep sloping ravine and eroded stream channel. Intermittent stream flow lines are temporarily obscurred by litter and debris from forested slopes. Photo taken April 19, 2022.

Photo 3: Looking south along Alderpoint Road at Wetland #1 within the vicinity of TP1. Wetland conditions are restricted to the lowest elevations between the road surface and the hillslope as shown by hydrophytic vegetation. Photo taken April 19, 2022.

Photo 4: Looking northeast at Wetland #2 north of Alderpoint Road within a flat area. Note the hydrophytic vegetation dominance and slight depression. Photo taken April 19, 2022.

Photo 5: Purple needlegrass grassland representative conditions, looking east near the Wallan Tank site. Note dense cover by purple needlegrass and abundant seed production. Photo taken April 27, 2022.

Photo 6: California oatgrass meadow looking south. California oatgrass is dominant within this area near the Wallan Tank site. Photo taken April 27, 2022.

Photo 7: Wetland #3 near CalFire Station looking southwest. Note abundance of Harford's sedge. Photo taken May 10, 2023.

Photo 8: Looking down Hillcrest Drive (north) at head of Wetland #4 within the vicinity of TP8. Wetland continues downslope within inboard ditch. Photo taken April 19, 2022.

Photo 9: Looking east across Wetland #5 within the vicinity of TP10. Wetland conditions are contained within a shallow swale and are likely connected to Stream #2 and culvert in the topographic low point visible beyond the wetland scientist. Photo taken April 19, 2022.

Photo 10: Looking east toward Wetland #6. TP13 location (upland) shown by survey rod and wetland TP12 location shown by shovel. Melville Drive occurs immediately left of the photo which has created the basin containing the wetland. Photo taken April 19, 2022.

Photo 11: Stream #2, looking upstream (southeast) at OHWM delineation point 5. Note incised channel with OHWM conditions. Seasonal, intermittent stream without water at time of delineation. Photo taken May 2, 2022.

Photo 12: Looking south toward the drainage swale between the motel and trailer park visible upslope. Wetland #7 is in the left side of the photo. Note developed and disturbed nature of the area. Photo taken May 9, 2023.

Photo 13: Wetland #8 in slope failure slump with strong hydric soil and wetland hydrology indicators. Photo taken May 9, 2023.

Photo 14: Wetland #9 in hillslope cut, looking west. TP27 is located at the base of the shovel. Note arroyo willow cover. Photo taken May 10, 2023.

Photo 15: Wetland #10 located mid-slope in a large roadcut above U.S. Highway 101, looking west (TP19 at base of shovel). Photo taken May 9, 2023.

Photo 16: Stream #3 within the vicinity of OHWM 3, looking northeast into the ravine containing the stream. Note dense vegetation and stream conditions evident in the center of the photo. Photo taken April 15, 2022.

Photo 17: Stream #4 headwaters, looking downslope (southeast) within the vicinity of OHWM point 2 (at survey rod). Note stream is contained within a partially excavated swale. OHWM indicators begin just upslope of the OHWM delineation point. Photo taken April 15, 2022.

Photo 18: Stream #5 looking downstream within vicinity of OHWM 4. The culvert under U.S. Highway 101 is barely visible in the upper center of the photo. Note well defined channel. Flows are likely intermittent but were present during the delineation. Photo taken February 17, 2023.

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