TransTerra Consulting

INTEGRATED ENVIRONMENTAL SERVICES

Jurisdictional Wetland Delineation Report
Foster Clean Power A & B Project
November 2022

Prepared by:
TransTerra Consulting LLC
791 8th Street
Arcata, CA 95521
Contact: Tamara Camper
(707) 840-4772

EXECUTIVE SUMMARY

The purpose of this report is to provide an assessment of the type and extent of jurisdictional wetlands and waters that may be affected by the proposed Foster Clean Power A & B Project (Project). In June 2020, SHN prepared a Biological Resource Assessment and a Wetland and Other Waters Delineation Report for a cannabis cultivation project on the same properties as the proposed Project that was subsequently approved by Humboldt County. In August 2022, TransTerra prepared a Biological Resources Assessment for the Project. This report was subsequently prepared to identify and delineate jurisdictional resources that occur within areas of the Project study area that were not previously delineated by SHN. The presence and absence of jurisdictional resources that were evaluated include the following:

- Wetlands and non-wetland "waters of the U.S." regulated by the U.S. Army Corps of Engineers (USACE);
- "Waters of the State" regulated by the North Coast Regional Water Quality Control Board (NCRWQCB); and
- The bed, bank, and channel of all lakes, rivers, and/or streams (and associated riparian vegetation), as regulated by the California Department of Fish and Wildlife (CDFW).

The jurisdictional delineation work was performed by Holly Vadurro and Kale McNeil of TransTerra Consulting on July 27 and August 4, 2022, using the USACE Regional Supplement to the Corps of the Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Wetland features were identified based on the USACE's three-parameter approach in which wetlands are defined by the presence of hydrophytic vegetation, hydric soils, and presence of wetland hydrology indicators.

The 2020 SHN jurisdictional delineation study area was approximately 73.5 acres in total and included portions of the Project site and several adjacent properties[1]; two wetlands were identified within the SHN study area, one of which is within the Project study area and measured 0.12 acre in size. The 2022 TransTerra jurisdictional delineation study area was approximately 20.9 acres and included portions of the two Project properties where proposed solar development would occur and the area along Foster Ave that were not included in the SHN study area[2]. TransTerra identified and delineated two seasonal Palustrine Emergent wetlands, approximately 1.91 acres and 0.14 acre in size. The smaller of the two wetlands was the same feature identified by SHN so it was re-delineated, ultimately increasing its size by

[1] Note the APN numbers identified in the SHN for the properties delineated are not consistent with the County's GIS Parcel Map (10.3) for the study subject area. According to the SHN report description, portions of the following properties were included in the study area: APNs 503-231-004, 505-151-003, 505-151-004, 506-231-010, 506-231-011, and 507-181-007; however, the current available County parcel data and GIS web map indicate the SHN study area included portions of the following properties: APNs 505-151-005-000, 505-151-011-000, 505-151-012-000, 506-231-004-000, 506-231-012-000, 506-231-019-000, 506-231-020-000, 506-231-021-000, and 506-231-022-000.

[2] The TransTerra study area included portions of APNs 505-151-005-000, 505-151-012-000, 506-131-011-000, 506-231-012-000, and 506-231-019-000.

0.02 acre. The wetlands appear to be hydrologically connected to Liscom Slough via man made ditches, falling within the jurisdiction of USACE, NCRWQCB, and CDFW. In addition, these wetlands must be considered for the Humboldt County Streamside Management Area policies, which require a 50-foot setback for seasonal wetlands.

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INTRODUCTION

This Jurisdictional Wetland Delineation Report and was prepared to provide data concerning the type and extent of wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACE), North Coast Regional Water Quality Control Board (NCRWQCB); and California Department of Fish and Wildlife (CDFW) that may be affected by the proposed Foster Clean Power A & B Project (Project). This report is based on the fieldwork performed on July 27 and August 4, 2022.

In the following report, the Project Area is defined as the area within the parcel(s) where direct impacts to the environment from Project activities may occur. On-site field assessments were completed within the Project Area.

A Wetlands and Other Waters Delineation Report was conducted by SHN in June of 2020 for the majority of the Project Area and adjacent areas for a proposed cannabis cultivation project that was subsequently approved by the County. This report relied on the findings of that report and delineation activities focused on areas to the south of the SHN study area that were not included in the SHN report; however, the SHN report findings were validated.

ENVIRONMENTAL SETTING

Project Location

The project is located in the "Arcata Bottoms" area at the intersection of Foster Avenue and Janes Road within unincorporated Humboldt County (County) (refer to Figure 1). The City of Arcata is located immediately south of the Project site on the southern side of Foster Avenue and to the east of the project site. Access to the site is provided by Foster Avenue/Jackson Ranch Road. The project is contained within three parcels (APNs 505-151-012-000, 506-231-019-000, and 506-231-022-000), of which approximately 30 acres would be developed for solar energy generation and storage. The project is located on the United States Geological Survey (USGS) Arcata North 7.5-minute Quadrangle, and within the Township 06 north, Range 01 east, and Sections 19, 20, 29, and 30 of the Humboldt Meridian.

The historical and present use of this area is agricultural production, which includes tilling and irrigation as well as harvesting. Sun Valley Floral farms uses a portion of APN 506-231-021 for flower production including greenhouses. Otherwise, the Project Area is vacant and generally zoned for agriculture and mixed-use commercial. Drainage ditches were installed to prevent surface water accumulation within and around the agricultural fields. The majority of these ditches are actively maintained.

Project Description

Renewable America LLC (RNA) proposes to construct and operate a two-phased community-scale solar and energy storage project referred to as: Foster Clean Power A (Phase I) and Foster Clean Power B (Phase II). Phase I would involve the construction of a 12-acre photovoltaic (PV) solar energy facility with associated inverters, fencing, and a 15-foot-wide access road that connects Foster Avenue to an equipment pad. The majority of the access road would follow an existing 15-foot-wide farm road. The equipment pad would be approximately 50 feet by 100 feet in size. Phase I would also include an energy storage (battery) system. Phase II would involve the construction of an additional 18-acre PV solar energy facility immediately north of the Phase I site and would utilize the same equipment pad area and adjoining access road. Refer to Figure 2.

Rows of solar panel arrays oriented north to south would be installed within the two development areas on a single-axis tracking system that would rotate from east to west throughout the day (approximately 60 degrees in each direction). The proposed solar arrays would have a height of approximately 15 feet. Each solar array row would be spaced approximately 14 feet apart. The tracking system would be installed on posts driven directly into the ground to a depth of approximately 6 feet. The solar facility and associated electrical equipment would be encompassed by a chain-link perimeter fence with three strands of barbed wire installed on top. Two separate areas would be fenced for Phases I and II.

The project would be designed to conform to existing topography and constructed in a manner that would minimize ground disturbance. Grading and the creation of impervious surfaces would be limited to the approximately 50-foot by 100-foot equipment pad. The project would maintain the existing site drainage patterns and would not result in a substantial increase in stormwater flow. Stormwater would continue to flow across the site in line with existing drainage patterns.

The project would deliver power to Pacific Gas and Electric Company's (PG&E's) existing distribution network via a primary service interconnection located on Foster Avenue. The solar facility would be positioned within previously tilled areas used for row crop production. The project site and properties are surrounded by agricultural and rural residential land uses.

The proposed solar facility would operate 24 hours a day, 7 days a week, and year-round, with the exception of down time for scheduled maintenance. The facility would be unmanned and managed remotely with security surveillance. Regular staff presence would not be required. Staff would on-site periodically to inspect and maintain the project facilities and maintain vegetation. It is anticipated that approximately two staff members would visit the project site approximately four times per year for regularly scheduled inspections and maintenance. In case of damages or non-functional equipment requiring replacement or repair, an appropriate number of staff will be on site and necessary deliveries will be made to address the issues. The site is expected to have deliveries for equipment replacement once every 10 years with the exception of unexpected events.

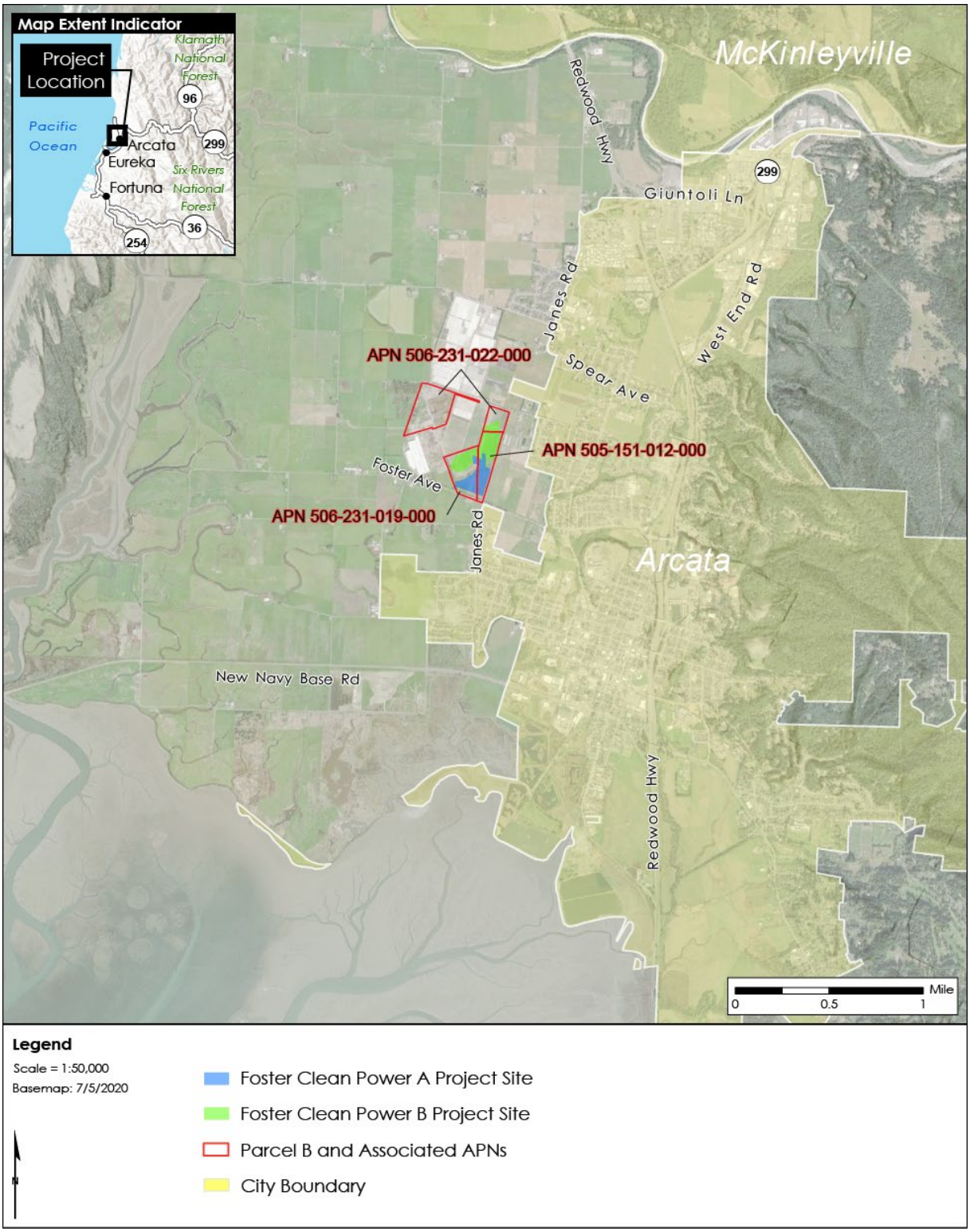

Figure 1. Project Location

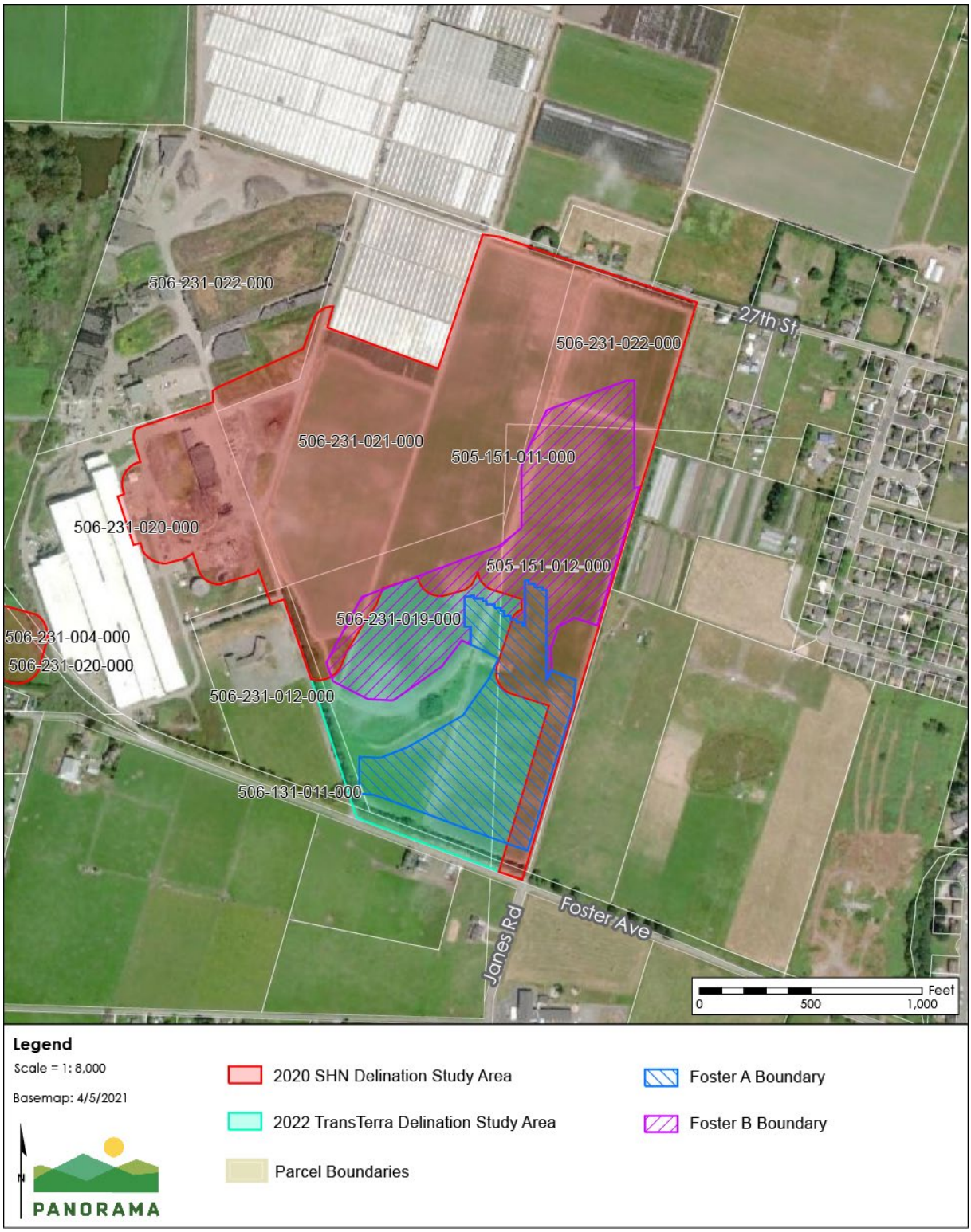

Figure 2. Proposed Project Footprint and Jurisdictional Wetland Study Area

Soils

The kinds of soils on a property will strongly influence whether or not sensitive natural communities or special status plants will be present. For example, hydric soils, which are seasonally or permanently saturated soils as found in wetlands, or soils that possess unique "edaphic characteristics" such as high serpentine content, provide the required substrate for the growth and survival of particular sensitive communities and plants. Soil types from the National Resources Conservation Service (NRCS) Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/) are listed below. These soil surveys are estimations of soils located on-site and are often not accurate at a fine scale.

The project site is located in the "Arcata Bottoms," a broad alluvial plain at the northern end of Humboldt Bay. Published geologic maps of the region indicate that native materials at the site consist of Quaternary aged alluvium (Kelley, 1984). Alluvium on the Arcata Bottoms is described as unconsolidated coarse- to fine-grained sand and silt, with gravel in channel areas; the alluvium may locally interfinger with marine terrace deposits. At least some of the alluvium on the Arcata Bottoms is inferred to be Holocene in age and appears to reflect deposition by the Mad River following the most recent sea level low stand.

Three soil types are mapped on the parcel including the USDA classification of Arlynda (133), Jollygiant (127), and Dungan (210). Arlynda soils are mapped along and among the drainage that flows northeast to southwest from the lower-central portion of the field to the access road and are considered hydric soils. The drainage along the access road on the southwest border of the property determined by SHN to be a wetland is mapped as Jollygiant soils. Areas towards the southeast and northwest of the drainage are mapped as Dungan soils. Soil classification was not confirmed during this study. Soils are likely impacted by agricultural activities such as plowing and tilling.

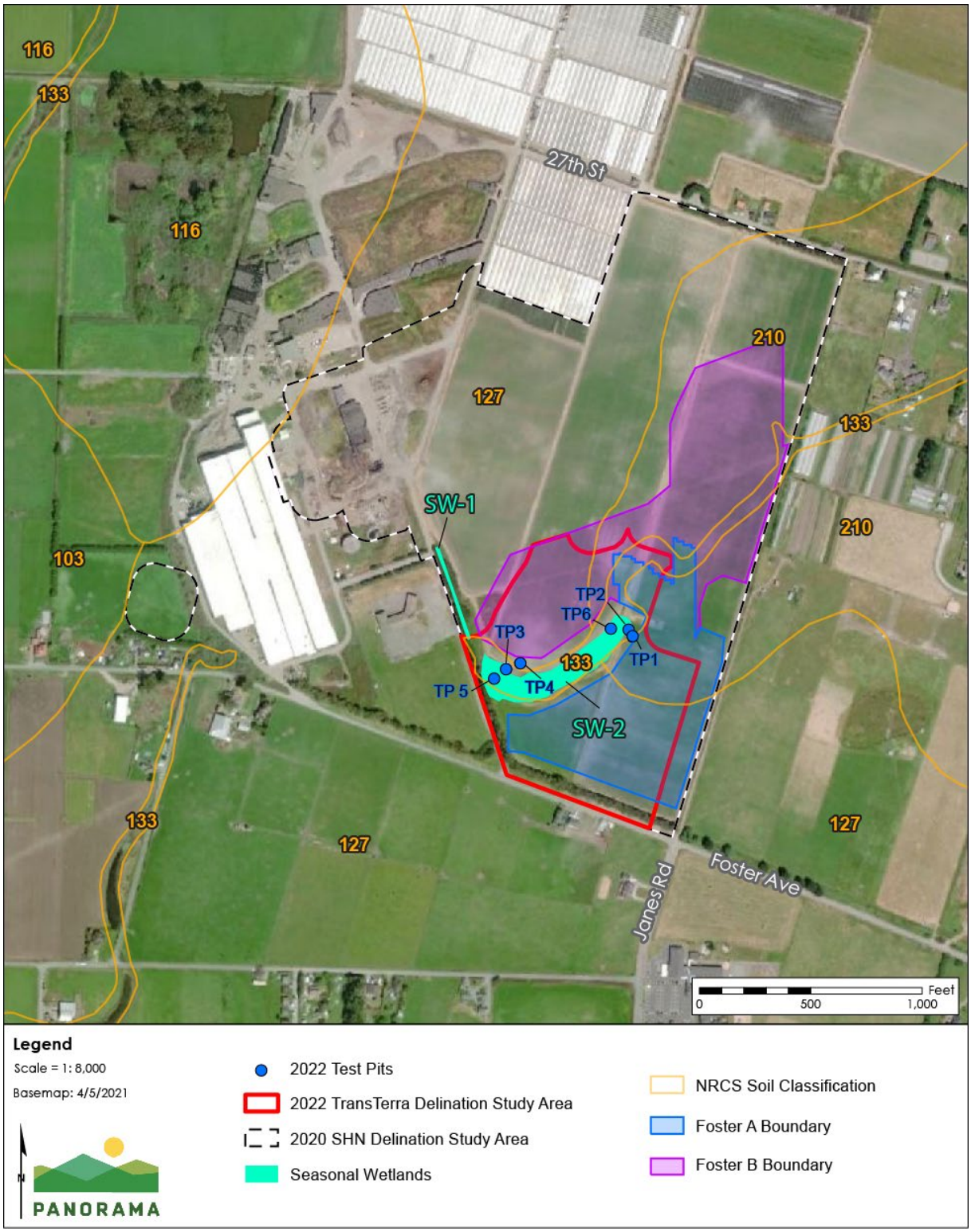

Figure 3. Map of Soil Survey Classifications by the NRCS

Table 1. Soils Mapped in the Project Area

Map Unit	Description	Hydric?
133—Arlynda, 0 to 9 percent slopes	Oi - 0 to 1 inches: slightly decomposed plant material Ap - 1 to 9 inches: silty clay loam Bg1 - 9 to 22 inches: silty clay loam Slope: 0 to 9 percent Depth to restrictive feature: More than 80 inches Natural drainage class: Very poorly drained Depth to water table: About 0 to 4 inches Frequency of flooding: Occasional Frequency of ponding: Frequent Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) Available water storage in profile: High (about 10.3 inches)	Y
127—Jollygiant, 0 to 2 percent slopes	Ap - 0 to 16 inches: silty clay loam Bg1 - 16 to 33 inches: silty clay loam Slope: 0 to 2 percent Depth to restrictive feature: More than 80 inches Natural drainage class: Somewhat poorly drained Depth to water table: About 10 to 20 inches Custom Soil Resource Report 16 Frequency of flooding: Rare Frequency of ponding: None Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) Available water storage in profile: High (about 10.1 inches)	N
210-Dungan, 0-2 percent slopes	Typical profile Ap1 - 0 to 3 inches: silt loam Ap2 - 3 to 13 inches: silt loam Bw - 13 to 29 inches: silt loam Slope: 0 to 2 percent Depth to restrictive feature: More than 80 inches Natural drainage class: Well drained Depth to water table: About 39 to 61 inches Frequency of flooding: Rare Frequency of ponding: None Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) Available water storage in profile: High (about 10.8 inches)	N

Topography and Hydrology

The Project Area is located in the North Coast Ranges Subregion of the Northwestern California Region of the California Floristic Province (Jepson Flora Project, 2020). The climate classification for this area is Warm Temperate (Köppen, 1936), with moderate to warm temperatures on average and most precipitation occurring during winter months.

The property is within the Eureka Plain Planning Watershed. Elevations on the property range from approximately 20 feet to 30 feet. The Project Area is flat to flat to slightly sloping, with slopes of less than 10 percent. The property is designated as relatively stable (Humboldt County, 2020).

Wetlands and Streamside Management Areas

Wetlands, as defined by the USDA- NRCS, are areas that (1) have a predominance of hydric soils; and (2) are inundated or saturated by surface or groundwater at levels necessary to support hydrophytic vegetation that requires saturated soil conditions.

A Streamside Management Area (SMA) is a legally designated buffer zone along streams and aquatic habitats where extra precaution is required to protect water quality. Section 314-61.6 of the Humboldt County General Plan provides for the protection of SMAs along perennially and intermittent streams as well as other wet areas such as natural ponds, springs, vernal pools, marshes, and wet meadows.

A review of the NWI database and Humboldt GIS Web Portal showed Palustrine Emergent Wetlands (PEM) over a large portion of the Project Area. However, many of these areas did not delineate as wetlands in either the SHN study or current investigation.

Vegetation

The Project Area consists of an agricultural field that has historically used for agricultural purposes and is dominated by non-native grass and forb species, supporting cutleaf geranium (*Geranium dissectum*), orchard grass (*Dactylis glomerata*), wild radish (*Raphanus sativa*), velvet grass (*Holcus lanatus*), sweet vanilla grass (*Anthoxanthum odoratum*), and field mustard (*Brassica rapa*).

REGULATORY BACKGROUND

Clean Water Act Sections 404 and 401

Under Section 404 (33 U.S. Code (USC) 1344) of the Clean Water Act (CWA), as amended, the USACE retains primary responsibility for permits to discharge dredged or fill material into waters of the U.S. All discharges of dredged or fill material into jurisdictional waters of the U.S. that result in permanent or temporary losses of waters of the U.S. are regulated by the USACE. A permit from the USACE must be obtained before placing fill or grading in wetlands or other waters of the U.S., unless the activity is exempt from CWA Section 404 regulation (for example, certain farming and forestry activities).

The USACE defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory, 1987). In other words, the USACE defines wetlands by the presence of all three wetland indicators: hydrophytic vegetation, hydric soils, and wetlands hydrology.

Waters of the U.S. are defined at 33 Code of Federal Regulations (CFR) Part 328. They include traditional navigable waters; relatively permanent, non-navigable tributaries of traditional navigable waters; and certain wetlands. Following recent court cases, the U.S. Environmental Protection Agency (EPA) and USACE published a memorandum entitled Clean Water Act Jurisdiction (USACE/EPA, 2008) to guide the determination of jurisdiction over waters of the U.S., especially for wetlands. The applicability of Section 404 permitting over discharges to wetlands is, therefore, a two-step process: 1) determining the areas that are wetlands, and 2) where a wetland is present, assessing the wetland's connection to traditional navigable waters and non-navigable tributaries to determine whether the wetland is jurisdictional under the CWA. A wetland is considered jurisdictional if it meets certain specified criteria.

The USACE is required to consult with the USFWS and/or National Marine Fisheries Service (NMFS) under Section 7 of the federal Endangered Species Act (FESA) if the action subject to CWA permitting could result in "take" of federally listed species or an adverse effect to designated critical habitat. The project is within the jurisdiction of the Sacramento District of the USACE.

Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification from the state in which the discharge originates or would originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate, that the discharge will comply with the applicable effluent limitations and water quality standards (EPA, 2002). A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCB). The project is within the jurisdiction of the North Coast RWQCB.

Porter-Cologne Water Quality Control Act

The state and RWQCB also maintain independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Control Act. Waters of the State are defined by the Porter-Cologne Water Quality Control Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB protects all waters in its regulatory scope but has special responsibility for isolated wetlands and headwaters (State Water Resource Control Board, 1969). These water bodies might not be regulated by other programs, such as Section 404 of the CWA. Waters of the State are regulated by the RWQCBs under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require an USACE permit,

or fall under other federal jurisdiction, and have the potential to impact waters of the State are required to comply with the terms of the Section 401 Water Quality Certification Program. If a proposed project does not require a federal license or permit but does involve activities that may result in a discharge of harmful substances to waters of the State, the RWQCBs have the option to regulate such activities under their state authority in the form of Waste Discharge Requirements (WDRs) or certification of WDRs.

California Fish and Game Code Section 1600

Streams, lakes, and riparian vegetation serving as habitat for fish and other wildlife species, are subject to jurisdiction by the CDFW under Sections 1600-1616 of the CFGC. Any activity that will do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake generally require a Lake or Streambed Alteration Agreement (LSAA).

The term "stream," which includes creeks and rivers, is defined in the CCR as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life." This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation (14 CCR 1.72).

In addition, the term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as "on, or pertaining to, the banks of a stream;" therefore, riparian vegetation is defined as, "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFW, 1994). Removal of riparian vegetation also requires a LSAA from the CDFW.

Humboldt County Streamside Management Area Ordinance

Riparian and wetland habitats receive protection under Humboldt County's Streamside Management Area Ordinance (SMAO); as defined in Title 3, Section 314-61.1 of the Humboldt County Code. Development and work within Streamside Management Areas (SMAs) requires a special permit from the County, if those activities are not exempt. SMAs are identified and modified as follows:

- Areas specifically mapped as SMA and Wetland (WR) Combining Zones, subject to verification and adjustment pursuant to site-specific biological reporting and review procedures.
- For areas along streams not specifically mapped as SMA and Wetland (WR) Combining Zones, the outer boundaries of the SMA shall be defined as:
    - One hundred (100) feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of perennial streams.
    - Fifty (50) feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of intermittent streams.
- Development standards for wetlands shall be consistent with the standards for streamside management areas, as applicable except that the widths of the SMA for wetlands are 50 feet for

seasonal wetlands and 150 feet for perennial wetlands. The setback begins at the edge of the delineated wetland. Buffers may be reduced based on site-specific information and consultation with the California Department of Fish and Wildlife. No buffer shall be required for manmade wetlands except wetlands created for mitigation purposes.

No mapped SMAs, unmapped streams that qualify as SMAs, or riparian vegetation is present. Seasonal wetlands were identified and mapped within the study area and a 50-foot setback has been identified from the edge of the delineated features.

METHODS

TransTerra staff conducted a wetlands delineation focused on identifying wetlands that meet the definition of the USACE. Holly Vadurro and Kale McNeil, associate Biologists of TransTerra Consulting conducted the wetland delineation on July 27 and August 4, 2022. Holly is certified in wetland delineation and collectively has experience delineating wetlands in Humboldt and Del Norte Counties. The wetlands delineation followed the USACE criteria (three-parameter approach) from the Corps of Engineers Wetlands Delineation Manual[3] and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0) [4] as well as the CCC one-parameter approach.

The investigation was conducted after abnormally dry, severe drought conditions[5] and 1.53 inches of rain in the month of June 2022 (Table 2). Conditions were partly cloudy throughout the day. TransTerra staff used a combination of existing data to stratify and delineate wetland polygons, including outstanding green vegetated areas, unvegetated areas, and visible inundation prior to fieldwork. Watercourses and nearby wetland areas were identified through the Humboldt GIS Portal[6] and the National Wetlands Inventory (NWI)[7]. Anthropogenic and natural disturbance patterns were evaluated using historical aerial imagery. This information was used to assess proper transect location. The field is frequently irrigated and was irrigated before the August 4 field visit.

Vegetation and soil data were collected at two transects across the presumed wetland boundaries with two pits in total (upland/wetland). Soil pits were dug to approximately 15 inches with no restrictive layers present. Data on soil color, texture, redoximorphic features, and hydrologic conditions were collected. The upland areas and wetland ditch area identified by SHN vegetation and hydrology were investigated visually to confirm findings, however additional soil pits were not dug in these locations.

[3] Corps of Engineers Wetlands Delineation Manual, 1987. (Accessed via https://www.lrh.usace.army.mil/Portals/38/docs/USACE%2087%20Wetland%20Delineation%20Manual.pdf)

[4] USACE Regional Supplement to the Corps of the Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (Accessed via https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046494.pdf)

[5] https://www.drought.gov/drought/states/california

[6] https://webgis.co.humboldt.ca.us/HCEGIS2.0/

[7] https://www.fws.gov/wetlands

Vegetation data collection consisted of listing the dominant species at each plot. The species were classified as to whether or not they are wetlands indicators, using the most current standard references for plant wetland indicators: State of California 2018 Wetland Plant List[8] and the USACE 2018 National Wetland Plant List for WMVC[9]. The lists classify plants based on the probability that they would be found in wetlands, ranging from Obligate (almost always in wetlands), Facultative/wet (67% to 99% in wetlands), Facultative (34% to 66% in wetlands), Facultative/up 1% to 33% in wetlands) to Non-indicator (less than 1% in wetlands). Plants not listed are included in the uplands category. If 50% or greater of the dominant plant species at each plot were classified as either Obligate (OBL), Facultative/wet (FACW), or Facultative (FAC), the vegetative mix was determined to be hydrophytic (wetland plants).

A determination of the wetland boundary was made based on soil, hydrology (if present), and vegetative parameters (*i.e.*, a three-parameter approach). Once wetland and upland characteristics were determined for each transect, data points were collected on the wetland boundary. Transect points along the wetland boundary were mapped using Avenza Global Positioning System (GPS) tracking system and Google Earth Pro (v.7.3) aerial imagery. Polygons were created using ArcMap 10.8., 2020 aerial imagery and remote sensing.

Table 2. Precipitation and Temperatures for the July and August Survey Period[10]

Date	Temperature (f)				Precipitation
	Maximum	Minimum	Average	Departure	
7/5/2022	64	56	60.0	2.9	0.35
7/6/2022	64	56	60.0	2.8	T
7/7/2022	65	55	60.0	2.8	0.00
7/8/2022	63	54	58.5	1.2	0.00
7/9/2022	67	55	61.0	3.6	0.00
7/10/2022	65	57	61.0	3.6	0.00
7/11/2022	69	53	61.0	3.5	0.00
7/12/2022	63	55	59.0	1.4	0.00
7/13/2022	63	53	58.0	0.4	0.00
7/14/2022	60	53	56.5	-1.2	0.00
7/15/2022	66	51	58.5	0.8	0.00
7/16/2022	65	54	59.5	1.7	0.01
7/17/2022	63	53	58.0	0.1	0.00
7/18/2022	64	49	56.5	-1.4	0.00
7/19/2022	62	52	57.0	-1.0	0.00

[8] State of California 2016 Wetland Plant List (Accessed via http://wetland-plants.usace.army.mil/nwpl_static/data/DOC/lists_2016/States/pdf/CA_2016v1.pdf)

[9] USACE NWPL 2018 (Accessed via https://cwbi-app.sec.usace.army.mil/nwpl_static/v34/home/home.html)

[10] National Weather Service Forecast Office-Eureka, CA (Eureka, CA. Accessed via https://w2.weather.gov/climate/xmacis.php?wfo=eka)

Date	Temperature (f)				Precipitation
	Maximum	Minimum	Average	Departure	
7/20/2022	61	52	56.5	-1.5	0.00
7/21/2022	63	53	58.0	-0.1	0.01
7/22/2022	63	55	59.0	0.9	0.00
7/23/2022	63	54	58.5	0.3	T
7/24/2022	61	51	56.0	-2.2	0.00
7/25/2022	58	51	54.5	-3.8	0.00
7/26/2022	63	51	57.0	-1.3	0.00
7/27/2022	62	51	56.5	-1.8	0.00
7/28/2022	66	53	59.5	1.1	0.00
7/29/2022	63	56	59.5	1.1	T
7/30/2022	67	56	61.5	3.1	T
7/31/2022	67	57	62.0	3.5	0.00
8/1/2022	66	57	61.5	3.0	0.00
8/2/2022	64	55	59.5	5	0.00
8/3/2022	64	55	59.5	5	0.00
8/4/2022	64	54	59.5		0.00

RESULTS AND DISCUSSION

The area of investigation contained 2.44 acres of jurisdictional wetland. The wetlands include two areas of seasonal PEM wetlands, approximately 2.3 acres and 0.14 acre in size. These wetlands appear to be hydrologically connected to Liscom Slough via man made ditches, falling within the jurisdiction of USACE, NCRWQCB, and CDFW. In addition, these wetlands must be considered for the Humboldt County SMA policies. (Figure 3)

Water was not present in the wetlands as standing water, saturation, and water table. Along with lower recent rainfall, severe drought conditions are also currently present for this region.

The location of wetland observation pits were chosen based upon obvious hydrological indicators. Field Forms are attached to this document (Appendix C).

Table 3. Summary of Wetland Pit Observations

Pit No.	Vegetation	Soils	Hydrology	Wetland Status
TP1	Hydrophytic (Dominance Test)	Hydric-Redox Dark Surface (F6)	Oxidized Rhizospheres (C3)	Seasonal Wetland-PEM
TP2	Hydrophytic (Dominance Test)	Not Hydric	No Indicators	Upland
TP3	Hydrophytic (Dominance Test)	Hydric-Redox Dark Surface (F6)	Oxidized Rhizospheres (C3)	Seasonal Wetland-PEM
TP4	Hydrophytic (Dominance Test)	Not Hydric	No Indicators	Upland
TP5	Hydrophytic (Dominance Test)	Hydric-Redox Dark Surface (F6)	Oxidized Rhizospheres (C3), Inundation Visible Aerial (B7)	Seasonal Wetland-PEM
TP6	Hydrophytic (Dominance Test)	Hydric-Redox Dark Surface (F6)	Saturation (A3)	Seasonal Wetland-PEM

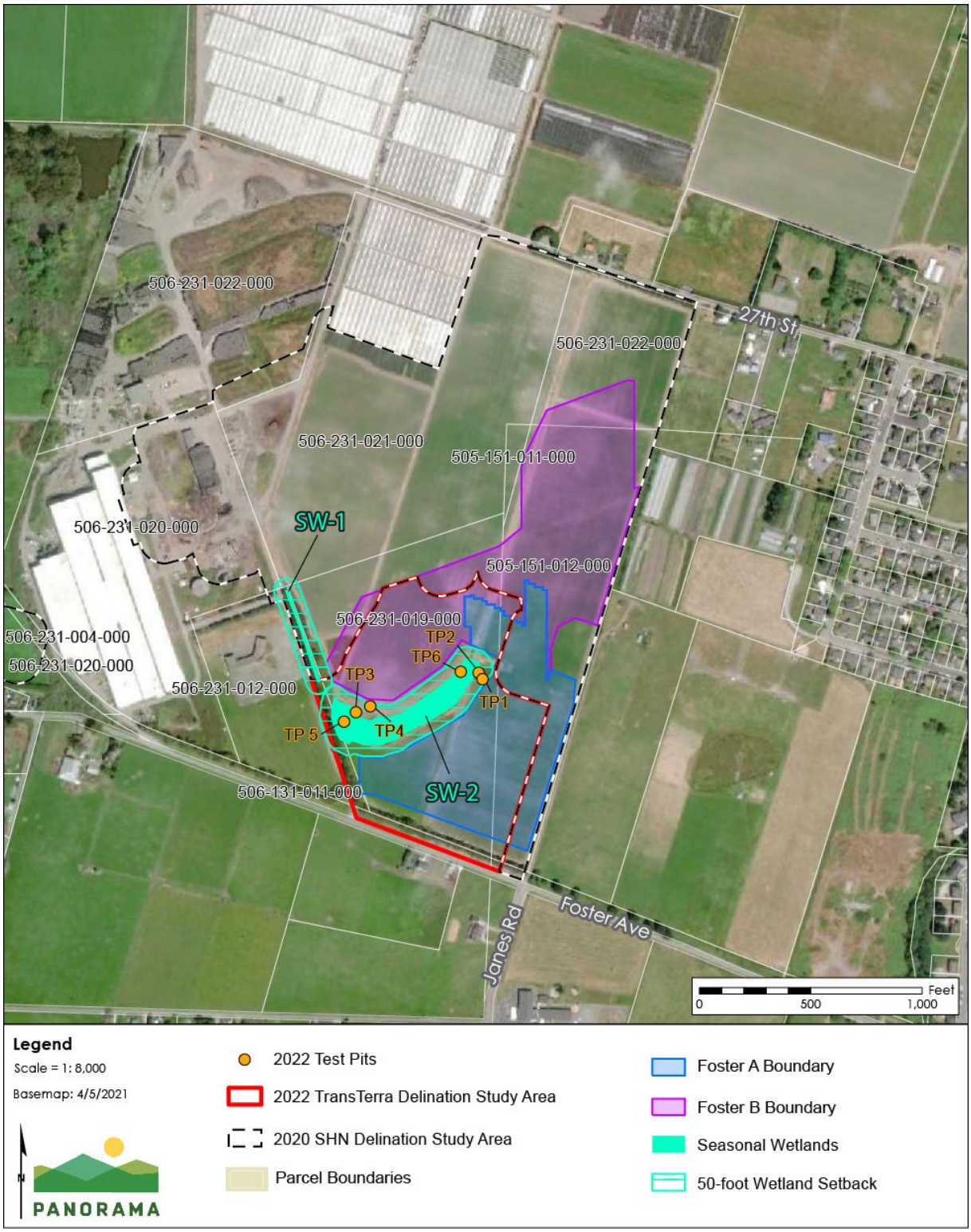

Figure 4. Wetland Delineation Results

RECOMMENDATIONS

Follow all recommendations outlined by existing agency policies for minimizing impacts to natural resources and begin technical assistance to determine the possible extent of impacts to listed resources and appropriate mitigation measures. Recommendations for the project site include the following measures:

- Provide a fifty (50) foot buffer around wetlands and avoid impacts to any buffer areas.
- If impacts to wetlands are expected (either directly or indirectly by working inside or prescribed buffers), develop a Mitigation and Monitoring Plan to minimize disturbance to the area. Numerous seeps provide evidence of shallow groundwater in this area, and additional disturbance, clearing, and road cuts would likely modify existing groundwater and surface water patterns. Additional disturbance to this area could also potentially impact aquatic species.
- To avoid wetland impacts, place temporary fencing or otherwise demarcate wetlands and or prescribed buffers prior to construction.
- Install and maintain temporary erosion and sediment control measures and best management practices (BMPs) to reduce sediment entering the wetland and traveling to waters.

Please contact me with any comments or concerns regarding this memorandum or future work required for your project. I can be reached at tami@trans-terra.com or (707) 840-4772. I have included our qualifications as an attachment to this memorandum as it is often requested by agency personnel reviewing work of this nature. (Appendix B)

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APPENDIX A—Site Photographs

Photo 1. TP1

Photo 2. TP2

Photo 3. TP3

Photo 4. TP4

APPENDIX A—Site Photographs

Photo 5. TP5

Photo 6. TP6

Photo 7. View of wetland from Northeast edge

Photo 8. View of wetland from the south

APPENDIX B—Qualifications

Tami Camper-*Owner-Principal Biologist*

Tami is the founder of TransTerra Consulting LLC. She obtained a Bachelor of Science in Environmental Science from Western Washington University and Master of Science. in Biology from Calpoly Humboldt. She has worked on publications including a rare plant guide for timberlands of Mendocino County published by MCRCD. She has worked as a professional biologist and conducted wetland delineations for 20 years, specializing in wetland/stream surveys, wildlife/vegetation mapping, rare species surveys, biological assessments, impact assessments, mitigation and monitoring plans, CEQA/NEPA and land-use planning. Tami received the Richard Chinn Wetland Delineation 40-hour certification in 2002.

Holly Vadurro-*Biologist/Botanist*

Holly earned a Bachelor of Science degree in Biology from College of Charleston, in 1996. She has performed various biological field surveys including botanical, fishery, mollusk, amphibian, bryophyte and migratory birds. She has over a decade of experience working as an Environmental Scientist and has conducted wetland delineations, botanical surveys, vegetation mapping and collected and analyzed water quality data. Holly received the Richard Chinn Wetland Delineation 40-hour certification in 2004.

Kale McNeil-*Botanist*

Kale holds Bachelor of Science Degree in Botany from Humboldt State University (now Calpoly Humboldt), has over years of experience conducting botanical surveys and is currently pursuing a Master of Science Degree in Biology.

APPENDIX C— Field Forms

APPENDIX C— Field Forms

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

Project/Site: Foster City/County: Arcata/Humboldt Sampling Date: 7-27-22
Applicant/Owner: Panorama (Client) State: CA Sampling Point: TP 1
Investigator(s): Holly V. Kale M Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace prairie Local relief (concave, convex, none): flat Slope (%): 0
Subregion (LRR): Lat: Long: Datum:
Soil Map Unit Name: Arcata North USGS NWI classification: in on HUMWEB GIS (NWI)
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: severe drought
Area managed for agricultural purposes - drought

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: 20')			
1. Ranunculus repens	40	Y	FAC
2. Holcus lanatus	30	Y	FAC
3. Festuca perenne	10	N	FAC
4. Agrostis stolonifera	8		FAC
5. Rumex crispus	6		FAC
6. Plantago lanceolata	2		FACU
7. Trifolium repens	2		FAC
8. Helminthotheca echioides	2		FAC
9.			
10.			
11.			
	100 = Total Cover		
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: 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
✓ 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 ____

Remarks: close by but not within plot radius: Juncus effusus; J. patens, Salix hookeriana; S. lasiolepis; Rubus armeniacus

APPENDIX C— Field Forms

Sampling Point: TP1

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
0-15"	10YR 2/1	98	7.5YR 3/4	2	C	M	silty clay loam	

[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: NO

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

.5% of redox features were along pore linings. Redox was consistently represented as "dots" throughout

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 ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ___

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

Remarks: not in mowed or tilled area

APPENDIX C— Field Forms

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

Project/Site: Foster City/County: Arcata/Humboldt Sampling Date: 7-27-22
Applicant/Owner: Panorama (client) State: CA Sampling Point: TP2
Investigator(s): Holly V. Cale M Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace prairie Local relief (concave, convex, none): flat Slope (%): 0
Subregion (LRR): Lat: Long: Datum:
Soil Map Unit Name: Arcata North USGS NWI classification: in on HUMWEB GIS (NWI)
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Severe drought
Area irrigated/tilled/mowed upland next to feature (north)

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: 20')			
1. Holcus lanatus	35	Y	FAC
2. Trifolium repens	35	Y	FAC
3. Trifolium pratense	5	N	FACU
4. Plantago lanceolata	5	N	FACU
5. Rumex crispus	3	N	FAC
6. ~~Yellow composite/cultivar~~	1		
7. Festuca perenne	5	N	FAC
8. Agrostis stolonifera	5	N	FAC
9. Convolvulus arvensis	1	N	UPL
10.			
11.			
	95 = Total Cover		
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: 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
✓ 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 ____

Remarks: This test pit is right on the wetland boundary line

APPENDIX C— Field Forms

Sampling Point: TP 2

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
0-15	7.5YR 3/2	100					silty clay	

[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:
less moisture; no redox, more brown (not black)
tilled

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 ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:
In mowed / tilled area

APPENDIX C— Field Forms

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

Project/Site: Foster City/County: Arcata/Humboldt Sampling Date: 7-27-22
Applicant/Owner: Panorama (Client) State: CA Sampling Point: TP3
Investigator(s): Holly V, Kate M Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace prairie Local relief (concave, convex, none): flat Slope (%): 0
Subregion (LRR): Lat: Long: Datum:
Soil Map Unit Name: Arcata North USGS NWI classification: in on HUMWEB GISCAW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Dipsacus fullonum	25	Y	FAC
2. Daucus carota	10	Y	FACU
3. Holcus lanatus	10	Y	FAC
4. Hetmintholheca echioides	9	N	FAC
5. Convolvulus arvensis	5	N	UPL
6. Agrostis stolonifera	9	N	FAC
7. Vicia tetrasperma	10	Y	UPL
8. Geranium dissectum	1	N	UPL
9. Lotus corniculatus	2	N	FAC
10. Sonchus oleraceus	1	N	UPL
11. Festuca perennis	8	N	FAC
	90 = Total Cover		
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: 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 ____

Remarks:

APPENDIX C— Field Forms

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
0-14"	10YR 4/2	88	10YR 4/6	12	C	M	silty clay	
14+								

[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: Just south of the point is an area dominated by Potentilla drying @ it's wetter darker but looks similar, this pit was entirely dry

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 ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

APPENDIX C— Field Forms

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

Project/Site: Foster Ave City/County: Arcata/Humboldt Sampling Date: 7/27/22
Applicant/Owner: Pamprawia (Client) State: CA Sampling Point: TP4
Investigator(s): Holly V., Kale M. Section, Township, Range:
Landform (hillslope, terrace, etc.): Terrace prairie Local relief (concave, convex, none): flat Slope (%):
Subregion (LRR): Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: severe drought

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: ____)			
1. Plantago lanceolata	39	Y	FACU
2. Daucus carota	8	N	FACU
3. Festuca perennis	10	N	FAC
4. Trifolium repens	18	Y	FAC
5. Helminthotheca echioides	3	N	FAC
6. Trifolium praetense	5	N	FACU
7. festuca pyre	1		
8. Lysimachia arvensis	1	N	FAC
9. Leontodon saxatilis	2	N	FACU
10. Hulcus lanatus	2	N	FAC
11. Rumex acetocella	1	N	FACU
	90 = Total Cover		18/45
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: 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 ____

Remarks: agricultural field (mowed recently but plants identifiable)

APPENDIX C— Field Forms

Sampling Point: TP4

SOIL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					silt loam	

[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:

low chroma but no redox
area plowed historically

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 ✓ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

APPENDIX C— Field Forms

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

Project/Site: FosAcr City/County: Arcata/Humboldt Sampling Date: 8/4/22
Applicant/Owner: Panorama (Client) State: CA Sampling Point: TP5
Investigator(s): Holly V. Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): 0
Subregion (LRR): Lat: Long: Datum:
Soil Map Unit Name: NWI classification: n
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.) severe drought
Are Vegetation ____, Soil ____, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Drought year. Area used for ag. (plowed, hay, irrigation)

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: ____)			
1. Potentilla anserina ssp. pacifica	46	Y	OBL
2. Agrostis stolonifera	40	Y	FAC
3. Cirsium maculatum	6	N	FAC
4. Juncus fullonum	5	N	FAC
5. Rumex crispus	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum ____			

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
✓ 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 ____

Remarks: 100 / 14 / 86

APPENDIX C— Field Forms

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
0-5"	10YR3/2	100					silty clay loam	
5-14"	10YR3/2	93	7.5YR4/6	7	C	M	silty clay loam	

[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): n/a

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Imagery shows area plowed historically

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 ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

APPENDIX C— Field Forms

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

Project/Site: Foster Ave. City/County: Arcata / Humboldt Sampling Date: 8/4/22
Applicant/Owner: Panorama (Client) State: CA Sampling Point: T6
Investigator(s): Holly V Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): 0
Subregion (LRR): Lat: Long: Datum:
Soil Map Unit Name: NWI classification: N
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.) severe drought
Are Vegetation ____, Soil ____, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Years ago the entire "Arcata Bottoms" were wetland. Post construction of HWY 101 the area was significantly altered dyked & filled.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix species			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Salix hookeriana	12	Y	FACW
2. Salix lasiolepis	8	Y	FACW
3.			
4.			
5.			
	20 = Total Cover	10/4	
Herb Stratum (Plot size: ____)			
1. Ranunculus repens	35	Y	FAC
2. Agrostis stolonifera	25	Y	FAC
3. Holcus lanatus	14	N	FAC
4. Juncus effusus	12	N	FACW
5. Juncus balticus	7	N	OBL
6. Dipsacus fullonum	4	N	FAC
7. Typha spp.	3	N	OBL
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (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 ✓ No ____

Remarks:

APPENDIX C— Field Forms

Sampling Point: TP6

SOIL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR2/1	100					silty clay loam	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)
- ___ 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): n/a

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 ✓ Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): 2

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks: recently irrigated