Attachment 4D

Jurisdictional Wetland Delineation for Maple Creek Property

APN 315-011-009

February 2019

Prepared For:

Maple Creek Investments LLC

Prepared by:

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TransTerra Consulting
INTEGRATED ENVIRONMENTAL SERVICES

EXECUTIVE SUMMARY

The purpose of this report is to provide an assessment of the type and extent of jurisdictional wetlands and waters affected by cannabis cultivation and grading for the Maple Creek property. Jurisdictional resources considered for this report include 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 Tami Camper M.A. of TransTerra Consulting October 24, 2018 using the USACE Regional Supplement to the Corps of the Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). A subsequent site visit was conducted by Cameron Purchio of Mother Earth Engineering on April 19, 2019. The subsequent visit was to investigate areas for proposed cannabis cultivation along the southwestern boundary. The proposed project is located off Maple Creek Road near Maple Creek in Humboldt County, CA on the U.S. Geological Survey's (USGS') Korbel 7.5-minute quadrangle map.

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. Generally, the limits of non-wetland "waters of the U.S." are identified by the presence of an ordinary high-water mark (OHWM). The limits of CDFW jurisdictional waters in this project were identified as the top of bank.

The area of investigation contained 1.29-acres of jurisdiction wetland. The wetland is hydrologically connected to Maple Creek within the jurisdiction of USACE, NCRWQB, and CDFW and must be considered for the Humboldt County SMA policies. The wetland area includes 0.11-acres of Palustrine Emergent Wetland (PEM), 0.17-acres of seasonal Palustrine Scrub-Shrub and .51-acres of Riverine Unconsolidated Bottom (R3U).

Best management practices, buffers and any required mitigation will be determined in subsequent document for Mitigation and Monitoring.

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1.0 Introduction

1.1 Purpose and Need

This Jurisdictional Wetland Delineation report and was prepared to provide data concerning the type and extent of wetlands under the jurisdiction of the US Army Corps of Engineers (USACE), North Coast Regional Water Quality Control Board (NCRWQCB); and California Department of Fish and Wildlife (CDFW). This report is in response to the Deficiency Letter sent by the County of Humboldt Planning and Building Department Cannabis Services Division on January 29, 2019. This report is based on the fieldwork performed on October 24, 2018. The project includes commercial cannabis cultivation and associated activities.

2.0 Regulatory Background

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

The USACE Regulatory Branch regulates activities that may discharge dredged or fill materials into "waters of the U.S." under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all "waters of the U.S." where the material (1) replaces any portion of a "waters of the U.S." with dry land or (2) changes the bottom elevation of any portion of any "waters of the U.S.". These fill materials include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these waters. The selection of disposal sites for dredged or fill material is done in accordance with guidelines specified in Section 404(b)(1) of the CWA, which were developed by the U.S. Environmental Protection Agency (USEPA).

2.2 Regional Water Quality Control Board (RWQCB)

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB's jurisdiction extends to all "waters of the State" and to all "waters of the U.S.," including wetlands (isolated and non-isolated).

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality. Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide certification that there is reasonable assurance an activity with the potential for discharge into navigable waters will not violate water quality standards. Water Quality Certification must be based on findings that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives found in each of the nine RWQCBs' Basin Plans.

2.3 California Department of Fish and Wildlife

The CDFW has jurisdictional authority over wetland resources associated with rivers, streams, and lakes pursuant to the California Fish and Game Code (§§1600–1616). Activities of state and local agencies, as well as public utilities that are project proponents, are regulated by the CDFW under Section 1602 of the California Fish and Game Code.

Because the CDFW includes streamside habitats under its jurisdiction that, under the federal definition, may not qualify as wetlands on a project site, its jurisdiction may be broader than that of the USACE. Riparian forests in California often lie outside the plain of ordinary high water regulated under Section 404 of the CWA, and often do not have all three parameters (wetland hydrology, hydrophytic vegetation, and hydric soils) sufficiently present to be regulated as a wetland.

However, riparian forests are frequently included within CDFW regulatory jurisdiction under Section 1602 of the California Fish and Game Code.

The CDFW jurisdictional limits are not as clearly defined by regulation as those of the USACE. While they closely resemble the limits described by USACE regulations, they include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric and saturated soils conditions. In general, the CDFW extends jurisdiction from the top of a stream bank or to the outer limits of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place within or near a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species. It also includes watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

2.4 Humboldt County-Streamside Management Area:

"Streamside Management Areas" (SMAs) [Section 3432(5) of the Humboldt County 1984 General Plan] are defined in the Humboldt County General Plan (Page G-8) and include a natural resource area along both sides of streams containing the channel and adjacent land. Updates to the SMA guidance for cannabis activities are defined in the Environmental Impact Assessment Biological Resources Section[1].

Project applicants proposing development activities within a SMA or wetland areas are required to include a site-specific biological report prepared consistent with these regulations. The written report prepared by a qualified biologist is subsequently referred to CDFW for review and comment. If required, after agency review of the preliminary habitat assessment, protocol level surveys will be completed per recommendations by the Final Environmental Impact Report (FEIR) amendments to the Humboldt County Code Regulating Commercial Cannabis Activities[2].

2.5 Additional Laws and Policies

In addition to the above-mentioned policies, numerous other policies exist to protect wetlands, waters and biological resources including the California Environmental Quality Act (CEQA), California Endangered Species Act (CESA) and the Z'berg-Nejedly Forest Practice Act.

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[1] Humboldt County General Plan-Revised DEIR (Accessed via https://humboldtgov.org/DocumentCenter/View/58840/Section-311-Biological-Resources-Revised-DEIRPDF)
[2] Final Environmental Impact Report :Amendments to the Humboldt County Code Regulating Commercial Cannabis Activities. January 2018. Prepared by Ascent Environmental. Accessed via https://humboldtgov.org/DocumentCenter/View/62689/Humboldt-County-Cannabis-Program-Final-EIR60mb-PDF.

3.0 Environmental Setting

3.1 Location

The project area is located off Maple Creek Road in Maple Creek area (Section 6, T4N, R3E) in Humboldt County, California. The project is located on a 42-acre parcel within the U.S. Geological Survey's (USGS) Korbel 7.5-minute quadrangle map. Elevation is approximately 400-700 feet above sea level. Property is in the Mad River Watershed.).[3] (Figure 1)

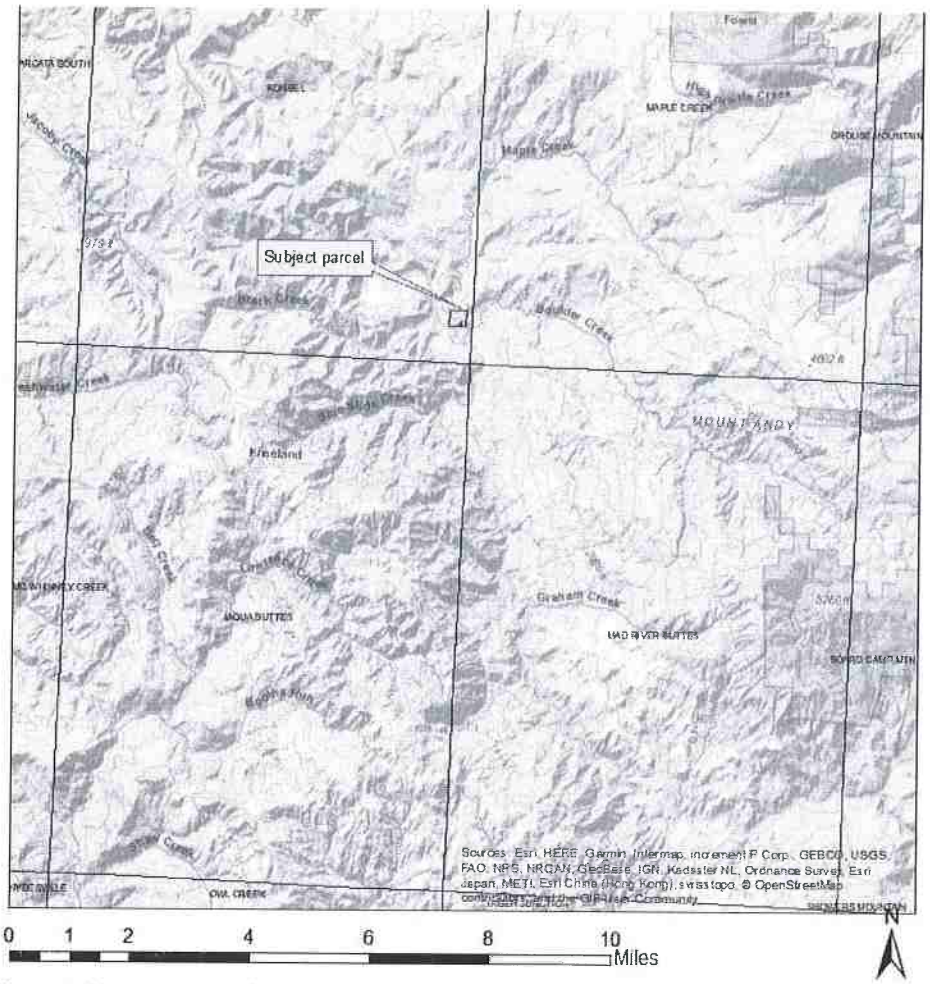

Figure 1. Project Location (created using ArcMap 10.6 and Humboldt County APN GIS layer)

[3] Humboldt County GIS Desktop (Accessed via http://webgis.co.humboldt.ca.us/HCEGIS2.0/)

3.2 Soil, Topography, Hydrology

Two soil types are mapped in the project area on the Web Soil Survey. The parcel is primarily composed of Wiregrass-Pittplace-Scaath complex, 9 to 30 percent slopes (584) and Coppercreek-Slidecreek-Lackscreek complex, 30 to 50 percent complex. These soils are not considered hydric and are on deep, well drained soils that formed in colluvium derived from sandstone and mudstone found on hills and mountains. [4]

The Wiregrass series consists of very deep, well drained soils that formed in colluvium and residuum from schist, sandstone, and mudstone. Wiregrass soils are on mountains and have slopes of 0 to 75 percent. The mean annual precipitation is about 2290 millimeters (90 inches) and the mean annual temperature is about 12 degrees C (54 degrees F). Pittplace soils have more than 35 percent clay in their control sections and are above the Wiregrass soils on gentler slopes. Scaath soils are loamy-skeletal in their control sections and are on convex slopes or on spur ridges above the Wiregrass soils.

The Coppercreek series consists of very deep, well drained soils that formed in colluvium and residuum from schist, sandstone, and mudstone. Coppercreek soils are on mountains and have slopes of 9 to 75 percent. The mean annual precipitation is about 2160 millimeters (85 inches) and the mean annual temperature is about 11 degrees C (52 degrees F). Lackscreek soils are loamy-skeletal in their control sections, are 50 to 102 centimeters (20 to 40 inches) deep to bedrock and are on convex slopes or on spur ridges above the Coppercreek soils. Slidecreek soils are also loamy-skeletal in their control sections and are alongside the Coppercreek soils on very gravelly colluvium.

The project area ranges from 15 to 30% sloping at approximately 500-550 feet above sea level. Project area has two (2) class II watercourses that drain to the Mad River approximately 500 feet to the southwest. Mad River and sequential streamside management areas (SMA) runs through the southwestern portion of the parcel. The area is mapped as possessing low levels of instability in the Humboldt County GIS database near the Eaton Roughs fault zone.

3.3 Vegetation

Vegetation is variable throughout the parcel, but primarily composed of mixed evergreen forest. Dominant trees species included *Pseudotsuga menziesii* var *menziesii* (Douglas fir), *Umbellularia californica* (California bay), *Acer macrophyllum* (big leaf maple), *Quercus kelloggii* (California black oak), *Fraxinus latifolia* (Oregon ash), and *Arbutus menziesii* (madrone). Shrub species and density were variable depending upon hydrology and canopy. Most areas were dominated by *Rosa gymnocarpa* (wood rose), *Baccharis pilularis* (coyote brush), *Rubus armeniacus* (Himalayan blackberry), *R. parviflorus* (thimbleberry), *R. leucodermis* (white-stemmed raspberry), *Pteridium aquilinum* var. *pubescens* (Western bracken fern), *Toxicodendron diversilobum* (poison oak), *Symphoricarpos mollis* (creeping snowberry), *Holodiscus discolor* (oceanspray), *Cotoneaster* sp. (cotoneaster), and *Rhamnus purshiana* (coffeeberry) as well as small tree species. The herb layer ranged from very dense to sparse, also dependent upon canopy and hydrology. Species observed included Equisetum

[4] Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. (Accessed via: https://websoilsurvey.sc.egov.usda.gov/)

telmateia spp. braunii (giant horsetail), *Juncus effuses* (common rush), *Hypericum perforatum* (Klamathweed), *Leucanthemum vulgare* (oxeye daisy), *Holcus lanatus* (velvet grass), *Urtica dioica* (stinging nettle), *Prunella vulgaris* (self-heal), *Rubus ursinus* (California blackberry), *Plantago lanceolata* (English plantain), *Anthoxanthum odoratum* (sweet vernal grass), *Mentha pulegium* (pennyroyal), *Parentucillia viscosa* (yellow glandweed), *Briza major* (large rattlesnake grass), *Cynosurus echinatus* (hedgehog dogtail grass), *Trientalis latifolia* (Pacific starflower), *Clinopodium douglasii* (yerba buena), *Ranunculus repens* (creeping buttercup), Lonicera hispidula (hairy honeysuckle), *Whipplea modesta* (modesty), *Anaphalis margaritacea* (pearly everlasting), *Trifolium* sp., *Cirsium* sp., *Avena* sp.. Nomenclature follows the most current scientific names in The Jepson Manual of Higher Plants of California Second Edition to the greatest degree feasible[5] Various hydrophytic plants occurred throughout the property both in areas with observed wetland hydrology as well as upland areas with compaction or mesic/shady conditions. Riparian areas near Mad River were distinct, as were seepy wetlands and old road cuts.

Areas around the cultivation site contained older domestic fruit trees including apples and pears. Many appeared to have died after maturity due to an increase in soil moisture, possibly from road runoff originating at Maple Creek road or ground water exposed ground water from historic excavation.

4.0 Methods

4.1 Wetland and Waters Delineation

A jurisdictional wetland delineation was conducted per request of the Regional Water Quality Control Board staff on October 24, 2018 by Tamara Camper of TransTerra Consulting. The investigation was conducted after abnormally dry conditions and less than .07 inches of rain in the previous two weeks (Table 1). Conditions were overcast with very light rain. Only the impacted wetland and palustrine wetland mapped on NWI layer were examined. Wetland delineation was performed using the USACE Regional Supplement to the Corps of the Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) [6].

The wetland observation point (Point 1) was chosen based upon obvious hydrology. The pit was excavated as close to the water as possible while still being dry enough to obtain a good core sample. The area was an excavated spring with surface water. The closest, undisturbed upland area was investigated next at Point 2. The last observation point (Point 3) was located in a drainage area near the road and landing. Field Forms are attached to this document.

Soils, vegetation and hydrology were disturbed in some areas of the wetland due to access and excavation of the spring. A modified methodology using visible hydrology of apparent drainage patterns, geomorphic position, and vegetation was used to determine upland/wetland boundaries.

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[5] The Jepson Manual :Higher Plants of California Second Edition (Accessed via http://ucjeps.berkeley.edu/jepman.html)
[6] 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)

The Trimble TDC100 was used for GPS points and tracking, and ArcMap was used to create the wetland map and buffers.

A subsequent site visit was conducted by Cameron Purchio of Mother Earth Engineering on April 19, 2019. The subsequent visit was to investigate areas for proposed cannabis cultivation along the southwestern boundary. Four observations pits were excavated, and field forms were filled out. Pit A was chosen based on visible drainage patterns in the forest above the proposed cultivation areas. Pit B was chosen based upon visible wetland hydrology. Pit C was the closest area that appeared to be upland near Pit B. Pit C was chosen based on drainage patterns in the forest area.

The Riverine area was delineated using visual observations of the break in slope instead of Ordinary High-Water Mark (OHW) per guidelines currently set forth for cannabis regulation.

Table 1: Precipitation table for October survey period [7]

KACV October, 2018									
Date	Observed Low (F)	Observed High (F)	Normal Low (F)	Normal High (F)	Record Low (F)	Year	Record High (F)	Year	Observed Precipitation (inches)
1	53	64	46	63	M	M	M	M	.07
2	56	69	46	63	M	M	M	M	T
3	53	60	45	63	M	M	M	M	0
4	43	61	45	63	M	M	M	M	T
5	42	60	45	63	M	M	M	M	.30
6	46	63	45	63	M	M	M	M	.02
7	41	69	45	63	M	M	M	M	0
8	44	68	45	63	M	M	M	M	0
9	44	65	45	63	M	M	M	M	0
10	40	64	45	63	M	M	M	M	0
11	42	54	45	63	M	M	M	M	0
12	41	73	45	63	M	M	M	M	0
13	41	67	45	63	M	M	M	M	0
14	37	53	44	62	M	M	M	M	0
15	33	68	44	62	M	M	M	M	0
16	37	60	44	62	M	M	M	M	0
17	46	52	44	62	M	M	M	M	0
18	46	56	44	62	M	M	M	M	0
19	48	53	44	62	M	M	M	M	0
20	45	52	44	62	M	M	M	M	0
21	45	51	44	62	M	M	M	M	0
22	46	53	44	62	M	M	M	M	0
23	48	64	44	61	M	M	M	M	.07
24	43	59	44	61	M	M	M	M	0
Average	44.4	61.4	44.4	62.1					0.89 Normal = 2.87

[7] National Weather Service Forecast Office-Eureka, CA (Accessed via https://www.wrh.noaa.gov/climate/monthdisp.php?stn=KACV&year=2018&mon=10&wfo=eka)

Table 2: Precipitation table for April survey period [8]

Date	Observed Low (F)	Observed High (F)	Normal Low (F)	Normal High (F)	Record Low (F)	Year	Record High (F)	Year	Observed Precipitation (inches)
1	51	59	41	56	M	M	M	M	.11
2	52	60	41	56	M	M	M	M	.22
3	52	57	41	56	M	M	M	M	.09
4	52	62	41	56	M	M	M	M	.07
5	51	58	41	56	M	M	M	M	.83
6	50	63	41	56	M	M	M	M	.13
7	56	66	41	56	M	M	M	M	.46
8	48	60	41	56	M	M	M	M	1.31
9	48	57	41	56	M	M	M	M	.08
10	43	58	41	56	M	M	M	M	T
11	46	52	41	56	M	M	M	M	.05
12	45	58	41	56	M	M	M	M	0
13	48	55	41	56	M	M	M	M	T
14	42	56	41	56	M	M	M	M	.05
15	41	55	41	56	M	M	M	M	.09
16	45	56	41	56	M	M	M	M	.11
17	40	58	41	56	M	M	M	M	0
18	46	61	42	56	M	M	M	M	0
19	52	57	42	56	M	M	M	M	0

[8] National Weather Service Forecast Office-Eureka, CA (Accessed via https://www.wrh.noaa.gov/climate/monthdisp.php?stn=KACV&year=2018&mon=10&wfo=eka)

5.0 Results and Discussion

5.1 Jurisdictional Wetland and Waters

The 1.29-acres of wetland examined are jurisdictional features protected by the CWA. The NWI mapped wetland (R3U) extends slightly further than the break in slope and the riparian vegetation along the banks could be considered waters of the state.

Along with hydrology indicators, adult and juvenile beetles in Gyrinidae family and Pacific chorus frog (*Pseudacris regilla*) juveniles were observed in the water. Hydrology for all wetlands appeared to be seasonal. There was evidence of historic grading in the cultivation areas as well as excavation of the spring, use of old skid road.

Vegetation at the mapped in the wetlands was dominated by obligate and facultative wet species such as *Juncus patens* (spreading rush), *Mentha pulegium* (pennyroyal), *Cyperus eragrostis),* (Tall flat sedge), *Equisetum sp.* (horsetail), *Carex obnupta* (slough sedge), *Ranunculus repens* (buttercup) and *Trifolium* sp. (clover) as well as grasses that were lacking identifiable characteristics at the time of the survey. Though the wetlands on the eastern portion of the property were delineated as PSS and PEM, they existed in a somewhat mosaic pattern of shrub, forest and herbaceous species without clearly defined vegetation boundaries. They hydrology was similar for all areas and the vegetation varied primarily based on disturbance and/or canopy level and light exposure.

Vegetation in upland areas was variable, but was primarily composed of mixed evergreen forest with a sparse understory and large amount of small woody debris and leaf litter as well as some area of dense brush where there overstory was more open

Wet areas appeared to be created from a combination of exposed ground water and surface flow from excavation, grading and road drainage primarily.

Fill of wetlands was not observed however the cultivation areas and roads were within the prescribed buffers imposed by the Humboldt County Grading Ordinance for SMAs. The wetland areas contain habitat for various species of concern including project activities for numerous species are possible, including, but not limited to: *Rhyacotriton variegatus* (southern torrent salamander), *Taricha rivularis* (red-bellied newt), *Emys marmorata* (western pond turtle), and multiple plant species. Maple Creek contains habitat for *Oncorhynchus mykiss* irideus (summer-run steelhead trout), *Oncorhynchus tshawytscha* (Chinook salmon), *O. kisutch* (coho salmon), *O. mykiss* (steelhead trout), *Lampretra richardsonii* (western brook lamprey), *Entosphenus tridentata* (Pacific lamprey), and other aquatic and riparian species.

TransTerra Consulting, LLC

Based upon Field Observations October 24, 2018 and April 19, 2019. Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains Valleys and Coast Region. Forms attached to Report.

Yellow polygons outline study area

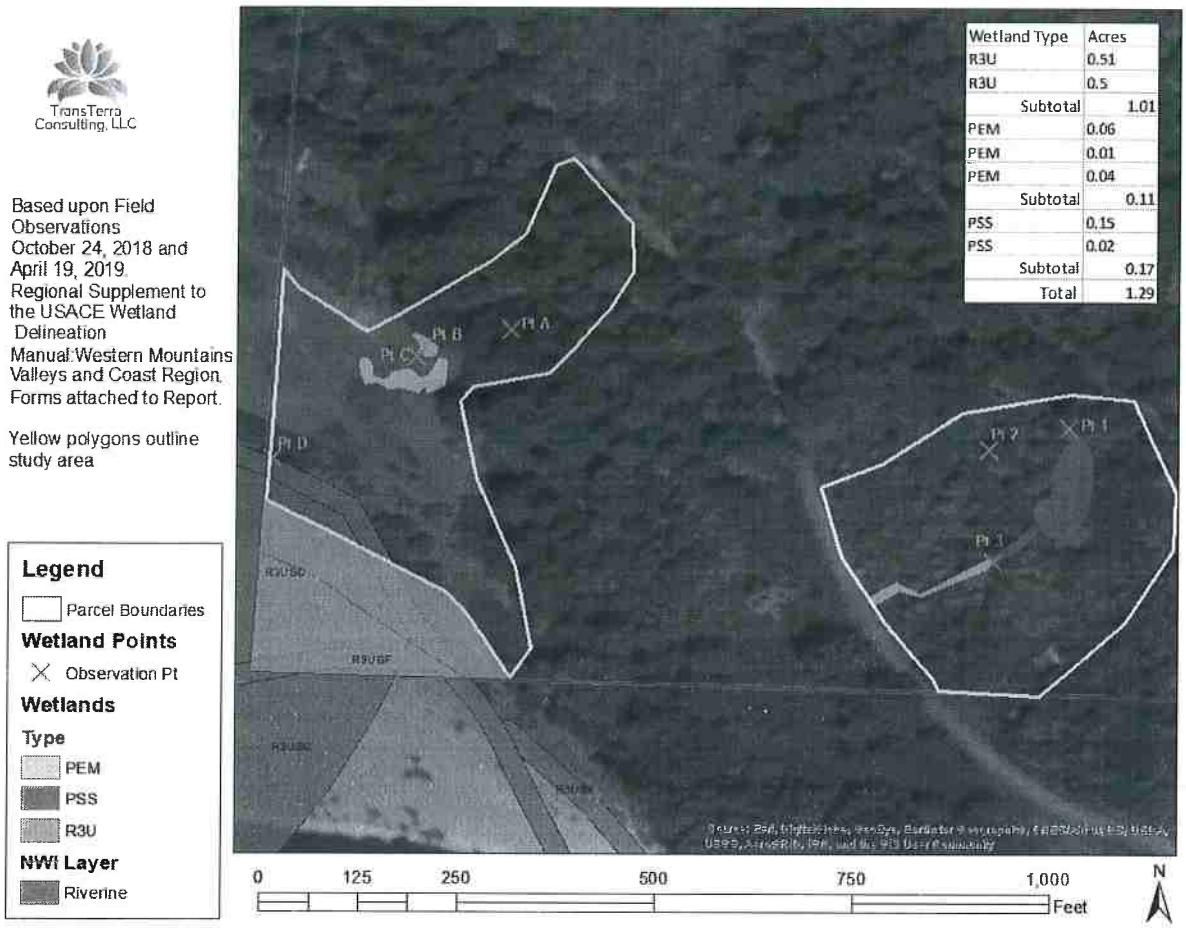

Figure 2: Wetland Delineation Results

5.2 Recommendations

Recommendations for the project site include the following measures:

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.

- If impacts to wetlands are expected, 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. The slopes, combined with wet conditions would likely cause additional erosion and instability in the area, which could subsequently increase direct and indirect effects to water quality and other resources. Additional disturbance to this area could also potentially impact aquatic species.
- Employ temporary erosion control measures and best management practices (BMPs) to reduce sediment entering the wetland and traveling to waters.
- Protocol level surveys prior to additional site disturbance are recommended for any areas where relocation of structures or roads may impact rare or endangered species. Surveys and appropriate protection measure for aquatic species, conducted by a qualified biologist are also recommended for any crossings or points of diversion that are listed for alteration. Consultation with agency personnel from CDFW and USFWS is recommended if project scope changes or additional areas will be disturbed.

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) 845-7483. I have included my project experience as an attachment to this memorandum as it is often requested by agency personnel reviewing work of this nature. (Appendix B)

6.0 References

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

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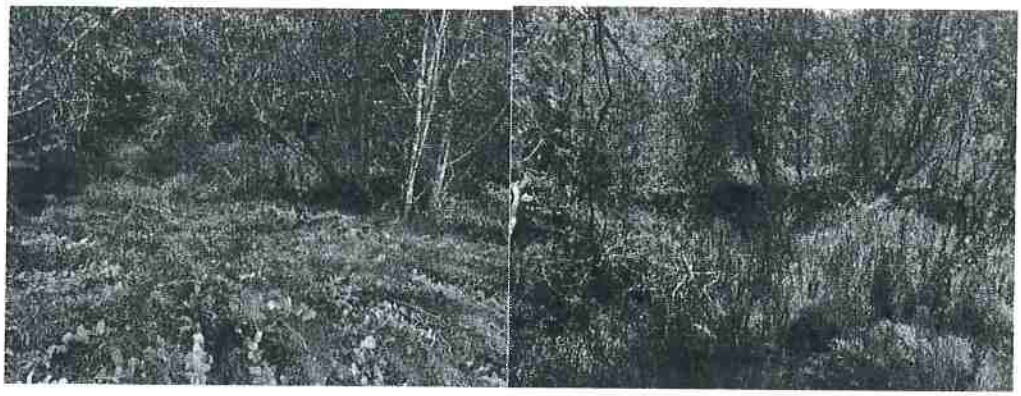
Webgis.co.humboldt.ca.us. (2019). *ArcGIS Web Application.* [online] Available at: http://webgis.co.humboldt.ca.us/HCEGIS2.0/ [Accessed December/18/2018].

Appendix A

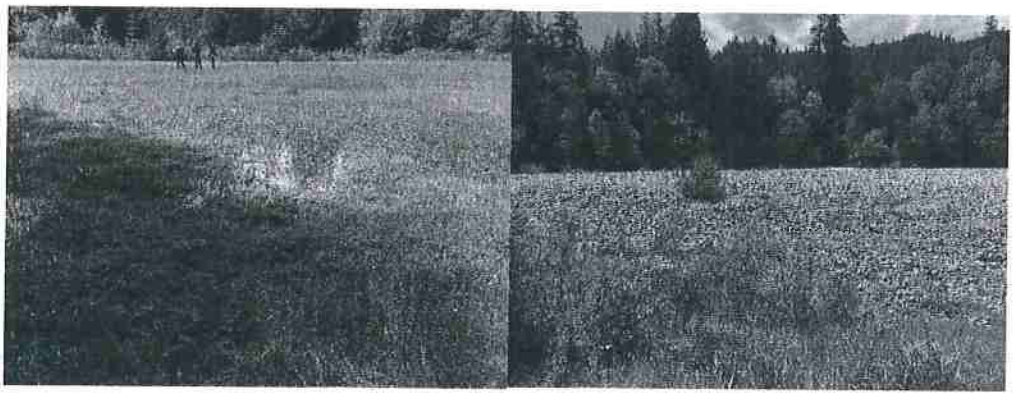
Field Pictures

Typical upland soils (dry) lacking redox features and typical upland vegetation.

Spring area and surrounding wetland scrub mosaic wetland



Wetland areas above Pit 3 and below Pit 1. PEM/PSS



Wetland areas near Maple Creek

Redox features in Pits 1 and 3.

Appendix B

Principle Investigator Qualifications

Tamara Camper
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Education

December 2007-M.A. Biology, HUMBOLDT STATE UNIVERSITY
December 1999-B.S. Environmental Science, WESTERN WASHINGTON UNIVERSITY
RICHARD CHINN 40 HR WETLAND TRAINING DECEMBER 2003

Experience

May 2018-Present-Principle-Environmental scientist, TRANSTERRA CONSULTING LLC
Principal Owner at TransTerra Consulting. Providing Environmental Consulting Services including Biological Assessments, Rare Species Surveys, Vegetation and Habitat Typing/Mapping, Stream and Wetland Surveys, Environmental Impact Assessments, Permitting, Land Use/Planning, and CEQA/NEPA Documents

November 2011-May 2018-Associate Environmental Planner, CALTRANS
Promoted through increasingly responsible positions based on performance and experience in Humboldt, Del Norte and Mendocino. Served as Coastal Liaison, Restoration Specialist and CEQA/NEPA Coordinator. Developed programmatic interagency guidelines, workload coordination, permit process training, budgets, contracts, and internal process efficiency. Wrote and reviewed environmental documents including EAs and IS-MNDs, BAs, Section 7 and 10 consultations, oversaw and conducted biological/wetland surveys, mitigation and monitoring work and reporting.

October 2008-November 2011-Biologist/Environmental Planner, STREAMLINE PLANNING CONSULTANTS
Provided natural resource and policy expertise for a wide-range of public and private projects affecting natural resources. Conducted stream/riparian assessments, botanical surveys, wetland delineation, impact assessments and mitigation/monitoring reports in accordance with CEQA, FPR, ESA, NEPA, the Water Quality Act, Coastal Act and other relevant laws for private landowners. Assisted with consultation, coordination and permit applications for listed species. Developed alternatives and mitigation design and negotiated sensitive and complex issues with multiple stakeholders.

March 2003-November 2008-Owner-Biologist, CAMPER CONSULTING
Provided botanical/wildlife surveys, wetland delineation, impact assessments and mitigation reports in accordance with CEQA and other relevant laws for private land owners. Extensive experience working on commercial and private timberlands for THP/NTMP work.

January 2001-March 2003-Wildlife Technician, CAMPBELL TIMBERLAND MANAGEMENT
Developed a botanical program including the coordination and conduction of botanical surveys, impact assessments, mitigation reports, monitoring studies. Maintained public relations and relationships with state and federal agency personnel. Developed and maintained GIS and other databases for survey findings. Assisted with NSO, anadromous fish and amphibian monitoring, surveying and habitat analysis.

March 2000-October 2000-Fisheries Technician, MENDOCINO REDWOOD COMPANY
Conducted anadromous fish and amphibian monitoring, surveying and habitat analysis. Utilized dive counts, electrofishing, sediment sampling, fish trapping, insect sampling and water quality monitoring to assess impacts to salmonids and other aquatic species in conjunction with the Department of Fish and Wildlife.

May 1998-January 1999-Botanical Propagation Specialist, SKAGIT ROSE FARMS
Identified, propagated and maintained an inventory of native plants of the Northwest Coastal Region. Researched and developed interpretive gardens of native plant ecosystems

Appendix C

Field Forms

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

Project/Site: Maple Creek-009 City/County: Maple Creek, HUM Sampling Date: 10/24/10

Applicant/Owner: SHP's IMCA State: / Sampling Point: [illegible]

Investigator(s): T. Cooper Section, Township, Range: —

Landform (hillslope, terrace, etc.): — Local relief (concave, convex, none): — Slope (%): 14%

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: excavated spring - taken on downhill side at edge of water

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1. Alnus rubra	<1	✓	FAC
2. Acer macrophyllum	<1	✓	FACU
3.			
4.			
= Total Cover	<1		
Sapling/Shrub Stratum (Plot size: ______)			
1. A. rubra	5	✓	FAC
2. Rubus armeniacus	5	✓	FAC
3. Pteridium aquilinum	5	✓	FACU
4. Conyza canadensis (Erigeron)	<1		FACU
5.			
= Total Cover	16	8	
Herb Stratum (Plot size: ______)			
1. Juncus effusus	10	✓	FACW
2. Juncus patens	10	✓	FACW
3. Leucanthemum	5		FACU
4. Equisetum telm.	5		FACW
5. Mentha sp.	2		OBL
6. Veronica sp.	2		OBL
7.			
8.			
9.			
10.			
11.			
= Total Cover	34	17	
Woody Vine Stratum (Plot size: ______)			
1. Rubus ursinus	5	✓	FAC
2.			
= Total Cover	5		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	4	x 1 = 4
FACW species	25	x 2 = 50
FAC species	16	x 3 = 48
FACU species	15	x 4 = 60
UPL species	0	x 5 =
Column Totals:	60 (A)	162 (B)

Prevalence Index = B/A = 2.7

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 ____

Remarks: disturbed - mowed & tractor work. excavated as spring

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

Project/Site: Maple Creek - 002 City/County: ME - Hum Sampling Date: 6/24/10
Applicant/Owner: Shields/Mer State: _____ Sampling Point: 2
Investigator(s): Planning Section, Township, Range: _____
Landform (hillslope, terrace, etc.): A Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. Acer macrophyllum	10	✓	NOL
2. Baccharis pilularis	2		FAC
3. Rubus ursinus	2		FAC
4.			
5.			
	14 = Total Cover		50%
Herb Stratum (Plot size: _____)			
1. Anthoxanthum odoratum	20	✓	FACU
2. Juncus patens	10	✓	FACW
3. Juncus effusus	10	✓	FACW
4. Equisetum telmateia	5		FACW
5. Holcus lanatus	5		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		25
Woody Vine Stratum (Plot size: _____)			
1. Lonicera hispidula	5	✓	FACU
2. Rubus ursinus	2		FAC
	7 = 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: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (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: Some facultative hydrophytes. Compacted surface (fence) / drainage from culvert above

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

Project/Site: Maple Creek -009 City/County: Maple Creek, HW Sampling Date: 10/24/19

Applicant/Owner: Shields/MCH State: CA Sampling Point: 3

Investigator(s): T. Lamper Section, Township, Range:

Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR): A 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus latifolia	10	✓	FACW
2. Quercus kelloggii	5	✓	FACU
3. Salix sp	5	✓	NOL
4.			
	20 = Total Cover		4/10

Sapling/Shrub Stratum (Plot size: ____)			
1. Rubus leucodermis	10	✓	FACU
2. Rosa gymnocarpa	10	✓	FACU
3.			
4.			
5.			
	20 = Total Cover		4/10

Herb Stratum (Plot size: ____)			
1. Juncus effusus	40	✓	FACW
2. Mentha pulegium	20	✓	OBL
3. Lotus micranthus	10		NOL
4. Carex disperma	10		OBL
5. Hypericum perforatum	5		FACU
6. Equisetum sp (Helmatia)	5		FACW
7. Carex damuta	<1		OBL
8. Epilobium ciliatum	<1		FACW
9.			
10.			
11.			
	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: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42.9% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 11	x 1 =	11
FACW species 56	x 2 =	112
FAC species 0	x 3 =	0
FACU species 20	x 4 =	120
UPL species 0	x 5 =	
Column Totals: 97 (A)		243 (B)

Prevalence Index = B/A = 2.5

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:

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

Project/Site: _____ City/County: Humboldt Sampling Date: 19 April 2019

Applicant/Owner: _____ State: CA Sampling Point: #1-7A

Investigator(s): Cameron Purchio / Tami Camper Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): ~20%

Subregion (LRR): _____ Lat: 40.75964 Long: -123.88220 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 no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation no, Soil no, or Hydrology no 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.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = 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: _____ (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	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? N/A Yes _____ No _____

Remarks: No evidence of hydric soils or hydrology, plants not surveyed

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

Project/Site: _____ City/County: Humboldt Sampling Date: 19 April 2019

Applicant/Owner: _____ State: CA Sampling Point: ~~#2~~ → B

Investigator(s): Cameron Porchio / Tami Camper Section, Township, Range: _____

Landform (hillslope, terrace, etc.): high river terrace Local relief (concave, convex, none): slight concave Slope (%): ~ 0-3%

Subregion (LRR): _____ Lat: 40.75957 Long: -123.88259 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 no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation no, Soil no, or Hydrology no 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.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = 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: _____ (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	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:
mowed field

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

Project/Site: _____ City/County: _____ Sampling Date: 19 April 2019

Applicant/Owner: _____ State: _____ Sampling Point: #3

Investigator(s): Cameron Purchio / Tami Camper Section, Township, Range: _____

Landform (hillslope, terrace, etc.): high river terrace Local relief (concave, convex, none): none Slope (%): 0-3%

Subregion (LRR): _____ Lat: 40.75953 Long: -123.88262 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 no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation no, Soil no, or Hydrology no 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:
Edge of Visible indicators. plants, hydrology all indicate upland directly west of pit u ←/→ w

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.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = 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: _____ (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	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:

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

Project/Site: _____ City/County: _____ Sampling Date: 19 April 2019

Applicant/Owner: _____ State: _____ Sampling Point: #4 → D

Investigator(s): Cameron Porchia / Tami Camper Section, Township, Range: _____

Landform (hillslope, terrace, etc.): lower river terrace Local relief (concave, convex, none): _____ Slope (%): 0-3%

Subregion (LRR): _____ Lat: 40.75914 Long: -123.88327 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 no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation no, Soil no, or Hydrology no 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.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = 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: _____ (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	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:

No evidence of hydrology or hydric soils, plants not surveyed

SOIL

Sampling Point: 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
0-2"	10YR 4/1	90	5YR 5/8	10	C	M	Sandy	Splotches with sand
2"+	10YR 4/1	100	5YR 5/8	5	C	M	Sandy	Sporadic pebbles throughout

[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:

Excavated

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): 5-6" - 1'+

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:

GF - about

SOIL

Sampling Point: 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
0-4	10YR 3/2	100					SiL	roots
4-8	10YR 3/2	95	10YR 4/6	5	C	M	SC	
8-12	10YR 3/2	90	10YR 4/6	10	C	M	SC	clay loam (cont)
			5YR 5/8	<5	C	M	SC	no redox w/ rock
								wet, saturated
								concentrations
								over fill ?

[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:

Probably compacted - harder clay layer @ 11" roots not penetrate also 2" of fill

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) not done
- ___ 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:

None noted

SOIL

Sampling Point: 3

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 %	Type[1]	Loc[2]	Texture	Remarks fill →
0-2	10YR				RM			[illegible]
2-16	10YR 3/2		7.5 5/8		RM	C	SL	[illegible] roots (OC)
			5YR 5/8		RM	C		
			2.5YR 4/8		RM	PL/OC		
			10YR 4/2		D			
			2.5YR 6/8			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):

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): 2"

Water Table Present? Yes ✓ No ___ Depth (inches): 0

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: small drainage running from spring / [illegible] under road goes subterranean near road

SOIL

Sampling Point: A

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	2.5YR 2.5/1	100					Loamy, coarse	

[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: No Redox observed

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: No wetland hydrology observed

SOIL

Sampling Point: B

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	5y 3/1	95	10YR 4/6	5	RM	M	clay loam	
6-15	Gley1 3/5gy	80	Gley1 7/10y	20	RM	M	rocky 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:

soil textures indicate possible historic tilling / disturbance

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:

surface water & aquatic invertebrates w/in 5'. Sample at driest edge of surface water area

SOIL

Sampling Point: C

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 3/1	100					Loamy	
6-14	10YR 4/1	90	10YR 3/3	10	D	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 ___

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): _____

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 6-8"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

SOIL

Sampling Point: D

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 3/1	95	10YR 4/3	5	RM	M	Loamy	

[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 _____ 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: