APPENDIX C3

Aquatic Resources Delineation Report

Aquatic Resources Delineation Report Manchester Subsea Cables Project, Mendocino County

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Summary

This report presents the methods and results of a delineation of aquatic resources conducted for the Manchester Subsea Cables Project (Project) and provides technical documentation for delineated wetlands, non-wetland waters, and California Coastal Act (CCA) wetlands.

The Project occurs approximately 35 miles south of Fort Bragg and 5 miles north of Point Arena in southwestern Mendocino County. The Project parallels California State Route 1 (SR 1) for approximately 5 miles, with the Pacific Ocean immediately west of the Project. RTI Infrastructure, Inc. is proposing to install fiber optic infrastructure along SR 1 and adjacent properties (Figure 1); the fiber optic cables will eventually extend west on the ocean floor of the Pacific Ocean to Hong Kong, China, Australia, and the island of Guam.

Included in this report are delineated aquatic resources regulated under Sections 404 and 401 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and the CCA. The delineated aquatic resources described in the report consist of wetlands and non-wetland waters regulated by the U.S. Army Corps of Engineers (USACE) and CCA wetlands regulated by the California Coastal Commission (CCC).

The survey area covers 48 acres and encompasses all areas required to construct the project, including areas for access, storage, and staging of materials and equipment. The survey area consists of the road shoulders within the California Department of Transportation right-of-way (ROW) to the fence line for approximately 5 miles along both sides of SR 1, Kinney Road west of SR 1, the cable landing parcel west of SR 1, and three cable landing stations west of SR 1.

The field survey was conducted on June 26–28, September 29–30, and October 10–12, 2018 by ICF botanist/wetland ecologists using the routine on-site determination methods described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental methods and indicators in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (U.S. Army Corps of Engineers 2010).

USACE jurisdictional non-wetland waters were mapped and delineated in accordance with indicators and guidance described in the USACE Regulatory Guidance Letter No. 05-05, dated December 7, 2005 (U.S. Army Corps of Engineers 2005) and the *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (Mersel and Lichvar 2014).

The Pacific Ocean is approximately 500 feet west of the survey area. Via desktop delineation, the upper elevational limit of tidal waters was delineated at the high tide line (HTL) per section 404 of the Clean Water Act. The HTL was estimated from high predicted tide in 2019 for the closest tidal station to the survey area, the Arena Cove Station (Station ID: 9416841) (National Oceanic and Atmospheric Administration 2019); the Arena Cove Station is approximately 7.1 miles south of the cable landing parcel, which is the portion of the survey area closest to the Pacific Ocean. The HTL was delineated at 7.5 feet above mean sea level. Per Section 10 of the Rivers and Harbors Act, the upper elevational limit of navigable waters was delineated at the reported mean high water (MHW) for the Arena Cove Station (National Oceanic and Atmospheric Administration 2019); the MHW is 5.2 feet above mean sea level. Topographic data were obtained from the U.S. Geological Survey (2017); the upper elevation limits of the HTL and MHW are depicted on Sheet 1 of Appendix A.

Within the survey area, 0.556 acre of potential waters of the United States was identified and mapped, comprising 0.101 acre of wetlands and 0.455 acre of non-wetland waters (Table 1).

This report was prepared to support the request for a preliminary jurisdictional determination from the USACE, San Francisco District. In accordance with the preliminary jurisdictional determination approach, all of these features were interpreted to be potentially jurisdictional under Section 404 of the Clean Water Act, and applicants waive or set aside questions regarding the jurisdictional status of wetlands and non-wetland waters, as described in *U.S. Army Corps of Engineers Regulatory Guidance Letter No. 16-01* (U.S. Army Corps of Engineers 2016).

ICF botanist wetland ecologists identified and mapped 0.584 acre of CCA wetlands in the survey area. CCA wetlands include features with evidence of wetland hydrology and one other wetland indicator (hydric soils or hydric vegetation) regulated by the USACE.

Table 1 reports waters of the United States and CCA wetlands delineated in survey area. All waters of the United States presented in this report also would qualify as waters of the state and CCA wetlands according to the CCC.

Table 1. Summary of Aquatic Resources in the Survey Area

Aquatic Resource Type	Area (acres)
Waters of the United States	
Wetlands	
Emergent wetlands	0.101
Non-Wetland Waters	
Perennial stream	0.286
Intermittent stream	0.057
Ephemeral stream	0.015
Roadside ditch	0.057
Culverts	0.040
Total Waters of the United States	**0.556**
California Coastal Act Wetlands	
Emergent wetland	0.101
Seasonal wetland	0.036
Riverine wetland	0.447
Total California Coastal Act Wetlands	**0.584**

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Acronyms and Abbreviations

°F	Fahrenheit
CCA	California Coastal Act
CCC	California Coastal Commission
CFR	Code of Federal Regulations
CLP	cable landing parcel
CLS	cable landing station
GPS	global positioning system
HDD	horizontal directional drilling
HTL	high tide line
LMH	landing manhole
MHW	mean high water
MSL	mean sea level
MWH	mean high water
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
Project	Manchester Subsea Cables Project
ROW	right-of-way
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Chapter 1
Introduction

This report presents the methods and results of a delineation of aquatic resources conducted for the Manchester Subsea Cables Project (Project) and provides technical documentation for delineated wetlands, non-wetland waters, and California Coastal Act (CCA) wetlands. RTI Infrastructure, Inc. is proposing to install fiber optic infrastructure along State Route 1 (SR 1) and adjacent properties (Figure 1); the fiber optic cables will eventually extend west on the ocean floor of the Pacific Ocean to Hong Kong, China, Australia, and the island of Guam.

Project Location

The Project is in Manchester in southern Mendocino County, California, approximately 35 miles south of Fort Bragg and 5 miles north of Point Arena (Figure 1). The Project parallels SR 1 for approximately 5 miles, with the Pacific Ocean west of the Project. The Project is in the Mallo Pass Creek and Point Arena U.S. Geologic Survey 7.5-minute quadrangles in Section (S) 1, Township (T) 13N, Range (R) 17 West, S18 T13N 16W, S19 T13N R16W, S12 T13N R17W, S13 T13N R17W, and S23 T13N R17W, S24 T13N R17W, S25 T13N R17W. The north end of the survey area is at approximate coordinates 39.014987° North, -123.688305 °West, and the south end is at 39.966263°North, -123.686974° West (WGS84/NAD83 datum).

Project Description

The proposed project involves installation of fiber optic cables and associated facilities and systems proposed for construction in fall 2019. The fiber optic cables will eventually extend west on the ocean floor of the Pacific Ocean to Hong Kong, China, Australia, and the island of Guam. The terrestrial components of the project would be constructed above the mean high water (MHW) level and include a landing manhole (LMH) on the cable landing parcel (CLP), staging areas, and underground conduit systems.

Landing Manhole. Four marine cables would be pulled into a LMH on the coastal terrace, east of the cliffs and bluffs, onto private land referred to as the *cable landing parcel*. Each cable would be routed through its own landing pipe. The landing pipes would be installed using horizontal directional drilling (HDD) under the bluff and beach. The LMH would provide access to the landing pipes and would be the point where the marine and terrestrial cables connect.

Staging Area. Two temporary staging areas would be established to park vehicles and store construction equipment. One staging area would be located at the CLP; the second staging area would be located near the town of Manchester.

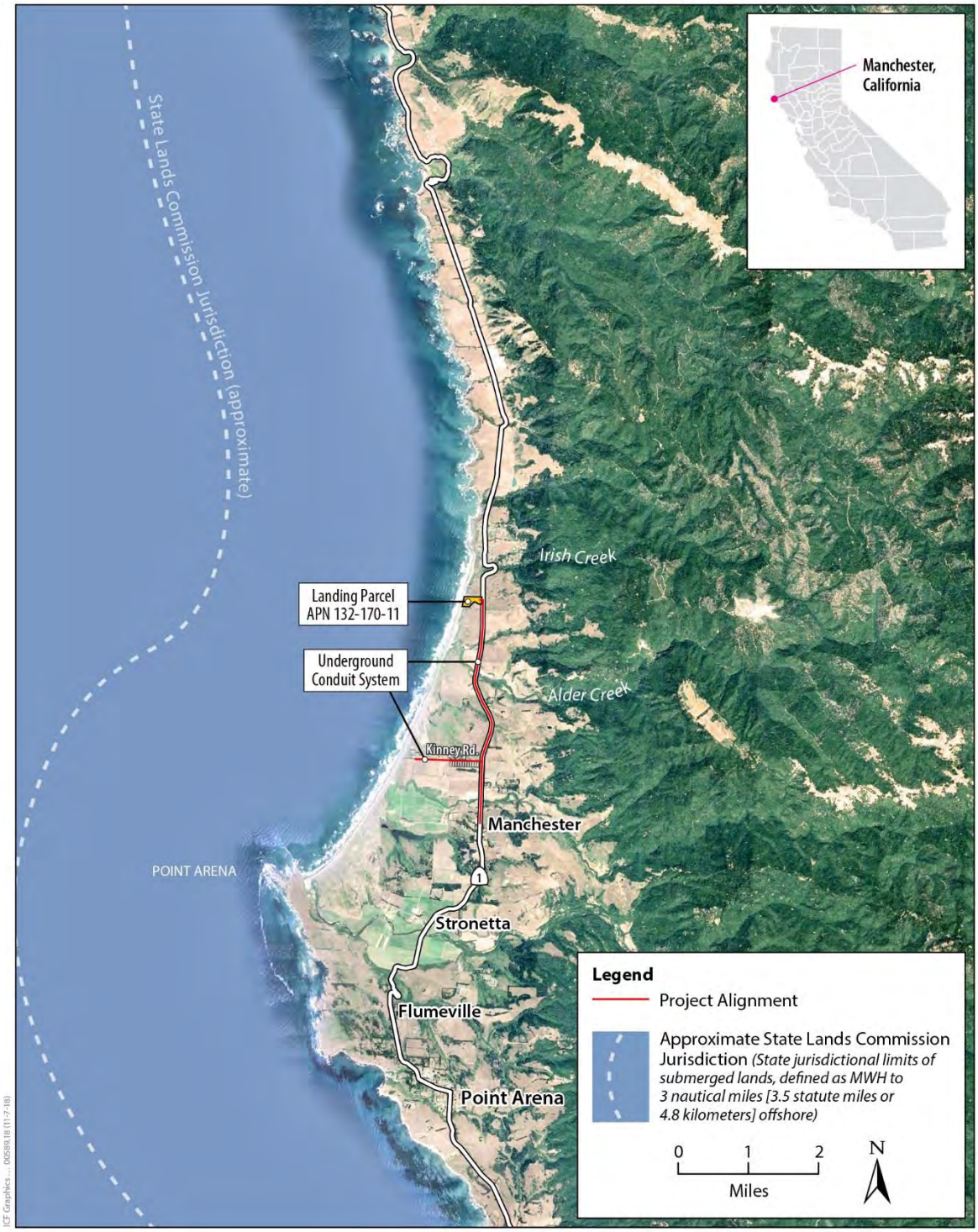

Figure 1-1
Project Location

Underground Conduit Systems. From the LMH, two underground conduit systems, each approximately 5 miles long, would be constructed—one on either side of SR 1. These conduit systems would connect the cable systems to a cable landing station (CLS) (Figure 1-2). The terrestrial conduit systems would be buried to a minimum depth of 3 feet and would include typical manholes (intermediate manholes) for maintenance access.

Existing Cable Landing Station (CLS). One of three existing CLSs (Figure 1-2) would house telecommunications and power equipment.

Intermediate Manholes. Precast concrete manholes would be placed at intervals of approximately 1,200 to 2,500 feet along the routes between the CLS and the LMH. The manholes are necessary to allow access to the underground conduit systems for cable installation and maintenance. Typically, the manholes would be approximately 4 feet square and 6 feet deep, with a cast-iron manhole cover 36 inches in diameter at grade level.

Conduit Installation. Conduit would be installed using both conventional trenching methods and trenchless construction technology. Conventional trenching involves the excavation of a trench system that is approximately 12–18 inches wide and 36–48 inches deep. Trenchless construction would be used to cross under streams (six watercourses have been identified along the alignment) and for installation of the terrestrial conduit system at other locations. Bores would be spaced approximately 300 feet apart and require bore entry and exit pits that measure approximately 4 feet wide by 8 feet long by 5 feet deep. Each pit also would require a work area of approximately 500 square feet.

If conditions are not conducive for trenchless construction at the creek crossings where bridges have been constructed, conduit would be secured to the bridge structure.

Post-Project Site Restoration. Upon completion of the project, all work and staging areas would be restored to pre-project conditions. Restoration would involve regrading areas to their original contours, installing erosion control material, and if necessary, seeding with a commercially available erosion-control native-seed mixture.

Figure 1-2
Terrestrial Components

Survey Area

For the purpose of this study, the survey area covers 48 acres and encompasses all areas required to construct the project, including areas for access, storage, and staging of materials and equipment. The survey area consists of the road shoulders within the California Department of Transportation right-of-way (ROW) to the fence line for approximately 5 miles along both sides of SR 1, Kinney Road west of SR 1, the CLP west of SR 1, and the three CLSs. ICF botanists/wetland ecologists did not have access to the three CLSs; the "AT&T CLS" and "Level 3 CLS" are already developed and do not require wetland delineations. The property containing the "private CLS" supports managed nonnative annual grasslands and is unlikely to support aquatic resources. Because a protocol-level aquatic resources delineation was not conducted in the nonnative annual grassland; the private CLS will be surveyed in 2019, and a supplemental memo will be prepared.

Chapter 2
Setting

Climate

Average annual rainfall in the vicinity of the Project is 41 inches (see WETS table in Appendix H) (Western Regional Climate Center 2018); precipitation data were sourced from the closest National Weather Service Station with sufficient data, the Fort Bragg 5N Weather Station (Station 06045). The survey area receives cool, wet winters and mild, foggy summers; rain falls primarily between December and March. The mean maximum annual air temperature is 60.6 Fahrenheit (°F), and the mean minimum annual temperature is 44.8°F. Coolest temperatures occur in December and January, and the warmest months are August and September (Western Regional Climate Center 2018). The length of the growing season (based on 32° F air temperature thresholds) is approximately 316 days.

Precipitation

Prior to the delineation, 33 inches of rain fell during the rainy season (October 2017 to April 2018) (National Oceanic and Atmospheric Administration 2018a, 2018b). Preceding the field surveys, rainfall for the months of June through September 2018 totaled approximately 0.3 inch, which is 17% of the average rainfall for those months.

Topography

The CLP is relatively flat, with elevations ranging between 169 and 181 feet above mean sea level (MSL). Along SR 1, the topography undulates between 29 feet and 195 feet above MSL, with topographic lows at the stream crossings. A topographic map is depicted on the Index Sheet of Appendix A.

Hydrology

The primary source of hydrology in the survey area is precipitation and runoff, which ultimately drain to the Pacific Ocean via Alder Creek, Brush Creek, Unnamed Stream 1, Unnamed Stream 2, Unnamed Stream 3, and Unnamed Stream 4. Outside and east of the survey area, Unnamed Stream 2 appears to be a tributary to Alder Creek and Unnamed Stream 4 appears to be a tributary to Brush Creek (Google Earth). Unnamed Streams 1–4 were denoted in the *Terrestrial Biological Resources Report for the Manchester Subsea Cables Project* (ICF 2019) because the streams are suitable habitat for special-status wildlife species.

The survey area is within the Big-Navarro-Garcia watershed (hydrologic unit code 18010108) (U.S. Geological Survey 2018). The survey area contains perennial streams, intermittent streams, ephemeral streams, and roadside ditches that drain to the Pacific Ocean.

Land Use

Land uses in and around the survey area consist of the California Department of Transportation ROW, privately owned open space, grazing lands, rural residential areas, and the town of Manchester.

Soils

The soil survey shows that 10 soil map units occur in survey area (Natural Resources Conservation Service 2018). A map of the soil map units is provided in Appendix C. Summary information on the characteristics of each map unit, including hydric components and local phases, is provided in Table 2. All but one soil map unit (Dystropepts, 30 to 75 percent slopes) includes hydric soil components.

Table 2. Soil Map Units in the Survey Area

Soil Map Unit	Map Symbol	Drainage Class	Landform	Hydric Component (C) or Minor Component (M)	Hydric Criteria[a]
Biaggi loam, 0 to 5 percent slopes	105	Well drained	Marine terraces	Heeser (M) Flumeville (C) Cabrillo (M) Crispin(M) Mallopass (M) Windyhollow (M) Unnamed, gentler or steeper slopes (M)	– 2 – – – – –
Cabrillo-Heeser complex, 0 to 5 percent slopes	117	Somewhat poorly drained (Cabrillo), somewhat excessively drained (Heeser)	Marine terraces	Biaggi (M) Crispin (M) Sirdrak (M) Unnamed, gentler slopes (M) Tropaquepts (C)	– – – – 2
Crispin loam, 0 to 5 percent slopes	132	Well drained	Marine terraces	Flumeville (C) Biaggi (M) Cabrillo (M) Mallopass (M) Windyhollow (M) Unnamed, gentler or steeper slopes (M)	2 – – – – –
Dystropepts, 30 to 75 percent slopes	139	NA	Marine terraces	Abalobadiah (M) Vizcaino (M) Rock outcrop (M) Unnamed, gentler or steeper slopes (M) Unnamed, talus (M)	– – – – –
Flumeville clay loam, 0 to 5 percent slopes	144	Poorly drained	Marine terraces	Tropaquepts (C) Windyhollow (M) Cabrillo (M) Unnamed, steeper slopes (M)	2 – – –

Soil Map Unit	Map Symbol	Drainage Class	Landform	Hydric Component (C) or Minor Component (M)	Hydric Criteria[a]
Flumeville clay loam, 5 to 15 percent slopes	145	Poorly drained	Marine terraces	Tropaquepts (C) Windyhollow (M) Cabrillo (M) Unnamed, steeper slopes (M)	2 – – –
Mallopass loam, 0 to 5 percent slopes	182	Moderately well drained	Marine terraces	Biaggi (M) Windyhollow (M) Crispin (M) Flumeville (C) Tropaquepts (M) Unnamed, steeper slopes (M)	– – – 2 – –
Stornetta fine sandy loam, 0 to 2 percent slopes	209	Moderately well drained	Flood plains	Riverwash (C) Tropaquepts (C) Unnamed, flood plain (M)	2 2 –
Tropaquepts, 0 to 15 percent slopes	214	NA	Marine terraces	Tregoning (C) Shinglemill (C) Aborigine (C) Blacklock (C)	2 2 2 2
Windyhollow loam, 0 to 5 percent slopes	225	NA	Marine terraces	Flumville (C) Mallopass (M) Biaggi (M) Unnamed, steeper slopes (M)	2 – – –

[a] Hydric Criteria:

2. Map unit components in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups that:
   a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
   b. Show evidence that the soil meets the definition of a hydric soil.

Source: Natural Resources Conservation Service 2018.

Vegetation

The survey area is within the North Coast subregion of the California Floristic Province (Baldwin et al. 2012). Vegetation communities in the survey area consist of grasslands, coastal scrub, riparian scrub, riparian forest, and cypress stands. These vegetation communities support diverse assemblages of trees, shrubs, grass, and herbaceous species. Vegetation communities in the survey area are described in greater detail in the *Terrestrial Biological Resources Report for the Manchester Subsea Cables Project* (ICF 2019).

National Wetlands Inventory

The National Wetlands Inventory (NWI) provides maps and information on the status, extent, characteristics, and functions of wetland, riparian, deepwater, and related aquatic habitats in priority areas to promote the understanding and conservation of these resources. The mapping is provided at a scale of 1:24,000 and uses the U.S. Fish and Wildlife Service (USFWS) wetland definition, which differs from the USACE definition. USFWS requires one wetland parameter instead

of the three wetland parameters required by USACE. The NWI mapping shows the extent of wetlands and deep-water habitats that can be determined with the use of remotely sensed data dating from 1977 to present. The NWI mapping, therefore, cannot be used to delineate wetlands and other waters of the United States but can provide useful background information on the broad types of wetland and riparian vegetation communities in the survey area.

The NWI online describes eight mapped features within approximately 10 miles of the survey area (U.S. Fish and Wildlife Service 2018) (Appendix C). The eight mapped features are described below.

- Freshwater Emergent Wetlands, classified as PEM (palustrine emergent wetland), were mapped in grasslands near and in the survey area.
- Riverine habitats are wetland and deepwater habitats contained within a channel; riverine habitats do not include features dominated by vegetation or habitats with ocean-derived salt concentrations exceeding 0.5 parts per thousand. Riverine features were mapped in the deepwater stream crossings in and near the survey area.
- Freshwater ponds, classified as PUB (palustrine unconsolidated bottom) or PAB (palustrine aquatic bed), were mapped in topographic lows in the grasslands near the survey area.
- Lakes are classified as lacustrine (wetland and deepwater habitats with less than 30 percent vegetation cover); this habitat was mapped southwest of the town of Manchester.
- Estuarine and marine habitats were mapped in the intertidal areas west of the survey area.
- Estuarine and marine deepwater habitats were mapped in the subtidal areas west of the survey area.

Chapter 3
Methods

Features mapped in the survey area include wetlands and non-wetland waters regulated by the USACE and CCA wetlands regulated by the CCC.

Sources of Information

The following sources of information were reviewed in conjunction with the field survey:

- Mallo Pass Creek and Point Arena U.S. Geological Survey 7.5-minute topographic quadrangles
- Google Earth aerial imagery (2018)
- NWI Maps (U.S. Fish and Wildlife Service 2018)
- National Resource Conservation Service soil survey (National Resources Conservation Service 2018)

Field Methods

ICF botanists/wetland ecologists conducted surveys of the survey area on the following dates in 2018:

- June 26–28: Margaret Widdowson and Devin Jokerst
- September 29–31: Margaret Widdowson and Sierra Spooner
- October 10–12: Margaret Widdowson and Jordan Mayor

ICF botanists/wetland ecologists surveyed and mapped aquatic features up to the ocean bluffs on the CLP, as safety permitted, and to the fence line in the ROW.

ICF botanist/wetland ecologists used resource-grade global positioning system (GPS) units, Trimble Geo-XT and an iPad with a R1 antennae, both with sub-meter accuracy, supplemented with aerial photograph interpretation, to map sampling points, boundaries of aquatic resources, and culvert locations. The GPS data were downloaded, differentially corrected, and superimposed onto a 2016 aerial photograph and edited as necessary to generate the delineation maps for USACE-regulated features in Appendix A and CCC-regulated features in Appendix B. Representative photographs were taken in the survey area (Appendix F), and their locations are shown on the maps in Appendix A and Appendix B. A list of plant species observed in the survey area was compiled, and the scientific name and wetland indicator status of each species are provided (Lichvar et al. 2016) (Appendix G).

Delineation Methods for Waters of the United States

Wetlands

ICF botanists/wetland ecologists mapped wetlands using the routine on-site determination methods described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental

Laboratory 1987) supplemented by the guidance and indicators in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (U.S. Army Corps of Engineers 2010).

In accordance with the 1987 Manual and the 2010 regional supplement, ICF botanists/wetland ecologists collected and recorded data on vegetation, soil, and hydrology at sampling points located to describe wetlands and determine the location of the wetland/upland boundary (Appendix D).

Non-Wetland Waters

The boundaries of non-tidal, non-wetland waters (streams) were delineated at the ordinary high water mark (OHWM) as defined in 33 Code of Federal Regulations (CFR) 328.3. The OHWM represents the limit of potential USACE jurisdiction over non-tidal waters (e.g., streams, ponds) in the absence of adjacent wetlands (33 CFR 328.04). The OHWM was identified in the field and mapped following the methods in USACE's Regulatory Guidance Letter 05-05 (U.S. Army Corps of Engineers 2005) and guidance in *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (Mersel and Lichvar 2014). Data on representative stream segments, including characteristics used to determine the presence and location of the OHWM, were collected and recorded on OHWM data sheets for Brush Creek, Alder Creek, and several other streams (Appendix E).

Approximately 500 feet west of the survey area, the Pacific Ocean is both a tidal non-wetland water and a navigable water. The boundary for tidal non-wetland waters (Pacific Ocean) was delineated at the high tide line (HTL) per Section 404 of the Clean Water Act. The boundary of navigable waters was delineated at the mean high water (MWH) per Section 10 of the Rivers and Harbors Act; Section 10 gives USACE regulatory and permitting authority over work in, over, or under navigable waters. A desktop jurisdictional analysis was conducted to map the upper elevation limits of tidal non-wetland waters and navigable waters in the survey area. The upper elevation limits of tidal non-wetland waters was estimated from the maximum predicted annual tide provided for the Arena Cove tidal station (Station ID: 9416841) in 2019 (National Oceanic and Atmospheric Administration 2019) The maximum predicted annual tide, which was used to estimate the HTL, was 7.5 feet above MSL. The Arena Cove Station is approximately 7.1 miles south of the CLP, which is the portion of the survey area closest to the Pacific Ocean. The upper elevation limits for navigable waters was established based on the MHW elevation of 5.2 feet above MSL reported for the Arena Cove Station (National Oceanic and Atmospheric Administration 2019). Topographic data were obtained from the U.S. Geological Survey (2017); the upper elevation limits of the HTL and MHW are depicted on Sheet 1 of Appendix A.

Methods and standards conform to the USACE San Francisco District's Information Requested for Verification of Corps Jurisdiction (U.S. Army Corps of Engineers, San Francisco District 2016) and Revised Map and Drawing Standards for the Pacific Division Regulatory Program Delineations (U.S. Army Corps of Engineers, South Pacific Division 2016).

Delineation Methods for California Coastal Act Wetlands

The survey area is within the Coastal Zone; the Mendocino County Coastal Development Permit Regulations (Chapter 20.532) regulates development in the Coastal Zone in accordance with the CCA. The CCC and associated Mendocino County Coastal Development Permit Regulations (Chapter 20.532) require coastal zone wetlands to have evidence of wetland hydrology in addition to one other wetland parameter regulated by USACE (County of Mendocino Planning & Building

Services 2006; California Coastal Commission 2011). Data forms for CCA wetlands are in Appendix D, and their locations are shown on the maps in Appendix B. Initial interpretation of CCA features, as depicted on the data forms, considered all features with any one wetland parameter regulated by the USACE to be a CCA feature; however, the Mendocino County Department of Planning & Building Services memorandum (*Wetland Exception – Ditches Memorandum*) dated August 7, 2006, specifies that wetland hydrology must be present in addition to one other wetland parameter regulated by the USACE.

Chapter 4
Results

In total, 0.566 acre of potential waters of the United States were identified and mapped in the survey area, consisting of 0.101 acre of wetlands and 0.455 acre of non-wetland waters (Appendix A). The following waters of the United States were mapped in the survey area: emergent wetlands and non-wetland waters, comprised of perennial streams, intermittent streams, ephemeral streams, and roadside ditches.

CCA wetlands include all wetlands and non-wetland waters regulated by the USACE, excluding two roadside ditches that were excavated from uplands and only convey stormwater runoff (County of Mendocino Planning & Building Services 2006). As noted earlier, CCA wetlands must demonstrate evidence of wetland hydrology and one other feature regulated by the USACE. A total of 0.584 acre of CCA wetlands was delineated in the survey area (Appendix B). The following CCA wetlands were mapped in the survey area: emergent wetlands, seasonal wetlands, and riverine wetlands.

Appendices A and B depict the locations of aquatic features mapped in the survey area and the location of the sampling points, which correspond with the wetland dataforms in Appendix D. Appendix F includes representative photographs of mapped features, which are cross-referenced to the waters of the United States reported in Table 3 and CCA wetlands reported in Table 4. Appendix G includes a list of plants observed in the survey area, along with their scientific name, common name, and wetland indicator status (Lichvar et al. 2016).

U.S. Army Corps of Engineers Jurisdictional Features

In total, 0.566 acre of potential waters of the United States was identified and mapped in the survey area, comprising 0.101 acre of wetlands and 0.455 acre of non-wetland waters. These features consist of 9 emergent wetlands, 5 perennial streams, 4 intermittent streams, 2 ephemeral streams, 7 roadside ditches, and 12 culverts. There are some gaps in the numbering sequence of data forms. Described below, the types of wetland and non-wetland waters are listed in Table 3 and shown on the maps in Appendix A. The results and the mapped extent of delineated features depicted in Appendix A are subject to verification by the USACE, San Francisco District.

Table 3. Potential Clean Water Act Jurisdictional Features Mapped in the Survey Area

Feature Type and Name	Clean Water Act Jurisdiction (acres)	Cowardin Type[a]	Average Width (feet)	Sampling Point Number	Photo Number
Wetlands					
Emergent Wetlands					
EW-1	0.006	PEM1	N/A	29, 30	3
EW-2	0.012	PEM1	N/A	33	3
EW-3	0.011	PEM1	N/A	27	3
EW-4	0.020	PEM1	N/A	6, 7, 10	9, 10, 11
EW-5	0.010	PEM1	N/A	16	14
EW-6	0.020	PEM1	N/A	–	14
EW-7	0.012	PEM1	N/A	21	17
EW-8	< 0.001	PEM1	N/A	–	–
EW-9	0.010	PEM1	N/A	41	30
Subtotal	***0.101***				
Non-Wetland Waters					
Perennial Stream					
PS-1	0.004	R2UB1	2	–	16
PS-2a	0.007	R2UB1	2	–	–
PS-2b	0.001	R2UB1	2	–	–
PS-3	0.128	R2UB1	70	5	18, 19, 20, 21
PS-4	0.134	R2UB1	75	7	31, 32, 33
PS-5a	0.010	R2UB1	6	8	34
PS-5b	0.002	R2UB1	6	–	34
Subtotal	***0.286***				
Intermittent Stream					
IS-1	0.002	R4SB3	10	1, 2	8
IS-2a	0.011	R4SB3	1	6	22, 24
IS-2b	< 0.001	R4SB3	2	6	–
IS-3	0.035	R4SB3	4	–	23
IS-4a	0.008	R4SB3	2	–	27
IS-4b	0.001	R4SB3	3	–	28, 29
Subtotal	***0.057***				
Ephemeral Stream					
ES-1	0.014	R4SB3	6	3	–
ES-2	0.001	R4SB3	2	4	–
Subtotal	***0.015***				

Feature Type and Name	Clean Water Act Jurisdiction (acres)	Cowardin Type[a]	Average Width (feet)	Sampling Point Number	Photo Number
Roadside Ditch					
D-1a	0.017	R4SB3	2	–	5, 6
D-1b	0.010	R4SB3	2	–	7
D-2	0.004	R4SB3	3	–	10
D-3	0.003	R4SB3	2	–	–
D-4	0.011	R4SB3	1	–	–
D-5	0.004	R4SB3	1	–	–
D-6	0.002	R4SB3	1	–	–
D-7	0.006	R4SB3	2	–	35
Subtotal	***0.057***				
Culverts					
C-1	0.002	R4SB3	3	–	–
C-2	0.003	R4SB3	3	–	–
C-3	0.003	R4SB3	2	–	–
C-4	0.003	R4SB3	2	–	–
C-5	0.002	R4SB3	2	–	–
C-6	0.002	R4SB3	2	–	–
C-7	0.002	R4SB3	3	–	–
C-8	0.012	R4SB3	5	–	–
C-9	0.002	R4SB3	3	–	–
C-10	0.004	R4SB3	3	–	–
C-11	0.002	R4SB3	2	–	–
C-12	0.003	R4SB3	3	–	–
Subtotal	***0.040***				
Total U.S. Army Corps of Engineers Jurisdictional Features	**0.556**				

[a] *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979).
PEM1 = Palustrine, Emergent, Persistent.
R2UB1 = Riverine, Lower Perennial, Unconsolidated Bottom, Cobble-Gravel.
R4SB3 = Riverine, Intermittent, Streambed, Cobble-Gravel.

Wetlands

Emergent wetlands were mapped in topographic lows in the CLP and ROW. A total of 0.101 acre of emergent wetlands was mapped in the survey area.

The following vegetation alliances were mapped as emergent wetlands in the survey area: slough sedge swards (*Carex obnupta* alliance), common velvet grass - sweet vernal grass meadows (*Holcus lanatus-Anthoxanthum odoratum* alliance), water-parsley marshes (*Oenanthe sarmentosa* alliance), a soft rush marsh (*Juncus effusus* alliance), a common monkey flower seep (*Erythranthe guttata* alliance), and a small-fruit bulrush marsh (*Scirpus microcarpus* alliance). Dominant species observed

in the emergent wetlands of the survey area include the following: slough sedge (*Carex obnupta*; OBL[1]), common velvet grass (*Holcus lanatus*; FAC), sweet vernal grass (*Anthoxanthum odoratum*; FACU), water-parsley (*Oenanthe sarmentosa*; OBL), soft rush (*Juncus effusus*; FACW), common monkey flower (*Erythranthe guttata*; OBL), and small-fruit bulrush (*Scirpus microcarpus*; OBL). The emergent wetlands were classified as PEM1: palustrine, persistent, emergent wetlands (Cowardin et al. 1979) because they are dominated by perennial, herbaceous hydrophytic plants.

Emergent wetlands mapped in the survey are characterized by the following sampling points: 6, 7, 10, 16, 21, 29, 30, 33, and 41; uplands adjacent to the emergent wetlands are characterized by sampling points: 8, 9, 17, 18, 22, 23, 31, 32, 34, 35, 36, and 42. Emergent wetland EW-9 (sampling point 21, Appendix D) occurs below the OHWM of a potential intermittent stream that was flowing into a culvert (C-4) at the time of the September survey; this feature was mapped as a wetland because it had 85 percent cover of hydrophytic plant species.

Soils observed in the emergent wetlands displayed hydric soil indicator Redox Dark Surface (Hydric Soil Indicator F6); soil textures were loam, gravely-loam, clay-loam, clay and sandy-clay.

Emergent wetlands had the following primary wetland hydrology indicators: Sediment Deposits (Wetland Hydrology Indicator B2), Drift Deposits (wetland hydrology indicator B3), Algal Mat or Crust (B4), Surface Water (A1), High Water Table (A2), and Saturation (A3). The emergent wetlands had the following secondary wetland hydrology indicators: Water-Stained leaves (B9), Drainage Patterns (B10), Geomorphic Position (D2), FAC-Neutral Test (D5), Dry-Season Water Table (C2), and Saturation Visible on Aerial Imagery (C9).

Emergent wetlands EW-1 and EW-2 were presumed to be seasonally saturated and/or ponded but did not display wetland hydrology during the delineation surveys, which occurred during the dry-season (wetland hydrology in the western mountains, valleys and coast region can be naturally problematic when surveyed during the dry-season [U.S. Army Corps of Engineers 2010]). Described in sampling points 29 and 30, emergent wetland EW-1 occurs in a topographic depression on the CLP and was dominated by Pacific aster (*Symphyotrichum chilense*) (FAC) and common velvet grass, and had hydric soils (Photograph 3, Appendix F). ICF botanists/wetland ecologists assumed that wetland hydrology was present during the rainy season, based on the presence of perennial hydrophytic plants in a topographic position that concentrates and ponds water. Upland sampling point 32, adjacent to EW-2, was dominated by FAC and FACU plants and did not have hydric soils. Also mapped on the CLP, emergent wetland EW-2 (sampling point 33) occurs downslope of EW-1 and demonstrated similar wetland indicators (dominance of hydrophytic vegetation and hydric soils); hydrology was assumed present during the wet-season. Located south of Kinney Road, EW-9 is dominated by perennial hydrophytic plants, had hydric soils (Redox Dark Surface), and wetland hydrology was assumed present during the rainy season (sampling point 41, Appendix D; Photograph 30, Appendix F).

[1] Lichvar et al. 2016
OBL: Obligate wetland plants - almost always occur in wetlands.
FACW: Facultative wetland plants - usually occur in wetlands but may occur in non-wetlands.
FAC: Facultative wetland plants – occur in wetlands and non-wetlands.
FACU: Facultative upland plants - usually occur in non-wetlands but may occur in wetlands.
UPL: Upland plants – almost never occur in wetlands.

Non-Wetland Waters

Five types of non-wetland waters were mapped in the survey area: perennial stream, intermittent stream, ephemeral stream, roadside ditch, and culvert. The following OHMW characteristics were observed and used to determine the location of the OHWM: break-in slope, scour, the presence of bed and bank, sediment sorting, and changes in soil and vegetation. Unnamed Stream 2 did not surface in the survey area, and acreages are not reported. Ultimately, the non-wetland waters flow directly to the Pacific Ocean or are tributaries to streams that drain to the Pacific Ocean.

Perennial Streams

Alder Creek (PS-3) and Brush Creek (PS-4) are perennial streams that cross the survey area. Other perennial streams mapped in the survey area consist of PS-1, PS-2a and PS-2b, and Unnamed Stream 4 (PS-5a and PS-5b). Perennial streams flow year-round in a typical year. Groundwater is the main source of water, supplemented by rainwater during the wet season. The perennial streams are classified as R2UB1 (riverine, lower perennial, unconsolidated bottom, cobble-gravel) (Cowardin at al. 1979).

During the September survey, Alder Creek was flowing in the low-flow channel, and the substrate below the OWHM consisted of gravel and cobble (Photos 18 through 21, Appendix F). The canopy is dominated by red alder (*Alnus rubra*; FAC) and Sitka willow (*Salix sitchensis*; FACW). Observed OHWM characteristics were scour, sediment sorting, and changes in soil and vegetation. Alder Creek was on average 70 feet wide between OWHMs and covered 0.128 acre in the survey area.

Brush Creek was flowing during the September survey and supported a canopy of red alder and arroyo willow (*Salix lasiolepis*; FACW) (Photos 31 through 33, Appendix F). The perennial stream had a sharp break-in slope (> 60°) at the OWHM; below the OWHM, Brush Creek had two low-flow channels approximately 10 feet wide. ICF botanists/wetland ecologists observed the following OWHM characteristics in Brush Creek: shelving, scour, and sediment sorting, and changes in soil and vegetation. Brush Creek was on average 75 feet wide between OHWMs and covered 0.134 acre in the survey area.

Draining into a culvert south of Unnamed Stream 2, PS-1 and PS-2a converge on the eastside of SR 1 and drain westward into a culvert that feeds to PS-2b; all of the features had an average width of 2 feet.

Unnamed Stream 4 consists of PS-5a on the eastside of SR 1 flowing westward through a culvert to PS-5b (Photograph 34, Appendix F); the segments were on average 6 feet wide between OHWMs, and the canopy on the eastside of SR 1 was dominated by arroyo willow.

Intermittent Streams

Four intermittent streams, covering 0.057 acre, were mapped in the survey area, including Unnamed Stream 1 (IS-1), PS-2a and PS-2b, Unnamed Stream 3 (IS-3), and IS-4a and IS4b. Intermittent streams flow for a length of time each year, typically during the wet season, but dry up over the summer months. In addition to rain water, groundwater provides water for stream flow. The intermittent streams are classified as R4SB3 (riverine, intermittent, streambed, sand) (Cowardin at al. 1979). The intermittent streams are tributaries to streams that flow to the Pacific Ocean or flow directly to the Pacific Ocean.

Unnamed Stream 1 (IS-1) is 10 feet wide on average between OWHMs, and the canopy is dominated by arroyo willow (*Salix lasiolepis;* FACW), with a moderate (30–60°) break-in slope at the OHWM. Unnamed Stream 1 did not surface on the west side of SR 1, which prevented full assessment of the feature.

Unnamed Stream 3 (IS-3) is 4 feet wide on average between OWHMs. The canopy is dominated by shining willow (*Salix lasiandra*; FACW) and Sitka willow. Intermittent streams IS-2a and IS-2b are tributaries to Unnamed Stream 3.

Intermittent stream IS-4a is on average 2 feet wide between OWHMs and parallels the south side of Kinney Road before draining through a culvert to IS-4b on the north side of Kinney Road; IS-4b is on average 2 feet wide between OHWMS.

Ephemeral Streams

The survey contained two ephemeral streams covering 0.015 acre. Ephemeral streams have flowing water during, and for a short time after, rainfall in a typical year. Rain water is the only source of water for stream flow in ephemeral streams, which are typically above the water table year-round. The vegetation on the banks of the ephemeral streams typically included California blackberry (*Rubus ursinus*; FACW), poison-oak (*Toxicodendron diversilobum*; FAC), and bracken fern (*Pteridium aquilinum* var. *pubescens*; FACU). The ephemeral streams are classified as R4SB3 (riverine, intermittent, streambed, sand) (Cowardin at al. 1979).

Roadside ditches

The survey area contains seven roadside ditches covering 0.057 acre. Roadside ditches were mapped if they had a distinct bed and bank or other OHWM characteristics, although sometimes the indicators were weak and discontinuous. The roadside ditches are classified as R4SB3 (riverine, intermittent, streambed, sand) (Cowardin at al. 1979). The roadside ditches drain into culverts, and ultimately flow to streams that are tributaries to the Pacific Ocean.

Culverts

Culverts in the survey area convey flows from stream segments and roadside ditches under SR 1. The flows are carried ultimately to the Pacific Ocean. Culverts are shown on the maps in Appendix A and are included in Table 3.

California Coastal Commission Jurisdictional Features

The following aquatic resources were mapped as potential CCA features: 9 emergent wetlands, 3 seasonal wetlands, and 28 riverine wetlands. The CCA wetlands delineated in the survey area are listed in Table 4 and depicted in Appendix B. The results and mapped extent of CCA wetlands depicted in Appendix B are subject to verification by the CCC North Coast District.

Table 4. Potential California Coastal Act Jurisdictional Features Mapped in the Survey Area

Feature Type and Name	CCC Jurisdiction (acres)	Cowardin Type [a]	Average Width (feet)	Sampling Point Number	Photo Number
Emergent Wetlands					
EW-1	0.006	PEM1	–	29, 30, 31	3
EW-2	0.012	PEM1	–	33	3
EW-3	0.011	PEM1	–	27	3
EW-4	0.020	PEM1	–	6, 7, 10	9, 10, 11
EW-5	0.010	PEM1	–	16	14
EW-6	0.020	PEM1	–	–	14
EW-7	0.012	PEM1	–	21	17
EW-8	<0.001	PEM1	–	–	–
EW-9	0.010	PEM1	–	41	30
Subtotal	***0.101***				
Seasonal Wetlands					
SW-1	0.016	PEM2	–	2	13
SW-2	0.005	PEM2	–	–	–
SW-3	0.015	PEM2	–	–	–
Subtotal	***0.036***				
Riverine Wetlands					
Perennial Stream					
PS-1	0.004	R2UB1	2	–	16
PS-2a	0.007	R2UB1	2	–	–
PS-2b	0.001	R2UB1	2	–	–
PS-3	0.128	R2UB1	70	5	18, 19, 20, 21
PS-4	0.134	R2UB1	75	7	31, 32, 33
PS-5a	0.010	R2UB1	6	8	34
PS-5b	0.002	R2UB1	6	–	34
Subtotal	***0.286***				
Intermittent Stream					
IS-1	0.002	R4SB3	10	1, 2	8
IS-2a	0.011	R4SB3	1	6	22, 24
IS-2b	< 0.001	R4SB3	2	6	–
IS-3	0.035	R4SB3	4	–	23
IS-4a	0.008	R4SB3	2	–	27
IS-4b	0.001	R4SB3	3	–	28, 29
Subtotal	***0.057***				
Ephemeral Stream					
ES-1	0.014	R4SB3	6	3	–
ES-2	0.001	R4SB3	2	4	–
Subtotal	***0.015***				

Feature Type and Name	CCC Jurisdiction (acres)	Cowardin Type [a]	Average Width (feet)	Sampling Point Number	Photo Number
Roadside Ditch					
D-1a	0.017	R4SB3	2	–	5, 6
D-1b	0.010	R4SB3	2	–	7
D-2	0.004	R4SB3	3	–	10
D-3	0.003	R4SB3	2	–	–
D-4	0.011	R4SB3	1	–	–
D-5	0.004	R4SB3	1	–	–
Subtotal	***0.049***				
Culverts					
C-1	0.002	R4SB3	3	–	–
C-2	0.003	R4SB3	3	–	–
C-3	0.003	R4SB3	2	–	–
C-4	0.003	R4SB3	2	–	–
C-5	0.002	R4SB3	2	–	–
C-6	0.002	R4SB3	2	–	–
C-7	0.002	R4SB3	3	–	–
C-8	0.012	R4SB3	5	–	–
C-9	0.002	R4SB3	3	–	–
C-10	0.004	R4SB3	3	–	–
C-11	0.002	R4SB3	2	–	–
C-12	0.003	R4SB3	3	–	–
Subtotal	***0.040***				
Total California Coastal Commission Jurisdictional Features	**0.584**				

[a] Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979).
PEM1 = Palustrine, Emergent, Persistent.
PEM2 = Palustrine, Emergent, Non-persistent.
R2UB1 = Riverine, Lower Perennial, Unconsolidated Bottom, Cobble-Gravel.
R4SB3 = Riverine, Intermittent, Streambed, Cobble-Gravel.

Emergent Wetlands

In total, 0.101 acre of emergent wetlands was mapped as potential CCA features in the survey area. All emergent wetlands delineated as potential CCA features also were delineated as USACE jurisdictional features and are described above.

Seasonal Wetlands

The seasonal wetlands mapped in the survey area were dominated by annual hydrophytic plants and the features were classified as PEM2: palustrine, non-persistent, emergent wetlands (Cowardin et al. 1979). These features were two-parameter wetlands. Three CCA seasonal wetlands were mapped for a total 0.036 acre.

Two seasonal wetlands (SW-1 and SW-2) occur in a compacted, roadside pullout and were dominated by nonnative plants, hyssop loosestrife (*Lythrum hyssopifolium*; OBL) and prostrate knot weed (*Polygonum aviculare*; FAC). Seasonal wetlands SW-1 and SW-2 are approximately 252 feet apart and are characterized by sampling point 2. Surface Soils Cracks (B6) was the Wetland Hydrology Indicator observed by ICF botanists/wetland ecologists in SW-1 and SW-2.

Seasonal wetland SW-3 (sampling point 44) was mapped in a topographic depression in the ROW, but most of the feature occurred in private property east and outside of the survey area. In the survey area, SW-3 was dominated by native hydrophytic coast allocarya (*Plagiobothrys undulatus*; OBL) and nonnative, upland slender lotus (*Lotus angustissimus*; UPL). Coast allocarya was dominant during the wet season, based on the presence of significant cover of dead coast allocarya plants; slender lotus invaded the feature during the dry-season. The seasonal wetland did not have hydric soils. Seasonal wetland SW-3 had the following secondary wetland indicators: water-stained leaves, (B9), saturation visible on aerial imagery (C9), and FAC-neutral test (D5). In the private property adjacent to the survey area and SW-3, the seasonal wetland likely supported hydric soils.

Riverine Wetlands

Riverine wetlands occur below the OWHM of the USACE jurisdictional streams and ditches discussed above. Two roadside ditches delineated as non-wetland waters under potential jurisdiction of the U.S. Army Corps of Engineers (D-6 and D-7) were not classified as coastal zone wetlands because the features were excavated from upland areas and carry only stormwater runoff. These were excluded per the Wetland Exception – Ditches Memorandum (County of Mendocino Planning & Building Services 2006). Riverine wetlands delineated as potential CCA features in the survey area totaled 0.455 acre.

Chapter 5
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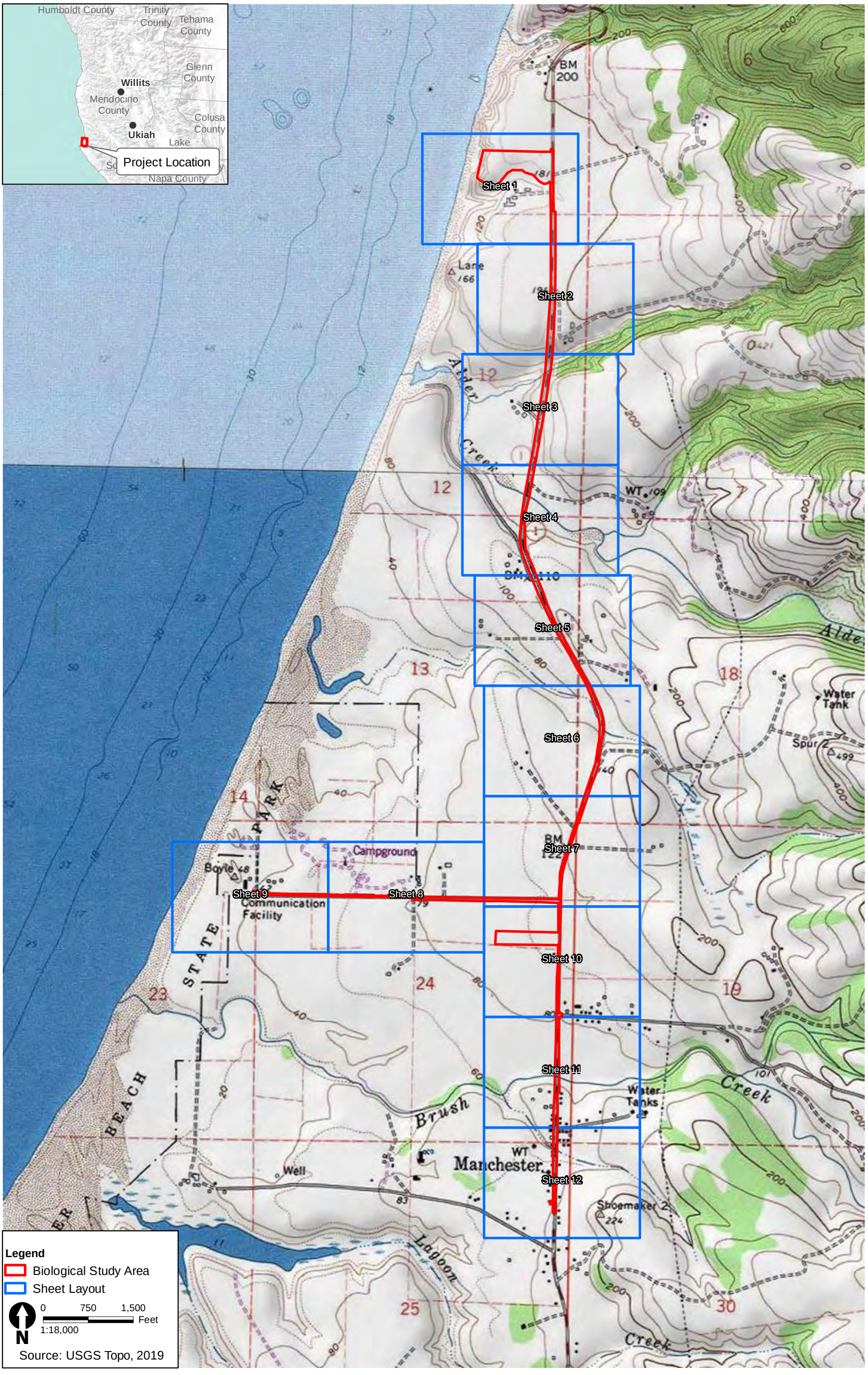
Appendix A

Waters of the United States Delineation Map



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Appendix A - Index
Waters of the United States Delineation Map

123°41'40"W
123°41'30"W
123°41'20"W
39°05'0"N
39°04'40"N

Manchester Subsea Cables Project
February 19th, 2019
Sheet 1 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
- Features Outside Survey Area

Aquatic Resources (0.556 Total Acre)

Wetland (0.101 Total Acre)

- Emergent Wetland (EW) (0.101 ac.)

Non-Wetland Waters (0.455 Total Acre)

- Perennial Stream (PS) (0.286 ac.)
- Intermittent Stream (IS) (0.057 ac.)
- Ephemeral Stream (ES) (0.015 ac.)
- Roadside Ditch (D) (0.057 ac.)
- Culvert (C) (0.040 ac.)
- Section 10 Navigable Waters Upper Elevational Limit (Mean High Water): 5.2 ft ± 1.5 ft (USGS 2017)
- Section 404/401 Tidal Waters Upper Elevational Limit (High Tide Line): 7.5 ft ± 1.5 ft (USGS 2017)

W = Average Width

0 50 100 200
Feet
1 inch = 200 feet

Notes:

Base Map Source:ICF
Elevation Data: U.S. Geological Survey, 20180831, USGS NED one meter x44y432 CA FEMA R9 Mendocino HF 2017
Imagery Source: NAIP 2016
USGS Topo Quad: Mallo Pass Creek and Point Arena
PLSS: S18 T13N R16W, S19 T13N R16, S1 T13N R17W, S12 T13N R17W, S13 T13N R17W, S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson, S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and Oct. 10-12, 2018
Drawn By: A. Angier

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Appendix A
Waters of the United States Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 2 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
- Features Outside Survey Area

Aquatic Resources (0.556 Total Acre)

Wetland (0.101 Total Acre)

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- Intermittent Stream (IS) (0.057 ac.)
- Ephemeral Stream (ES) (0.015 ac.)
- Roadside Ditch (D) (0.057 ac.)
- Culvert (C) (0.040 ac.)

*Feature does not surface in BSA

W = Average Width

0 50 100 200
Feet
1 inch = 200 feet

N

Notes:

Base Map Source:ICF
Elevation Data: U.S. Geological Survey, 20180831, USGS NED one meter x44y432 CA FEMA R9 Mendocino HF 2017
Imagery Source: NAIP 2016
USGS Topo Quad: Mallo Pass Creek and Point Arena
PLSS: S18 T13N R16W, S19 T13N R16, S1 T13N R17W, S12 T13N R17W, S13 T13N R17W, S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

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Appendix A
Waters of the United States Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 3 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
- Features Outside Survey Area

Aquatic Resources (0.556 Total Acre)

Wetland (0.101 Total Acre)

- Emergent Wetland (EW) (0.101 ac.)

Non-Wetland Waters (0.455 Total Acre)

- Perennial Stream (PS) (0.286 ac.)
- Intermittent Stream (IS) (0.057 ac.)
- Ephemeral Stream (ES) (0.015 ac.)
- Roadside Ditch (D) (0.057 ac.)
- Culvert (C) (0.040 ac.)

*Feature does not surface in BSA

W = Average Width

0 50 100 200
Feet
1 inch = 200 feet

N

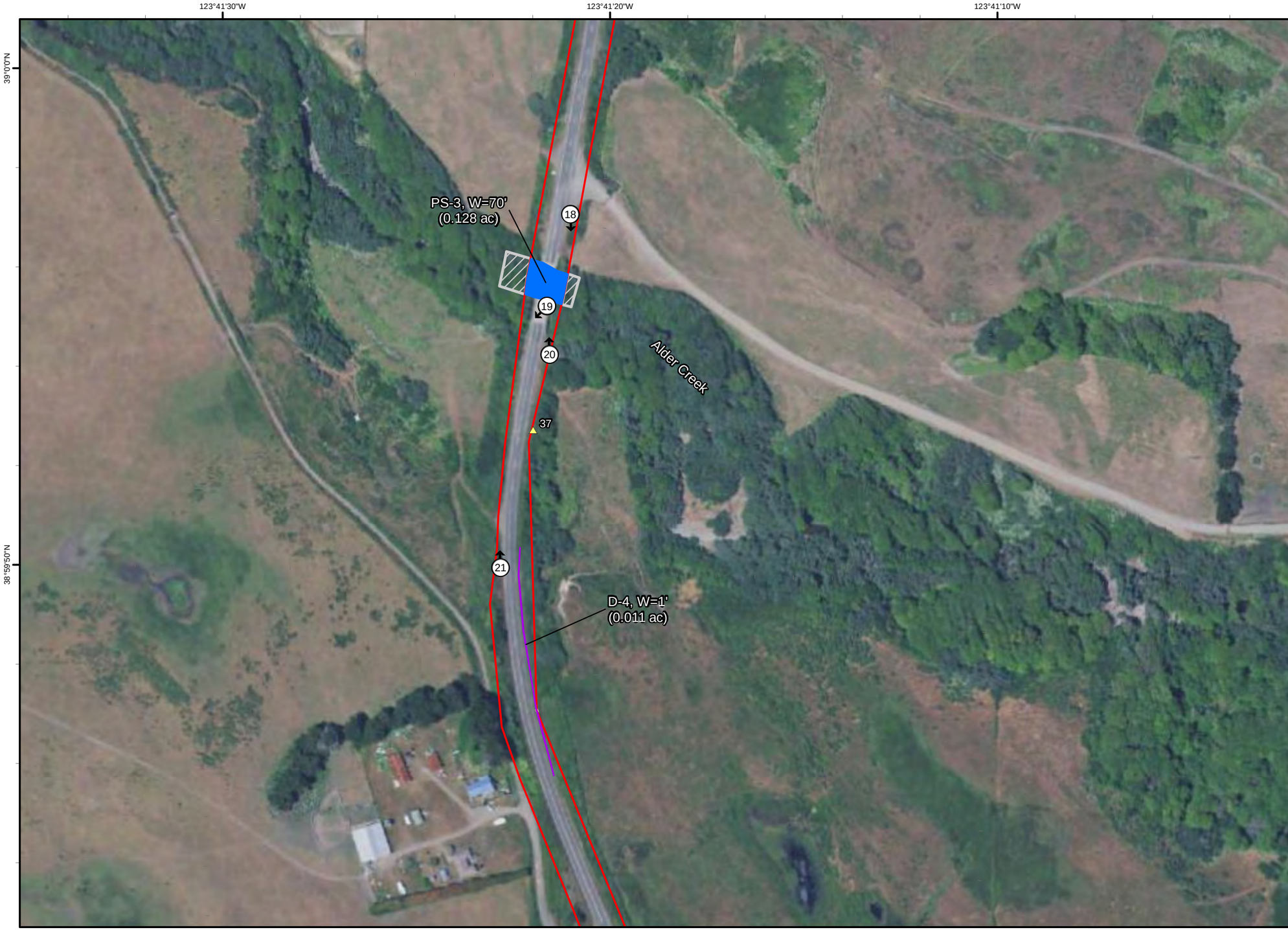
Notes:

Base Map Source:ICF
Elevation Data: U.S. Geological Survey, 20180831, USGS NED one meter x44y432 CA FEMA R9 Mendocino HF 2017
Imagery Source: NAIP 2016
USGS Topo Quad: Mallo Pass Creek and Point Arena
PLSS: S18 T13N R16W, S19 T13N R16, S1 T13N R17W, S12 T13N R17W, S13 T13N R17W, S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson, S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and Oct. 10-12, 2018
Drawn By: A. Angier

Path: W:\DCC\TRDS\GIS\1Projects_1\R1_Solutions\007118_17_Manchester\Figures\Doc\BAWet_Del_Mapbook_USACE.mxd, Author: , Date: 2/19/2019

Appendix A
Waters of the United States Delineation Map



Manchester Subsea Cables Project
February 19th, 2019
Sheet 4 of 12

Legend

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Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson, S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDCCITRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\Figures\Doc\BA\Wet_Del_Mapbook_USACE.mxd; Author: ; Date: 2/19/2019

Appendix A
Waters of the United States Delineation Map

123°41'30"W
123°41'20"W
123°41'10"W
123°41'0"W
38°59'40"N
38°59'30"N

Manchester Subsea Cables Project
February 19th, 2019
Sheet 5 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
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Aquatic Resources (0.556 Total Acre)

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Path: \\P\DCC\TRD\GIS\1Projects_1\RT1_Solutions\007\18_17_Manchester\Figures\Doc\BA\Wet_Del_Mapbook_USACE.mxd; Author: ; Date: 2/19/2019

Appendix A
Waters of the United States Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 6 of 12

Legend

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Delineation Date: June 26-28, Sept. 29-31 and Oct. 10-12, 2018
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Path: \\PDCCITRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\Figures\Doc\BA\Wet_Del_Mapbook_USACE.mxd; Author: ; Date: 2/19/2019

Appendix A
Waters of the United States Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 7 of 12

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Appendix A
Waters of the United States Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 8 of 12

Legend

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Appendix A
Waters of the United States Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 9 of 12

Legend

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Appendix A
Waters of the United States Delineation Map

123°41'20"W

123°41'10"W

123°41'0"W

38°58'40"N

Private CLS

Protocol-delineation will be conducted in 2019 and memo prepared

Manchester Subsea Cables Project
February 19th, 2019
Sheet 10 of 12

Legend

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- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
- Features Outside Survey Area

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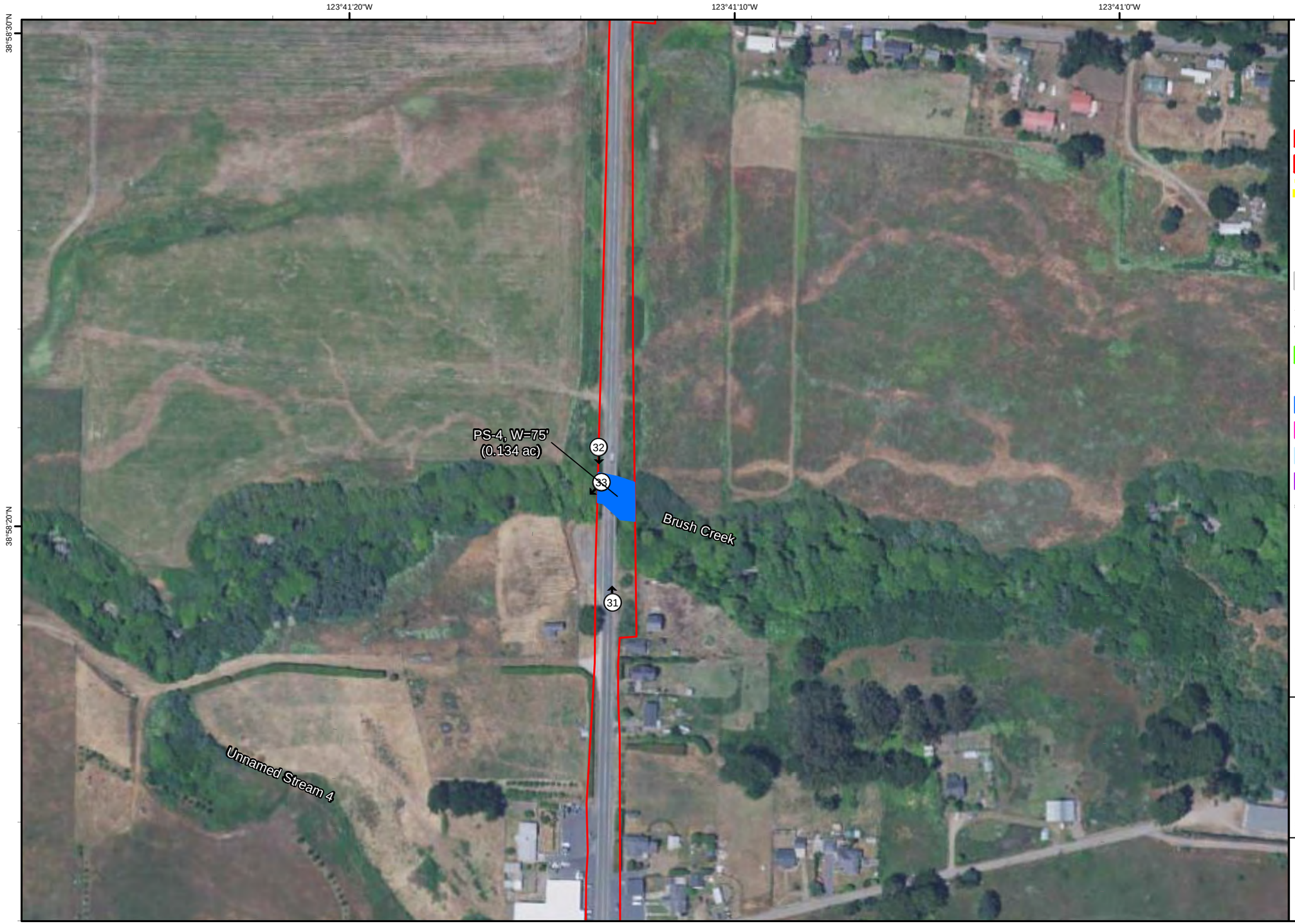
Delineation Date: June 26-28, Sept. 29-31 and Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDOCS\TRDSci\SLP\Projects_1\RT1_Solutions\100718_17_Manchester\Figures\Doc\BA\Wet_Del_Mapbook_USACE.mxd; Author: ; Date: 2/19/2019

Appendix A
Waters of the United States Delineation Map



Manchester Subsea Cables Project
February 19th, 2019
Sheet 11 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
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Appendix A
Waters of the United States Delineation Map

123°41'20"W
123°41'10"W
123°41'0"W
38°58'10"N
38°58'0"N
34
35
C-12, (0.003 ac)
PS-5a, W=6'
(0.010 ac)
PS-5b, W=6'
(0.002 ac)
Unnamed Stream 4
D-7, W=2'
(0.006 ac)
No Access
to the Level 3
CLS Property
No Access to
the Level 3
CLS Property

Manchester Subsea Cables Project
February 19th, 2019
Sheet 12 of 12

Legend

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Path: \\PDC\CITRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\Figures\Doc\BAWet_Del_Mapbook_USACE.mxd, Author: , Date: 2/19/2019

Appendix A
Waters of the United States Delineation Map

Appendix B

California Coastal Act Waters Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 1 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
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- Features Outside Survey Area

California Coastal Act Wetlands (0.584 Total Acre)

- Emergent Wetland (EW) (0.101 ac.)
- Seasonal Wetland (SW) (0.036 ac.)

Riverine Wetlands

- Perennial Stream (PS) (0.286 ac.)
- Intermittent Stream (IS) (0.057 ac.)
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Path: \\PDCCITRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\Figures\Doc\BA\Wet_Del_Mapbook_CZW.mxd; Author: ; Date: 2/19/2019

Appendix B
California Coastal Act Waters Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 2 of 12

Legend

- Survey Area (48 Acres)
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Path: \\PDCCITRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\Figures\Doc\BA\Wet_Del_Mapbook_CZW.mxd; Author: ; Date: 2/19/2019

Appendix B
California Coastal Act Waters Delineation Map

123°41'30"W
123°41'20"W
123°41'10"W
39°01'0"N

C-3, (0.003 ac)
15
Unnamed Stream 2*
19
20
C-4, (0.003 ac)
EW-7, (0.012 ac)
22
21
17
23
25
26
PS-2b, W=2'
(0.001 ac)
16
PS-1, W=2'
(0.004 ac)
C-5, (0.002 ac)
PS-2a, W=2'
(0.007 ac)
ES-2, W=2'
(0.001 ac)
C-6, (0.002 ac)
Alder Creek

Manchester Subsea Cables Project
February 19th, 2019
Sheet 3 of 12

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Appendix B
California Coastal Act Waters Delineation Map

123°41'30"W
123°41'20"W
123°41'10"W
39°0'0"N
38°59'50"N

Manchester Subsea Cables Project
February 19th, 2019
Sheet 4 of 12

Legend

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Delineated By: D. Jokerst, M. Widdowson,
S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and
Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDOCTFRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\FiguresDoc\BAWet_Del_Mapbook_c2W.mxd; Author: ; Date: 2/19/2019

Appendix B
California Coastal Act Waters Delineation Map

123°41'30"W
123°41'20"W
123°41'10"W
123°41'0"W
38°59'40"N
38°59'30"N

Unnamed Stream 3

IS-2a, W=1'
(0.011 ac)

Manchester Subsea Cables Project
February 19th, 2019
Sheet 5 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
- Features Outside Survey Area

California Coastal Act Wetlands (0.584 Total Acre)

- Emergent Wetland (EW) (0.101 ac.)
- Seasonal Wetland (SW) (0.036 ac.)

Riverine Wetlands

- Perennial Stream (PS) (0.286 ac.)
- Intermittent Stream (IS) (0.057 ac.)
- Ephemeral Stream (ES) (0.015 ac.)
- Roadside Ditch (D) (0.049 ac.)
- Culvert (C) (0.040 ac.)

W = Average Width

N

0 50 100 200
Feet
1 inch = 200 feet

Notes:

Base Map Source:ICF
Imagery Source: NAIP 2016
USGS Topo Quad: Mallo Pass Creek and Point Arena
PLSS: S18 T13N R16W, S19 T13N R16,
S1 T13N R17W, S12 T13N R17W, S13 T13N R17W,
S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson,
S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and
Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDOCTHRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\FiguresDoc\BAWet_Del_Mapbook_c2W.mxd; Author: ; Date: 2/19/2019

Appendix B
California Coastal Act Waters Delineation Map

123°41'20"W

123°41'10"W

123°41'0"W

38°59'20"N

38°59'10"N

IS-2a, W=1'
(0.011 ac)

Unnamed Stream 3

IS-2b, W=2'
(<0.001 ac)

C-7, (0.002 ac)

22

23

IS-3, W=4'
(0.035 ac)

C-8, (0.012 ac)

24

25

EW-8, (<0.001 ac)

D-5, W=1'
(0.004 ac)

45

44

SW-3, (0.015 ac)

Manchester Subsea Cables Project
February 19th, 2019
Sheet 6 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
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California Coastal Act Wetlands (0.584 Total Acre)

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S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson,
S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and
Oct. 10-12, 2018
Drawn By: A. Angier

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Appendix B
California Coastal Act Waters Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 7 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
- Features Outside Survey Area

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S1 T13N R17W, S12 T13N R17W, S13 T13N R17W,
S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson,
S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and
Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDCCITRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\Figures\Doc\BA\Wet_Del_Mapbook_CZW.mxd; Author: ; Date: 2/19/2019

Appendix B
California Coastal Act Waters Delineation Map

123°42'0"W
123°41'50"W
123°41'40"W
123°41'30"W
38°58'50"N

Manchester Subsea Cables Project
February 19th, 2019
Sheet 8 of 12

Legend

- Survey Area (48 Acres)
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- Data Point
- Photo Locations
- Features Outside Survey Area

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Feet
1 inch = 200 feet

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USGS Topo Quad: Mallo Pass Creek and Point Arena
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S1 T13N R17W, S12 T13N R17W, S13 T13N R17W,
S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson,
S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and
Oct. 10-12, 2018
Drawn By: A. Angier

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Appendix B
California Coastal Act Waters Delineation Map

123°42'30"W

123°42'20"W

123°42'10"W

38°58'50"N

38°58'40"N

AT&T CLS

Manchester Subsea Cables Project
February 19th, 2019
Sheet 9 of 12

Legend

- Survey Area (48 Acres)
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- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
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0 50 100 200

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S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson,
S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and
Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDCCITRDSGIS\LWProjects_1\RT1_Solutions\100718_17_Manchester\Figures\Doc\BAWet_Del_Mapbook_CZW.mxd; Author: ; Date: 2/19/2019

Appendix B
California Coastal Act Waters Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 10 of 12

Legend

- Survey Area (48 Acres)
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- Cable Landing Stations (CLS)
- Data Point
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0 50 100 200
Feet
1 inch = 200 feet

Notes:

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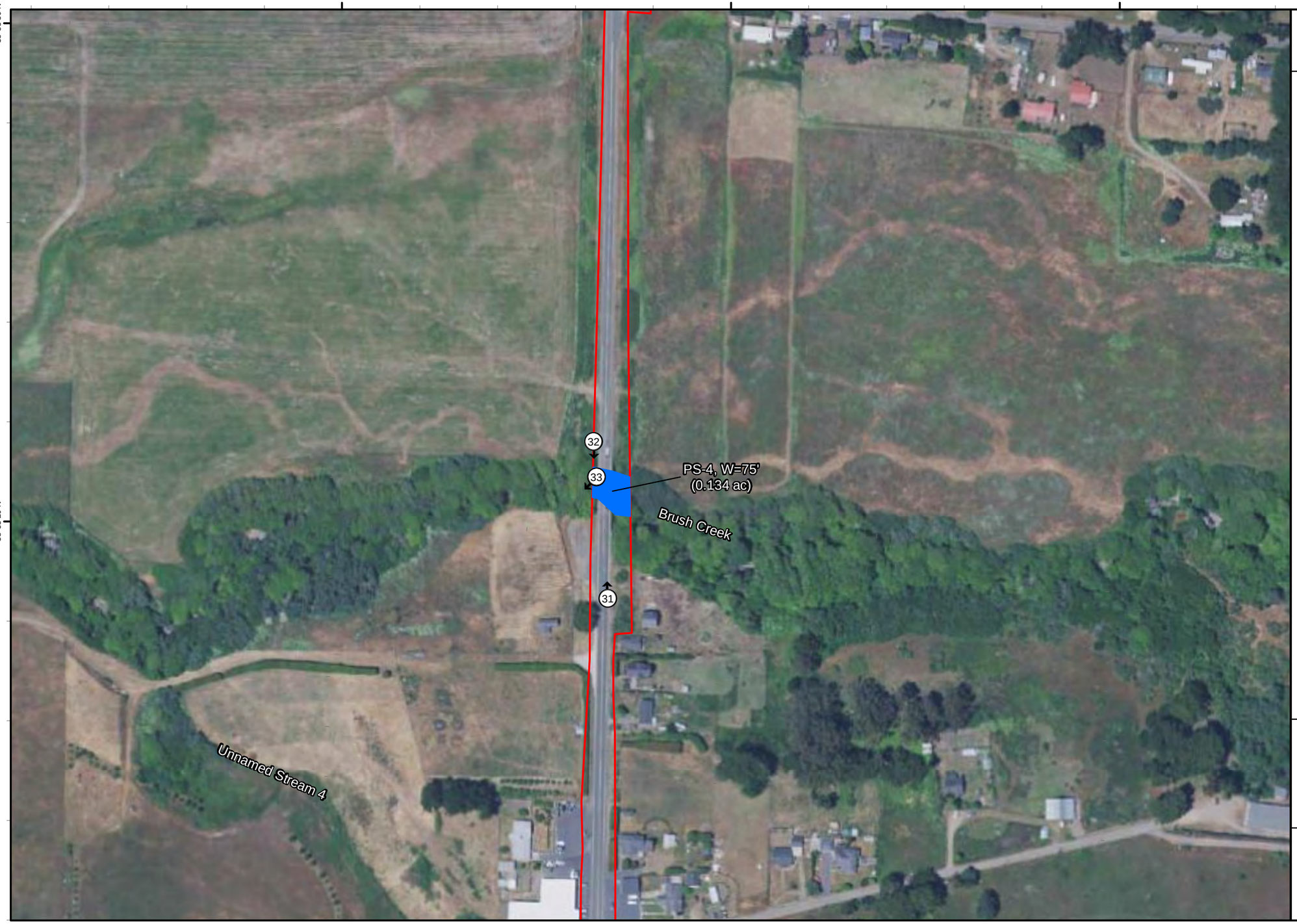
Imagery Source: NAIP 2016
USGS Topo Quad: Mallo Pass Creek and Point Arena
PLSS: S18 T13N R16W, S19 T13N R16,
S1 T13N R17W, S12 T13N R17W, S13 T13N R17W,
S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson,
S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and
Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDCCITRDSGIS1\Projects_1\RTI_Solutions\00718_17_Manchester\Figures\Doc\BA\Wet_Del_Mapbook_CZW.mxd; Author: ; Date: 2/19/2019

Appendix B
California Coastal Act Waters Delineation Map

123°41'20"W
123°41'10"W
123°41'0"W
38°58'30"N
38°58'20"N



Manchester Subsea Cables Project
February 19th, 2019
Sheet 11 of 12

Legend

- Survey Area (48 Acres)
- Area Without Access
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S1 T13N R17W, S12 T13N R17W, S13 T13N R17W,
S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson,
S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and
Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDCCITRDSGIS01\Projects_1\R11_Solutions\00118_17_Manchester\Figures\Doc\BAWet_Del_Mapbook_CZW.mxd, Author: , Date: 2/19/2019

Appendix B
California Coastal Act Waters Delineation Map

Manchester Subsea Cables Project
February 19th, 2019
Sheet 12 of 12

Legend

- Survey Area (48 Acres)
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S1 T13N R17W, S12 T13N R17W, S13 T13N R17W,
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Appendix B
California Coastal Act Waters Delineation Map

Appendix C

Supporting Information (Custom Soil Resource Report National Wetlands Inventory Map)

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Mendocino County, Western Part, California

RTI Manchester Subsea Fiber Project

October 30, 2018

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

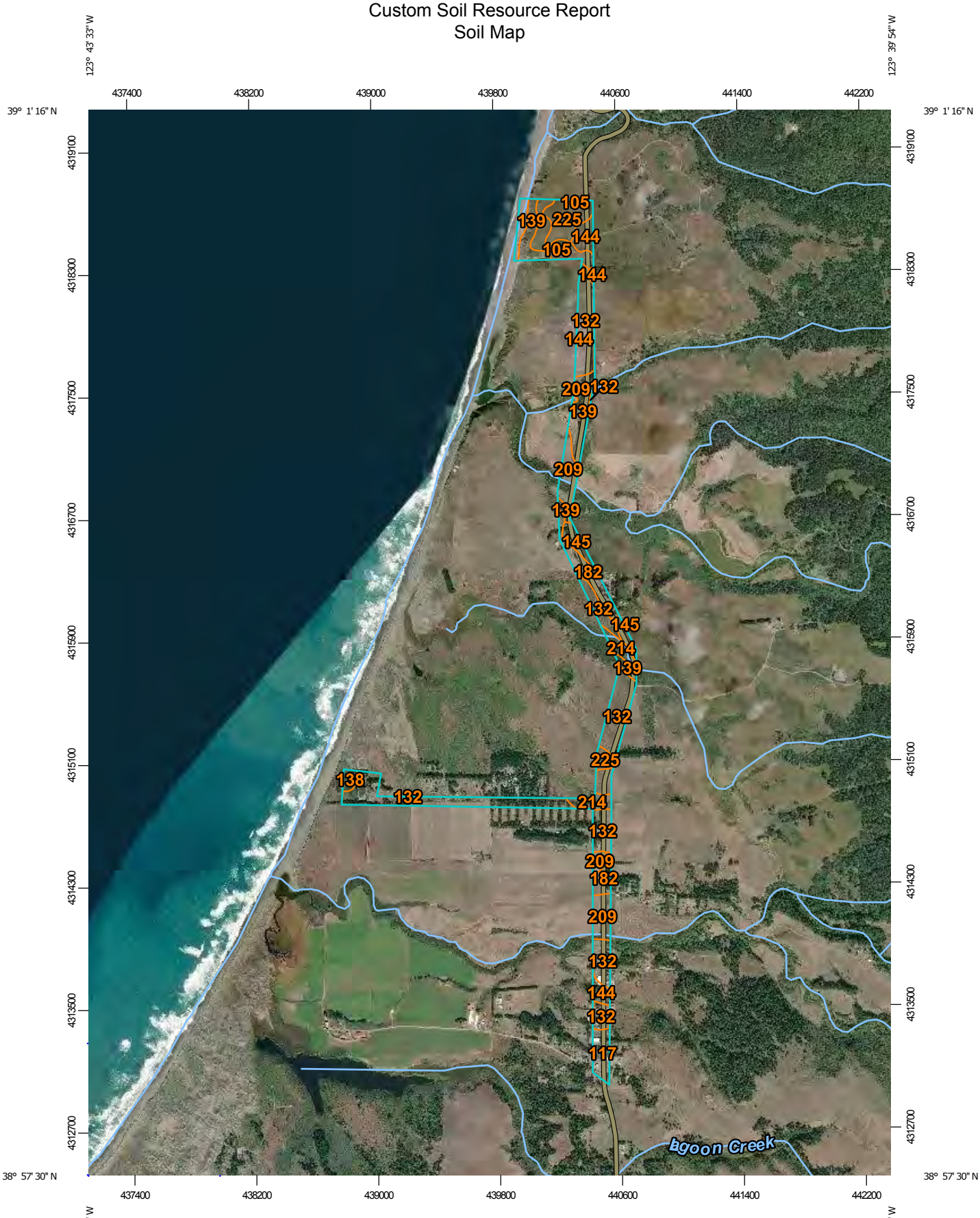
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:33,900 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 500 1000 2000 3000

Feet: 0 1500 3000 6000 9000

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Mendocino County, Western Part, California
Survey Area Data: Version 13, Sep 17, 2018

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

Date(s) aerial images were photographed: Dec 31, 2009—Nov 6, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
105	Biaggi loam, 0 to 5 percent slopes	14.9	6.1%
117	Cabrillo-Heeser complex, 0 to 5 percent slopes	8.9	3.6%
126	Coastal beaches	4.6	1.9%
132	Crispin loam, 0 to 5 percent slopes	97.4	39.8%
138	Duneland	2.7	1.1%
139	Dystropepts, 30 to 75 percent slopes	27.7	11.3%
144	Flumeville clay loam, 0 to 5 percent slopes	11.0	4.5%
145	Flumeville clay loam, 5 to 15 percent slopes	9.1	3.7%
182	Mallopass loam, 0 to 5 percent slopes	18.6	7.6%
209	Stornetta fine sandy loam, 0 to 2 percent slopes	20.9	8.6%
214	Tropaquepts, 0 to 15 percent slopes	10.3	4.2%
225	Windyhollow loam, 0 to 5 percent slopes	18.6	7.6%
Totals for Area of Interest		**244.6**	**100.0%**

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can

be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

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

Mendocino County, Western Part, California

105—Biaggi loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hmk1
Elevation: 100 to 400 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Biaggi and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Biaggi

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 23 inches: loam
H2 - 23 to 27 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: Loamy Terrace (Perennial Grass) (R004XB059CA)
Hydric soil rating: No

Minor Components

Heeser

Percent of map unit: 3 percent
Hydric soil rating: No

Flumeville
Percent of map unit: 3 percent
Landform: Marine terraces
Hydric soil rating: Yes

Cabrillo
Percent of map unit: 3 percent
Hydric soil rating: No

Crispin
Percent of map unit: 3 percent
Hydric soil rating: No

Mallopass
Percent of map unit: 3 percent
Hydric soil rating: No

Windyhollow
Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed, gentler or steeper slopes
Percent of map unit: 2 percent
Hydric soil rating: No

117—Cabrillo-Heeser complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hmkm
Elevation: 20 to 240 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Cabrillo and similar soils: 50 percent
Heeser and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cabrillo

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fluviomarine deposits derived from sandstone

Typical profile

H1 - 0 to 26 inches: sandy loam
H2 - 26 to 35 inches: sandy clay loam
H3 - 35 to 50 inches: sandy clay loam
H4 - 50 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B
Ecological site: Sandy Loam Terrace (Perennial Grass) (R004XB060CA)
Hydric soil rating: No

Description of Heeser

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from sandstone

Typical profile

H1 - 0 to 34 inches: sandy loam
H2 - 34 to 65 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: Sandy Loam Terrace (Perennial Grass) (R004XB060CA)
Hydric soil rating: No

Minor Components

Biaggi
Percent of map unit: 5 percent
Hydric soil rating: No

Crispin
Percent of map unit: 5 percent
Hydric soil rating: No

Sirdrak
Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed, gentler or steeper slopes
Percent of map unit: 3 percent
Hydric soil rating: No

Tropaquepts
Percent of map unit: 3 percent
Landform: Marine terraces
Hydric soil rating: Yes

126—Coastal beaches

Map Unit Composition
Coastal beaches: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Coastal Beaches

Setting
Landform: Beaches
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Beach sand derived from sandstone

132—Crispin loam, 0 to 5 percent slopes

Map Unit Setting
National map unit symbol: hml9
Elevation: 20 to 240 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 250 to 330 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Crispin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crispin

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 14 inches: loam
H2 - 14 to 23 inches: loam
H3 - 23 to 62 inches: weathered bedrock

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: Sandy Loam Terrace (Perennial Grass) (R004XB060CA)
Hydric soil rating: No

Minor Components

Flumeville

Percent of map unit: 3 percent
Landform: Marine terraces
Hydric soil rating: Yes

Biaggi

Percent of map unit: 3 percent
Hydric soil rating: No

Cabrillo

Percent of map unit: 3 percent
Hydric soil rating: No

Mallopass
Percent of map unit: 2 percent
Hydric soil rating: No

Windyhollow
Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, gentler or steeper slopes
Percent of map unit: 2 percent
Hydric soil rating: No

138—Duneland

Map Unit Composition
Duneland: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Duneland

Setting
Landform: Beaches
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands derived from sandstone

Minor Components

Tropaquepts
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Sirdrak
Percent of map unit: 5 percent
Hydric soil rating: No

139—Dystropepts, 30 to 75 percent slopes

Map Unit Composition
Dystropepts and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dystropepts

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: More than 80 inches
Runoff class: High
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Abalobadiah

Percent of map unit: 5 percent
Hydric soil rating: No

Vizcaino

Percent of map unit: 5 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, gentler or steeper slopes

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, talus

Percent of map unit: 5 percent
Hydric soil rating: No

144—Flumeville clay loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hmlt
Elevation: 10 to 1,200 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Flumeville and similar soils: 85 percent
Minor components: 15 percent

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

Description of Flumeville

Setting

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

Typical profile

H1 - 0 to 11 inches: clay loam
H2 - 11 to 62 inches: clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: Semiwet Meadow (Perennial Grass) (R004XB061CA)
Hydric soil rating: Yes

Minor Components

Tropaquepts

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Windyhollow

Percent of map unit: 4 percent
Hydric soil rating: No

Cabrillo

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed, steeper slopes

Percent of map unit: 3 percent
Hydric soil rating: No

145—Flumeville clay loam, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: hmlv
Elevation: 10 to 1,200 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Not prime farmland

Map Unit Composition

Flumeville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Flumeville

Setting

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

Typical profile

H1 - 0 to 11 inches: clay loam
H2 - 11 to 62 inches: clay loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: Semiwet Meadow (Perennial Grass) (R004XB061CA)
Hydric soil rating: Yes

Minor Components

Tropaquepts
Percent of map unit: 4 percent
Landform: Drainageways
Hydric soil rating: Yes

Cabrillo
Percent of map unit: 4 percent
Hydric soil rating: No

Windyhollow
Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed, gentler or steeper slopes
Percent of map unit: 3 percent
Hydric soil rating: No

182—Mallopass loam, 0 to 5 percent slopes

Map Unit Setting
National map unit symbol: hmnf
Elevation: 50 to 800 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Mallopass and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mallopass

Setting
Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile
H1 - 0 to 14 inches: loam
H2 - 14 to 34 inches: clay loam
H3 - 34 to 62 inches: gravelly sandy clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: Loamy Terrace (Perennial Grass) (R004XB059CA)
Hydric soil rating: No

Minor Components

Biaggi

Percent of map unit: 3 percent
Hydric soil rating: No

Windyhollow

Percent of map unit: 3 percent
Hydric soil rating: No

Crispin

Percent of map unit: 3 percent
Hydric soil rating: No

Flumeville

Percent of map unit: 2 percent
Landform: Marine terraces
Hydric soil rating: Yes

Tropaquepts

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Unnamed, steeper slopes

Percent of map unit: 2 percent
Hydric soil rating: No

209—Stornetta fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hmpf
Elevation: 10 to 100 feet

Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Stornetta and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stornetta

Setting

Landform: Flood plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 2 inches: fine sandy loam
H2 - 2 to 62 inches: stratified fine sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water storage in profile: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Riverwash

Percent of map unit: 5 percent
Landform: Channels
Hydric soil rating: Yes

Tropaquepts

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Unnamed, flood plain

Percent of map unit: 5 percent

Hydric soil rating: No

214—Tropaquepts, 0 to 15 percent slopes

Map Unit Composition

Tropaquepts and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tropaquepts

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fluviomarine deposits derived from igneous, metamorphic and sedimentary rock

Properties and qualities

Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Tregoning

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Shinglemill

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Aborigine

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Blacklock

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

225—Windyhollow loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hmq4
Mean annual precipitation: 40 inches
Mean annual air temperature: 54 degrees F
Frost-free period: 250 to 330 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Windyhollow and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windyhollow

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 16 inches: loam
H2 - 16 to 24 inches: clay loam
H3 - 24 to 43 inches: gravelly clay loam
H4 - 43 to 61 inches: clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: Loamy Terrace (Perennial Grass) (R004XB059CA)
Hydric soil rating: No

Minor Components

Flumeville

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

Mallopass

Percent of map unit: 4 percent
Hydric soil rating: No

Biaggi

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed, steeper slopes

Percent of map unit: 3 percent
Hydric soil rating: No

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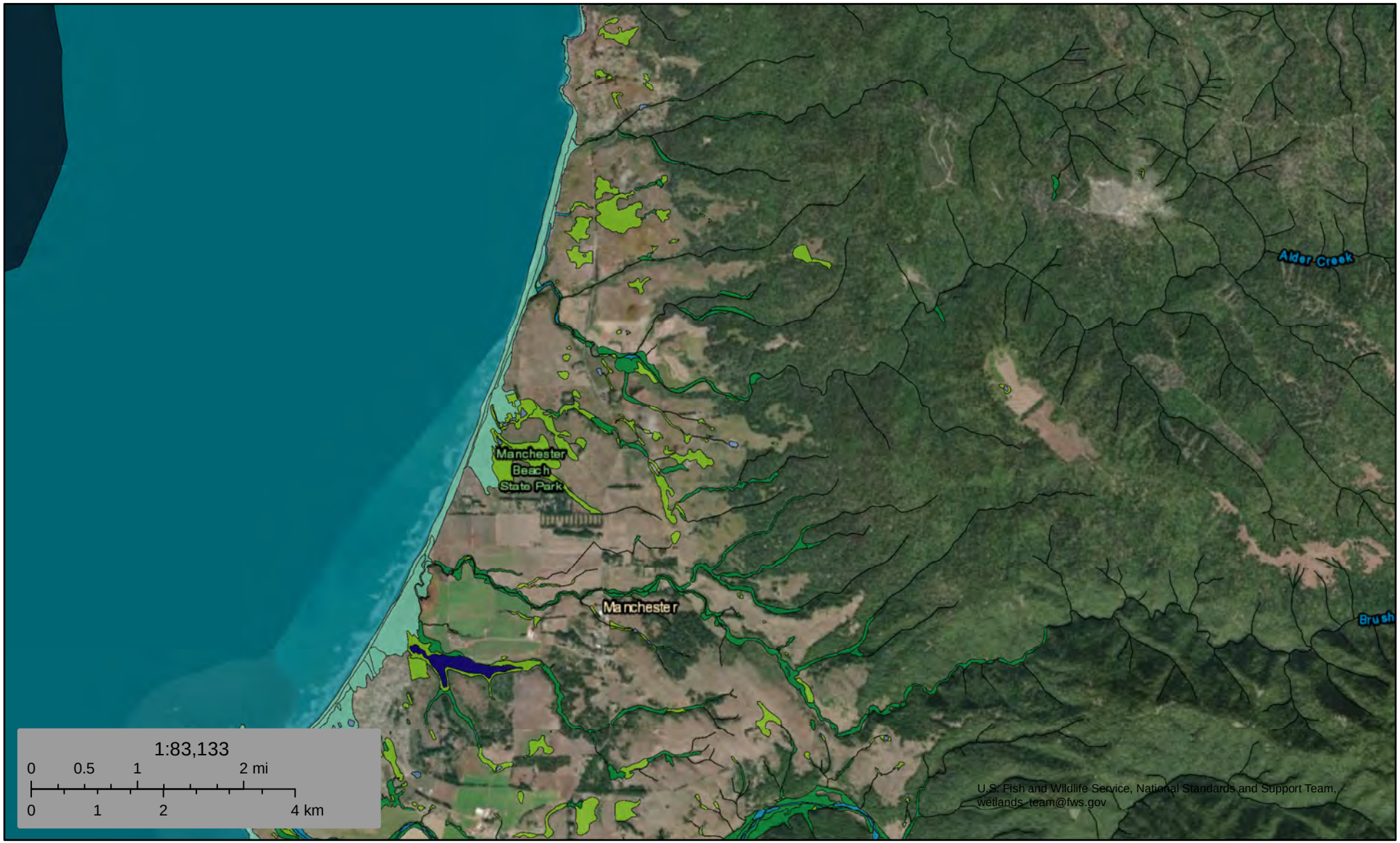
U.S. Fish and Wildlife Service
National Wetlands Inventory

Manchester Subsea Fiber Project



December 6, 2018

Wetlands

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

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

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Appendix D

Routine Wetland Determination Data Forms

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/26/2018

Applicant/Owner: RTI State: Ca Sampling Point: 1

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

Landform (hillslope, terrace, etc.): coastal bluff Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: Long: Datum: 0

Soil Map Unit Name: 225-Windyhollow loam, 0-5% Slopes 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: Very shallow depression on coastal terrace with Holcus lanatus co-dominant

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: 5' radius)			
1. Holcus lanatus	35	Y	FAC
2. Plantago lanceolata	40	Y	~~UPL~~ FACU
3. Horkelia californica	3	N	UPL
4. Rumex acetosella	5	N	FACU
5. Eschscholzia californica	2	N	UPL
6. Stachys rigida	5	N	FACW
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 20' radius)			
1. Rubus ursinus	20	Y	FACU
2. Lonicera hispidula	<1	N	FACU
	20 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

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
0-12	10YR 3/2	100						

[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): none to 12

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks: No indicators

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/26/2018

Applicant/Owner: State: Ca Sampling Point: 2

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

Landform (hillslope, terrace, etc.): Coastal bluff Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: 132 - Crispin loam, 0-5% slopes 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 ____	CZ Wetland	Yes ✓
Hydric Soil Present?	Yes ____ No ✓	Is the Sampled Area within a Wetland?	Yes ____ No ✓
Wetland Hydrology Present?	Yes ✓ No ____		

Remarks: Small seasonal wetland in scrape at end of pull out, clearly delineated by berms on 3 sides

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: 5' radius)			
1. Lythrum hyssopifolium	25	Y	OBL
2. Polygonum arenastrum	20	Y	FAC
3. Mentha pulegium	5	N	OBL
4. Festuca perennis (Lolium)	10	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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:

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)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR2/2	100					gr L	

[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:

Shovel refusal at 4 inches - compacted, gravels. Soil is 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)
- ___ 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): none to 4

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 4

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/26

Applicant/Owner: State: Ca Sampling Point: 3

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

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

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: 132 - Crispin loam, 0-5% slope 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: Berm at back of pullout at edge of Seasonal wetland - CZ only
Paired with Sampling point 2

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: 5' radius)			
1. Rumex acetosella	30	Y	FACU
2. Conyza Agrostis stolonifera	5	N	FAC
3. Cirsium vulgare	2	N	FACU
4. Stachys rigida	25	Y	FACW
5. Plantago lanceolata	10	N	FACU
6. Briza minor	<1	N	FAC
7. Eschscholzia californica	25	Y	UPL
8. Leucanthemum vulgare	3	N	FACU
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: 1 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

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)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/2	100					gr l	

[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): none to 18

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 18

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/26/2018

Applicant/Owner: RTI State: Ca Sampling Point: 4

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Swale in coastal prairie Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: 132 – Crispin loam, 0-5% slopes 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 _____	CZ Wetland	Yes ✓
Hydric Soil Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?**	Yes _____ No ✓
Wetland Hydrology Present?	Yes _____	No ✓		

Remarks: Depressional feature along fence line

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: 8'x2')			
1. Holcus lanatus	50	Y	FAC
2. Briza maxima	10	N	UPL
3. Eschscholzia californica	3	N	UPL
4. Avena barbata	2	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 4x10)			
1. Rubus armeniacus	70	Y	FAC
2. Rubus ursinus	10	N	FACU
	80 = Total Cover		

% Bare Ground in Herb Stratum 35

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:

SOIL

Sampling Point: 4

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	10YR3/2	100					gr ban	lot of cobble

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): more to 16

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): more to 16

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No hydrology indicators

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/26/18

Applicant/Owner: State: Ca Sampling Point: 5

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

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

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Cnspin loam, 0-5% slopes NWI classification:

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

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

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

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

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

Remarks: Representative Upland datapoint paired w/ SW 3 (dp 4)

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: 5' radius)			
1. Briza maxima	40	Y	UPL
2. Avena barbata	20	Y	UPL
3. Eschscholzia californica	10	N	UPL
4. Holcus lanatus	30	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15'x6')			
1. Rubus ursinus	20	Y	FACU
2.			
	20 = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: 5

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 3/2						loam	gravel inclusions

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

~~Mixed~~ Imported 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)
- ___ 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): none to 16

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 16

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/26/2018

Applicant/Owner: State: Ca Sampling Point: 6

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

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

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: 105 - Briggi loam, 0-5% slopes 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 ____	CZ Wetland	Yes ✓
Hydric Soil Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**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: 8'x4')			
1. Oenanthe Sarmentosa	70	Y	OBL
2. Potentilla anserina	20	Y	OBL
3. Equisetum telmateia	10	N	FACW
4.			
5.			
6.			
7.			
8.			
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:

SOIL

Sampling Point: 6

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 3/2	100					cl	
6-10	10 YR 3/2	93	2.5YR5/8	7	C	M	cl	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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): none to 10

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none to 10

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/26/2018

Applicant/Owner: State: Ca Sampling Point: 7

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

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

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: 105 Biaggi loam, 0-5% slopes 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 ____	CZ Wetland	Yes ✓
Hydric Soil Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	Yes ✓ No ____
Wetland Hydrology Present?	Yes ✓ No ____		

Remarks: Roadside swale

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: 2' x 8')			
1. Juncus balticus	30	Y	FACW
2. Briza maxima	5	N	UPL
3. Holcus lanatus	5	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					gr l	
4-16	10YR 2/2	90	7.5YR 5/8	10			s 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:

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): none to 16

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none to 16

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/26/2018

Applicant/Owner: State: Ca Sampling Point: 8

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

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

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: 144 - Flumeville clay loam, 0-5% Slopes 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 ✓	CZ Wetland Is the Sampled Area within a Wetland?	Yes ✓
Hydric Soil Present?	Yes ✓	No ____		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: 2'x8')			
1. Holcus lanatus	30	Y	FAC
2. Bnza maxima	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum 50			

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:

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100					cl	
9-11	10YR 2/2	100					cl	
11-15	2.5YR 5/2	70	10YR 5/8	30	C	M	L	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils moist at 11 inches

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ___ No ✓ Depth (inches): more to 15

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): more to 15

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

Swale, but no sign of recent water flow

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/27/2018

Applicant/Owner: State: Ca Sampling Point: 9

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

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

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: 144 – Flumeville day loam, 0-5% slopes 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: Roadside – slight swale with upland veg

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: 8x2')			
1. Briza maxima	40	Y	UPL
2. Hordeum lanatus	50	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 8x2')			
1. Rubus ursinus	30	Y	FACU
2.			
	30 = 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: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 2/2	100					L	Some cobbly
11-16	10YR 3/1	75	10YR 5/8	25	C	M	sl	with gravel

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

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

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

Redox is too deep

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): none to 16

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 16

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No indicators - site is shallow roadside swale but no sign of water flow

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

Project/Site: RTI Manchester City/County: Manchester, Mendocino Sampling Date: 6/27/2018

Applicant/Owner: State: Ca Sampling Point: 10

Investigator(s): D. Jokerst, M. Widdowson Section, Township, Range:

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

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: 144 – Plumeville clay loam, 0-5% Slopes 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 ____	CZ Wetland	Yes ✓
Hydric Soil Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland?	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: 2'x10')			
1. Oenanthe sarmentosa	30	Y	OBL
2. Epilobium ~~ciliatum~~	10	N	
3. Grindelia ~~hirsutula~~ stricta	30	Y	FACW
4. Mentha pulegium	20	Y	OBL
5. Equisetum telmateia	2	N	FACW
6. Hypochaeris radicata	3	N	FAC
7. Lotus corniculatus	5	N	FAC
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

___ 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:

Hydrophytic vegetation in roadside ditch

SOIL

Sampling Point: 10

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 2/2	90	5YR 5/8	10	C	M	LS	
6-16	10YR 2/1	80	5YR 5/8	20	C	M	SCL	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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): none to 16

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none to 16

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 11

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

Landform (hillslope, terrace, etc.): Valley slope, lower Local relief (concave, convex, none): Concave Slope (%): 5-15

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144 - Plumeville clay loam, 0.5 to 5 slopes 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 ✓	CZ Wetland Yes ✓ No ✓
Hydric Soil Present?	Yes ____	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ____
Wetland Hydrology Present?	Yes ____	No ____	

Remarks:
PM 23.74 Riparian willow scrub along intermittent stream

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 x 10 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	90	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Polystichum munitum	45	Y	FACU
2. Cornus maculatum	10	N	FAC
3. Stachys rigidum	<1	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 30 x 10 ft)			
1. Rubus ursinus	50	Y	FACU
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 45

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]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: Cannot dig soil pit because of presence of PAMB

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: Water seems confined to incised channel of intermittent stream. No evidence of wetland hydrology in riparian strip - ground is sloping & would not pond water, or collect/concentrate water flow

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 12

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144-Flumeville clay loam, 0-5% slopes 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 _____	CZ-Wetland Yes ✓
Hydric Soil Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: PM 23.74 - patch of Salix scrub on east of road
DP is at edge of Salix patch on road shoulder

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: 20' x 10')			
1. Salix scouleriana	100	Y	FAC
2. Baccharis pilularis	10	N	UPL
3. Lonicera involucrata	10	N	FAC
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: 5' x 8')			
1. Artemisia douglasiana	10	Y	FACW
2. Equisetum telmateia	5	N	FACW
3. Stachys rigida	2	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	17 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 83

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:

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					gr 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:

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): none to 12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 13

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 146 - Plumeville clay loam, 0-5% slopes 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: On road shoulder

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: 2'x10')			
1. Avena sp.	3	N	UPL
2. Geranium core-core	2	N	UPL
3. Eschscholzia californica	5	N	UPL
4. Cynosurus echinatus	30	Y	UPL
5. Rumex acetosella	5	N	FACU
6. Briza maxima	30	Y	UPL
7. Bromus hordeaceus	20	Y	FACU
8. Bromus diandrus	5	N	UPL
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 2'x10')			
1. Rubus ursinus	30	Y	FACU
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[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 pit not dug - too close to road

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:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 14

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144 – Flumeville clay loam, 0-5% slopes 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 ____	CZ wetland
Hydric Soil Present?	Yes ____ No ✓	Is the Sampled Area within a Wetland? Yes ____ No ____
Wetland Hydrology Present?	Yes ____ No ✓	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: 5 x 30)			
1. Lonicera involucrata	50	Y	FAC
2. Baccharis pilularis	5	N	UPL
3. Salix sitchensis	20	Y	FACW
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Carex obnupta	30	Y	OBL
2. Juncus patens	10 MT	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 5 x 30)			
1. Rubus ursinus	10	Y	FACU
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 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:

Hydrophytic vegetation extends to bare graded road shoulder + pavement here

SOIL

Sampling Point: 14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/3	100					sl 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: Ground too hard to dig below 6"

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): none to 6

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 6

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks: No evidence of surface hydrology

SOIL

Sampling Point: 15

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					gr/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: Road shoulder - ground to hard to dig below 8"

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): none to 6

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 6

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 15

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144 - Plumeville clay loam, 0-5% slopes 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 ✓	CZ wetland		No ✓
Hydric Soil Present?	Yes	No ✓	Is the Sampled Area within a Wetland?	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: 6'x 25')			
1. Baccharis pilularis	20	Y	FACU
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 6'x6')			
1. Carex obnupta	10	Y	OBL
2. Grindelia stricta	10	Y	FACW
3. Holcus lanatus	2	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	22 = Total Cover		
Woody Vine Stratum (Plot size: 6'x25')			
1. Rubus ursinus	60	Y	FACU
2.			
	60 = Total Cover		

% Bare Ground in Herb Stratum 78

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:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 16

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 132 - Cnspin loam, 0-5% slopes 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: Roadside seep on bank inland of road

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: 5x5')			
1. Cyperus eragrostis	25	Y	FACW
2. Mimulus guttatus	10	N	OBL
3. Juncus effusus	25	Y	FACW
4. Sisyrinchium bellum	5	N	FACW
5. Scrophularia californica	10	N	FAC
6. Scirpus microcarpus	20	Y	OBL
7. Anthoxanthum odoratum	2	N	FACU
8. Juncus balandei	1	N	OBL
9. Juncus patens	2	N	FACW
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: 3 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

__ 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:

SOIL

Sampling Point: 16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					loam	
2-12	10YR 3/2	70	10YR 5/8	20	C	M	loam	
			10YR 6/3	10				

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

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): none to 12

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 17

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 132 - Crispin loam, 0-5% slopes 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: 5'x15')			
1. Rubus parviflorus	25	Y	FACU
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Anthoxanthum odoratum	15	Y	FACU
2. Scirpus microcarpus	5	N	OBL
3. Heracleum maximum	10	Y	FAC
4. Equisetum telmateia	5	N	FACW
5. Briza maxima	15	Y	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 5'x15')			
1. Rubus ursinus	50	Y	FACU
2. Toxicodendron diversilobum	30	Y	FAC
	80 = Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR3/2	100					v gr 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:

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): none to 10

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 10

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 18

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

Landform (hillslope, terrace, etc.): road bank Local relief (concave, convex, none): none Slope (%): 40

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 132 - Crispin loam, 0-5% slopes 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 ____	CZ Wetland	Yes ✓
Hydric Soil Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland?	Yes ____ No ✓
Wetland Hydrology Present?	Yes ____	No ✓		

Remarks: Patch of Salix scrub on bank above road shoulder

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: 10'x10')			
1. Salix sitchensis	80	Y	FACW
2. Rubus ursinus	5	N	FACU
3.			
4.			
5.			
	85 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Equisetum telmateia	2	N	FACW
2. Scirpus microcarpus	5	Y	OBL
3. Scrophularia californica	3	Y	FAC
4. Polystichum munitum	5	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 85

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 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:

SOIL

Sampling Point: 18

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[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:

Bank too steep to dig

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:

Site / topography would not pond or concentrate water

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 19

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

Landform (hillslope, terrace, etc.): road bank Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 139- Dystropepts, 30-75% slopes 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 ✓	C2 Wetland	Yes ✓
Hydric Soil Present?	Yes _____ No _____	Is the Sampled Area within a Wetland?	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: 20'x10')			
1. Lonicera involucrata	80	Y	FAC
2. Baccharis pilularis	10	N	UPL
3. Rubus parviflorus	10	N	FACU
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Heracleum maximum	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: 20'x10')			
1. Toxicodendron diversilobum	20	Y	FAC
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum 85			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 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:

SOIL

Sampling Point: 19

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[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 access to dig pit

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:

Site + topography would not pond or concentrate water

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 27 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 20

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

Landform (hillslope, terrace, etc.): road bank Local relief (concave, convex, none): none Slope (%): ~15

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 139 - Dystropepts, 30-75% slopes 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 ____	CZ Wetland Yes ✓ No ____
Hydric Soil Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Patch of Sitka willow at top of road bank, east side. Starts 6-8 ft from edge of pavement. Up to 15 ft from E of P further S.

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: 20'x20')			
1. Salix sitchensis	80	Y	FACW
2. Morella californica	40	Y	FACW
3. Rubus ursinus	<1	N	FACU
4. Polystichum munitum	<1	N	FACU
5.			
	100 = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ~100

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: Very dense shrubs

SOIL

Sampling Point: 2D

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					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:

Soil too hard to dig + vegetation too dense

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): none to 6

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 6

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No sign of surface hydrology. litter layer is 2-3" deep

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 28 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 21

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 139-Dystropepts, 30-75% slopes 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: PM 23.00 Stream with wetland vegetation, low gradient, 3' wide

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: 6'x2')			
1. Mimulus guttatus	60	Y	OBL
2. Juncus effusus	10	N	FACW
3. Scrophularia californica	5	N	FAC
4. Oenanthe sarmentosa	5	N	OBL
5. Equisetum telmateia	5	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

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

[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: Surface water present, therefore soil meets definition of hydric soil

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

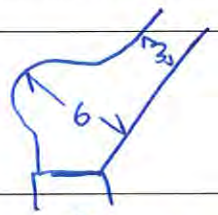
Water Table Present? Yes ✓ No _____ Depth (inches): Surface

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:



PM 23.00

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 28 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 22

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 139 - Dystropepts, 30-75% slopes 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 ____	CZ Wetland Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	Is the Sampled Area within a Wetland? Yes ____ No ✓
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Adjacent to EW in stream at PM 23.00

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: 5' radius)			
1. Holcus lanatus	40	Y	FAC
2. ~~Hypochaeris radicata~~			
3. Rumex acetosella	2	N	FACU
4. Briza maxima	3	N	UPL
5. Leontodon saxatilis	30	Y	FACU
6. Festuca perennis	10	N	FAC
7. Cynosurus echinatus	2	N	UPL
8. Bromus hordeaceus	3	N	FACU
9. Linum bienne	5	N	UPL
10. Lotus corniculatus	5	N	FAC
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: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: ~~100~~ 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:

SOIL

Sampling Point: 2P

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2						gr loam	
8-12	10YR 3/2	90	7.5YR 5/6	10	C	M	gr 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:

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): more to 12

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): more to 12

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 28 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 23

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

Landform (hillslope, terrace, etc.): road shoulder Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 139 - Dystropepts, 30-75% slopes 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.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 4 x 6)			
1. Cynosurus echinatus	30	Y	UPL
2. Bromus hordeaceus	20	Y	FACU
3. Trifolium repens	5	N	FAC
4. Briza minor	10	N	FAC
5. Festuca perennis	20	Y	FAC
6. Leontodon saxatilis	5	N	FACU
7. Geranium core-core	5	N	UPL
8.			
9.			
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: 1 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 23

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 3/2	100					v gr 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:

Gravel / old road base at 6 inches

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): none to 6

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 6

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 28 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 25

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

Landform (hillslope, terrace, etc.): bank/shoulder Local relief (concave, convex, none): convex Slope (%): 5

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 139- Dystropepts, 30-75% slopes 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: Road shoulder between deep swale and road

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: 5' radius)			
1. Geranium core-core	15	Y	UPL
2. Juncus lamatus	20	Y	FAC
3. Bromus diandrus	15	Y	UPL
4. Briza maxima	25	Y	FAC
5. Bromus hordeaceus	5	N	FACU
6. Vulpia bromoides	5	N	FACU
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 10x4)			
1. Rubus ursinus	40	Y	FACU
2. Toxicodendron diversilobum	30	Y	FAC
	____ = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

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

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

SOIL

Sampling Point: 25

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					gr 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:

Gravel/road base at 7 inches

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): none to 7

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 7

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 28 Sept, 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 26

Investigator(s): M. Widdowson, S. Spooner Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast 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	CZ Wetland Yes ✓ No
Hydric Soil Present?	Yes No ✓	Is the Sampled Area within a Wetland? Yes No ✓
Wetland Hydrology Present?	Yes No ✓	

Remarks: Willow woodland/scrub - Salix lasiandra
Upland like Sampling Point 25 on shoulder

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiandra	80	Y	FACW ✓
2.			
3.			
4.			
	80 = Total Cover		

Sapling/Shrub Stratum (Plot size: 30x30)			
1. Salix sitchensis	20	Y	FACW
2. Rubus parviflorus	15	Y	FACU
3. Rubus ursinus	5	N	FACU
4. Sambucus racemosa	5	N	FACU
5.			
	45 = Total Cover		

Herb Stratum (Plot size: 5' radius)			
1. Equisetum telmateia	10	Y	FACW ✓
2. Dryopteris arguta	1	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	11 = Total Cover		

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

% Bare Ground in Herb Stratum 89

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 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:

SOIL

Sampling Point: 26

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/2	100						

[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): none to 12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 10 Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 27

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 225- Windyhollow loam, 0-5% slopes 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:
local depression within a shallow drainage swale adjacent to road

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: 3 x 10 ft)			
1. Festuca perennis	10	N	FAC
2. Lotus corniculatus	30	Y	FAC
3. Lythrum hyssopifolium	2	N	OBL
4. Juncus bufonius	20	Y	FACW
5. Holcus lanatus	10	N	FAC
6. Plantago lanceolata	2	N	FACU
7. Vulpia bromoides	2	N	FAC
8. Leontodon saxatilis	2	N	FACU
9. Juncus tenuis	1	N	FAC
10. Briza minor	1	N	FAC
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20

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:

SOIL

Sampling Point: 27

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/2	98	10YR 4/6	2%	C	PL, M	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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ___ No X Depth (inches): none to 12

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): none to 12

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 10, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 28

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 225 - Windyhollow loam, 0-5% slopes 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.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Plantago lanceolata	40	Y	FACW
2. Holcus lanatus	30	Y	FAC
3. Cynosurus echinatus	1	N	UPL
4. Lotus corniculatus	5	N	FAC
5. Danthonia californica	5	N	FACW
6. Vulpia bromoides	4	N	FAC
7. ~~Lotus~~ Iris douglasiana	5	N	
8.			
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: 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:

SOIL

Sampling Point: 28

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100	✓					
4-18	10YR 3/1	100	✓					

[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): none to 18

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 18

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 11, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 29

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range: _____

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

Subregion (LRR): A: Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: 144 - Flumeville clay loam, 0-5% slopes 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:
* = assumed hydrology during the wet season based on patterns of vegetation and ophill drainage to this location; Small patch of hydrophitic vegetation surrounded by FAC plants and FACU plants.

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: 4x6 ft)			
1. Symphoritrichum chilensis	60	Y	FAC
2. ~~Rubus ursinus~~			
3. Holcus lanatus	40	Y	FAC
4. Juncus balticus	<1		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 4x6 ft)			
1. Rubus ursinus	20	Y	FACU
2.			
	20 = 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (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:

SOIL

Sampling Point: 29

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					loam	
4-6	10YR 2/2	98	5YR 4/6	2	C	PL, M	loam	
6-15	10YR 2/2	85	5YR 4/6	15	C	M	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)
- X 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)**
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ___ No X Depth (inches): none to 15

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): none to 15

Wetland Hydrology Present? Yes ___ No ___

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

Remarks:

Dry season = problematic hydrology

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 11, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 30

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144 - Plumeville clay loam, 0-5% slopes 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: * Assumed rainy season hydrology.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5ft radius)			
1. Holcus lanatus	30	Y	FAC
2. Anthoxanthum odoratum	2	N	FACU
3. Stachys rigida	3	N	FACW
4. Juncus balticus	2	N	FACW
5. Plantago lanceolata	3	N	FAC
6. Baccharis pilularis	5	N	UPL
7. Juncus patens	40	Y	FACW
8.			
9.			
10.			
11.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 5'x10')			
1. Rubus ursinus	15	Y	FACU
2.			
	15 = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (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:

SOIL

Sampling Point: 30

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100	—	—			loam	
4-8	10YR 3/2	85	7.5YR 4/6	15%	C	M	loam	
8-12	10YR 3/1	80	7.5YR 4/6	20%	C	M	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)
- X 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): none to 12

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes ___ No *

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

Remarks:

* Dry season hydrology is problematic

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 11 Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 31

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range: _____

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

Subregion (LRR): A: Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: 144 - Fluvents clay loam, 0-5% slopes 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 ✓	CCA Wetland
Hydric Soil Present?	Yes ✓	No _____	Is the Sampled Area within a Wetland? Yes ✓ No _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: In broad swale with mixed vegetation

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: 5' radius)			
1. Holcus lanatus	5	N	FAC
2. Juncus patens	50	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 10' radius)			
1. Rubus ursinus	80	Y	FACW
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum 45			

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: Veg is mixed

SOIL

Sampling Point: 31

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					L	
4-8	10YR 3/2	95	7.5YR 4/6	5	C	M	L	
8-12	10YR 2/2	80	7.5YR 4/6	20	C	M	L	more 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:

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): ~~none to 12~~

Water Table Present? Yes ___ No ✓ Depth (inches): none to 12

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 11, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 32

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range: _____

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

Subregion (LRR): A: Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: 144 - Plumeville clay loam, 0-5% slopes 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: * Dry season delineation

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: 5 ft radius)			
1. Anthoxanthum odoratum	10	Y	FACU
2. Holcus lanatus	20	Y	FAC
3. Vicia lutea	<1	N	NL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 5 ft radius)			
1. Rubus ursinus	70	Y	FACU
2.			
	70 = Total Cover		

% Bare Ground in Herb Stratum 70

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 32

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	—	0				

[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): none to 12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes _____ No *

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

Remarks:

* dry season delineation

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 33

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144 - Dhumeville clay loams, 0-5% slopes 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.

	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: 5 ft radius)			
1. Carex praegracilis	25	Y	FACW
2. Leontodon saxatilis	30	Y	FACW
3. Plantago lanceolata	5	N	FAC
4. Juncus bufonius	5	N	FACW
5. Holcus lanatus	20	Y	FAC
6. Agrostis stolonifera	5	N	FAC
7. Stachys rigida	5	N	FACW
8. Baccharis pilularis	5	N	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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (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:

SOIL

Sampling Point: 33

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	99	10YR 4/6	1	C	M	loam	
4-10	10YR 3/2	90	10YR 4/6	10	C	M, PL	loam	
10-16	10YR 3/2	80	5YR 3/4	20	C	M, PL	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)
- X 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): none to 16

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none to 16

Wetland Hydrology Present? Yes ✓ No *

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

Remarks:

* Hydrology assumed in wet season

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 11 Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 34

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range: (.

Landform (hillslope, terrace, etc.): adjacent to swale Local relief (concave, convex, none): sl concave Slope (%): 1

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144 - Elsmerville clay loam, 0-5% slopes 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 ____	CZ Wetland	Yes ✓
Hydric Soil Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland?	Yes ____ No ✓
Wetland Hydrology Present?	Yes ____	No ✓		

Remarks:

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: 5 ft radius)			
1. Holcus lanatus	85	Y	FAC
2. Plantago lanceolata	5	N	FACU
3. Lonicera hispidula	5	N	FACU
4. Rubus ursinus	<1	N	FACU
5.			
6.			
7.			
8.			
9.			
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: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 34

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	0					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:

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): none to 12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 11, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 35

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144 - Flumeville clay loam, 0-5% slopes 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 ✓	CZ Wetland Is the Sampled Area within a Wetland?	Yes ✓
Hydric Soil Present?	Yes ✓	No ____		
Wetland Hydrology Present?	Yes ____	No ✓		Yes ____ No ✓

Remarks: In the shallow long swale drainage.

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: 5' radius)			
1. Holcus lanatus	40	Y	FAC
2. Plantago lanceolata	40	Y	FACU
3. Lotus corniculatus	2	N	FAC
4. Rosa californica	<1	N	FAC
5. Rumex acetosella	<1	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	82 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 18

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:

SOIL

Sampling Point: 35

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 3/2	98	7.5YR 5/6	2	C	M	loam	concentrations
6-12	10YR 3/2	95	4/6	5	C	M	loam	dull masses

[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)
- X 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): none to 12

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 11, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 36

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 144- Flumeville clay loam, 0-5% Slopes 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.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Holcus lanatus	40	Y	FAC
2. Plantago lanceolata	35	Y	FACU
3. Rumex acetosella	2	N	FACU
4. Lotus corniculatus	3	N	FAC
5. Linum bienne	41	N	NL
6. Anthoxanthum odoratum	10	N	FACU
7.			
8.			
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: 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 Yes No ✓

Remarks:

SOIL

Sampling Point: 36

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	—					

[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): none to 12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 11, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 37

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

Landform (hillslope, terrace, etc.): roadside bottom, floodplane Local relief (concave, convex, none): none Slope (%): 40 ?

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 209 - Sternetta fine sandy loam, 0-2% slopes 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:
* Steep bank below roadside willow thicket = unable to collect soils.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 x 40)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix sitchensis	35	Y	FACW
2. Salix lasiandra (lucida)	35	Y	FACW
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 x 40)			
1. Salix hookeriana	30	Y	FACW
2.			
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: 5ft ra)			
1. Delairea odorata	*	N	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. Rubus ursinus	50	Y	FACU
2. Rubus parviflorus	5	N	FACU
	55	= Total Cover	

% Bare Ground in Herb Stratum 100

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 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:
* Not included because unable to tell where it is rooted, therfore not representing the ecology

SOIL

Sampling Point: 37

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]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:

See notes on first page.

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:

Assumed based on landscape position but not directly evaluated

No ponding.

Landscape setting — very steep bank — would not pond or collect water

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 12 Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 38

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 214 – Tropaqueplts, 0-15% Slopes 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 X 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 ____	CZ Wetland
Hydric Soil Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ✓
Wetland Hydrology Present?	Yes ____	No ✓	Yes ____ No ✓

Remarks: Dry

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10×30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. outside plot & right of way			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ×30 ft)			
1. Salix lasiolepis	45	Y	FACW
2. Frangula californica	5	N	UPL
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: 5×10 ft)			
1. Carex obnupta	40	Y	OBL
2. Pteridium aquilinum	<1	N	FACU
3. Symphoricarpos chilisaes	5	N	FAC
4. Holcus lanatus	5	N	FAC
5. Achillea millefolia	<1	N	FACU
6. Agrostis stolonifera	<1	N	FAC
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	20	Y	FACU
2.			
	20 = Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (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:

SOIL

Sampling Point: 38

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					loam	
8-12	10YR 3/2	50					loam	
~~8-12~~	~~10YR 5/8~~	~~30~~						
8-12	10YR 6/2	20	10YR 5/8	30	C,CS	M	clay	pockets of clay w/ sand components at depth, possibly exogenous from road construction

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): none to 12

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): none to 12

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Dry season delineation

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 12, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 39

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range: _____

Landform (hillslope, terrace, etc.): coastal terrace Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR): A: Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: 214 - Tropaqueptes, 0-15% slopes 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 _____	CZ Wetland Is the Sampled Area within a Wetland?	Yes ✓
Hydric Soil Present?	Yes _____	No ✓		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. outside plot + right of way			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 x 30 ft)			
1. Salix lasiolepis	45	Y	FACW
2. Frangula ~~purshi~~ californica	5		UPL
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: 5 x 10 ft)			
1. Carex obnupta	60	Y	OBL
2. Agrostis stolonifera	<1		FAC
3. Pteridium aquilinum	<1		FACU
4. Juncus patens	<1		FACW
5. Symphoricarpos chilensis	<1		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 5 x 30 ft)			
1. Rubus ursinus	20	Y	FACW
2.			
	Y = Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 39

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					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:

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): none to 12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 12

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 12, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 40

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

Landform (hillslope, terrace, etc.): coastal terrace Local relief (concave, convex, none): convex Slope (%): 0

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 214 - Tropaquepts, 0-15% slopes 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: Immediate edge of pavement.

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: 3 x 10 ft)			
1. Briza maxima	30	Y	UPL
2. Plantago lanceolata	20	Y	FACU
3. Holcus lanatus	5	N	FAC
4. Agrostis stolonifera	5	N	FAC
5. Achillea millefolia	<1	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 6 x 15 ft)			
1. Rubus ursinus	10	Y	FACU
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 40

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
	N/A							

[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:

Cannot excavate in roadside 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)
- ___ 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:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 12, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 41

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

Landform (hillslope, terrace, etc.): Bo terrace Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 214 – Tropaqueepts, 0-15% slopes 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:
* Assumed hydrology during rainy season.

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: 6 x 10 ft)			
1. Holcus lanatus	50	Y	FAC
2. Juncus patens	10	N	FACW
3. Juncus effusus	30	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 6 x 10 ft)			
1. Rubus ursinus	5		FACW
2.			
	5 = 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: 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:

SOIL

Sampling Point: 41

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
0-10	10YR 2/1	95	5YR 4/6	5	C	m	loam	
10-14	10YR 4/3	85	7.5YR 5/8	15	C	m	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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ___ No X Depth (inches): none to 14

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): none to 14

Wetland Hydrology Present? Yes ✓ No X

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

Remarks:

* Dry season delineation

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 42

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

Landform (hillslope, terrace, etc.): coastal terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 214 - Tropaqueipts, 0-15% slopes 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 x 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: 15 x 20 ft)			
1. Frangula californica	10	Y	UPL
2. Baccharis pilularis	10	Y	UPL
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: ~~5~~ 5ft radius)			
1. Pteridium aquilinum	50	Y	FACU
2. Holcus lanatus	20	Y	~~FAC~~ FACU
3. Anthoxanthum odoratum	<1		~~FAC~~ FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 15 x 20ft)			
1. Rubus ursinus	50	Y	FACU
2.			
	50 = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ~~2~~ 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 42

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
0-10	10YR 3/2	100					loam	
10-18	10YR 3/2	78					loam	
	10YR 4/3	20	5YR 5/6	2	C	M	loam	
	~~10YR 4/3~~	~~2~~	~~5YR 5/6~~					

[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): none to 18

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 18

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Dry season delineation

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 12 Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 43

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

Landform (hillslope, terrace, etc.): coastal terrace Local relief (concave, convex, none): none Slope (%): 0 %

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 214 - Trapaquepts, 0-15% slopes 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:

D

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: 5 ft radius)			
1. Juncus effusus	50	Y	FACW
2. Pteridium aquilinum	5	N	UPL
3. Anthoxanthum odoratum	2	N	FACW
4. Holcus lanatus	3	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 5' radius)			
1. Rubus ursinus	65	Y	FACW
2.			
	65 = Total Cover		

% Bare Ground in Herb Stratum _____

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:

SOIL

Sampling Point: 43

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
0-10	10YR 2/1	100	—				loam	
10-16	10YR 2/1	99	5YR 5/6	1	C	M	loam	few mottles

[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:

Dark high-organic soil w/ very few mottles at depth.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ____ No X Depth (inches): none to 16

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): none to 16

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks:

Soil moist but not glistening.

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 12 Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 44

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

Landform (hillslope, terrace, etc.): coastal terrace Local relief (concave, convex, none): ~~flat~~ concave Slope (%): 5

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 132 - Crispin loam, 0-5% slopes 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 ____	CZ Wetland Is the Sampled Area within a Wetland?	Yes ✓
Hydric Soil Present?	Yes ____	No ✓		Yes ____ No ____
Wetland Hydrology Present?	Yes ✓	No ____		

Remarks: Roadside slope (annually mowed) adjacent to low-lying and seasonally ponded area in field out of Right-of-Way.

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: 2 x 10 ft)			
1. Lotus angustissimus (non-native)	60	Y	UPL
2. Rosa californica	10	N	FAC
3. Plagiobothrys undulatus *	50	Y	OBL
4. Polypogon monospeliensis	1	N	FACW
5.			
6.			
7.			
8.			
9.			
10. * Likely dominating in growing season but invaded by Lotus			
11. during the dry season. Lotus not included in dominance test.			
	121 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 1* (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: Disturbed from maintenance mowing along roadway

SOIL

Sampling Point: 44

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
0-10	10YR 3/2	99.5		0.5	C	M	loam	full of gravel rocks and cobble (70%)
10-16	10YR 3/2	98	5YR 4/6	2	C	M	loam	from roadside prism

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

On bottom of slope adjacent to seasonally flooded (likely 3-parameter) wetland with obvious wetland hydrophytic vegetation. Soils contain abundant rocks from building of roadside prism.

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)

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

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): none to 16

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): none to 16

Wetland Hydrology Present? Yes X No _____

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

Remarks:

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

Project/Site: RTI Manchester City/County: Manchester / MENDOCINO Sampling Date: 12, Oct 2018

Applicant/Owner: RTI / Caltrans, private State: CA Sampling Point: 45

Investigator(s): M. Widdowson, J. Mayor Section, Township, Range:

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

Subregion (LRR): A: Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 132 - Crispin loam, 0-5% slopes 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.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 4x8 ft)			
1. Juncus patens	50	Y	FACW
2. Briza maxima	50	Y	UPL
3. Holcus lanatus	<1	N	FAC
4. Avena sp.	<1	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 4x8 ft)			
1. Rubus ursinus	15	Y	FACU
2.			
	15 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes No ✓

Remarks:

Sampling Point: 45

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
0-10	10YR 3/2	100					loam	~~gravel~~ rocks and cobble (20%)

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Road fill gravel and cobble prevented deep excavation

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): none to 10

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): none to 10

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Appendix E

Ordinary High Water Mark (OHWM) Delineation Datasheets

Project: MANCHESTER SUBSEA CABLES **Date:** 6/26/18

Location: Manchester, Mendocino County **Investigator(s):** D. Jokerst, M. Widdowson

Project Description:

Delineation for fiber cable installation project along SR 1 and some adjacent properties

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

Perennial streams are in functioning condition. Some roadside non-wetland waters are disturbed from roadside maintenance.

Off-site Information

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

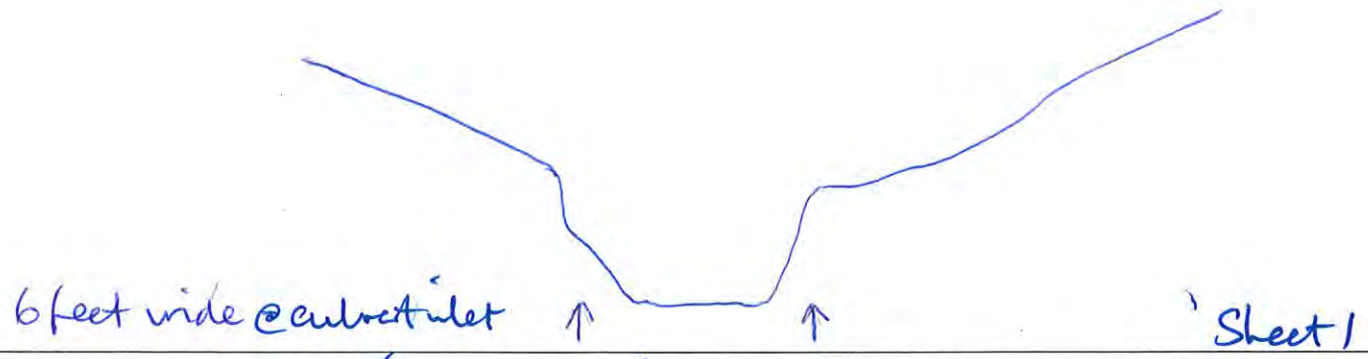
Aerial

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

List and describe any other supporting information received/acquired:

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

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



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

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	— loam —					Y
Below OHWM	~100					N

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	90	50	60	40
Below OHWM				100

Salix, Rubus urs

Notes/Description:
Dense shade of Salix
Nothing in channel

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

Change in vegetation, soil, scour

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

Perennial/Intermittent Stream - flowing → West culvert 23.74

Full Assessment requires trespassing outside ROW, dense vegetation

Sheet 1

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

Notes/Description:

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	Obscured by vegetation					
Below OHWM	70	15			15	

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	95	60	40	
Below OHWM				100

Notes/Description:

→ Salix lasiolepis

→ R. ursinus, R. parviflorus

→ P. minutum Marsh

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

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

ES-1

Deeply incised, roadside segment

Sheet 1

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

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	30	40	20	10		
Below OHWM	40	40	15	5		

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM		70	25	
Below OHWM			50	50

Notes/Description:

Rubus ursinus
Toxicodendron diversilobium
Anthoxanum odoratum
Polystichum munitum
Hypericum perforatum
Mentha pulegium
Bog pilularis

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

Scour, sediment sorting, change in soil + vegetation

RTI Manchester

Datasheet # _____ **OHWM Delineation Datasheet** Page 5 of 9

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

PM 22.92 Culvert, Ephemeral Stream ES-2
2' wide, incised below culvert

Sheet 3

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

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	— gr loam —					Y
Below OHWM	20		50 ~~40~~	30		N

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	80	40	10
Below OHWM	0	0	0	100

Notes/Description:

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

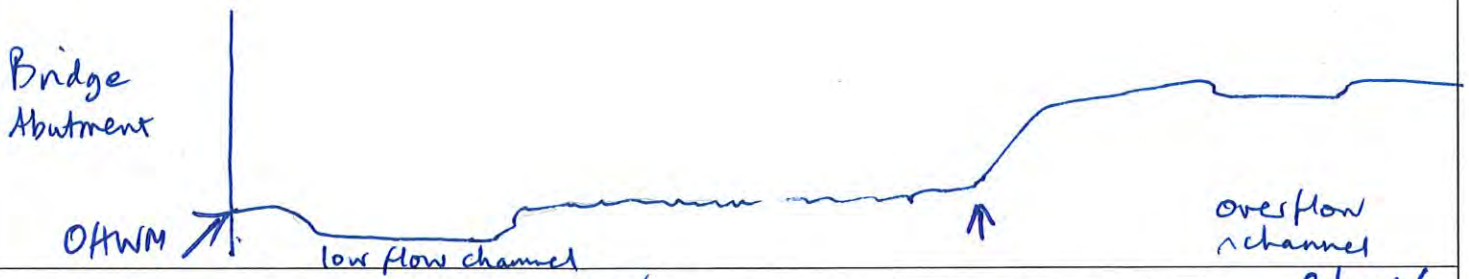
Scour, change in vegetation, soils, sediment sorting

RTI, Manchester

Datasheet # _____ **OHWM Delineation Datasheet** Page 6 of 9

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

Alder Creek - Perennial Stream Sheet 4



Break in Slope at OHWM: ☐ Sharp (> 60°) | ☑ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None Sheet 4

Notes/Description:

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	—	loam —				Y
Below OHWM		15	~~40~~	~~30~~	5	

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	100	20	20	~~100~~ 80
Below OHWM	100			~100

Notes/Description:

Alnus rubra dominated canopy with Salix sitchensis

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

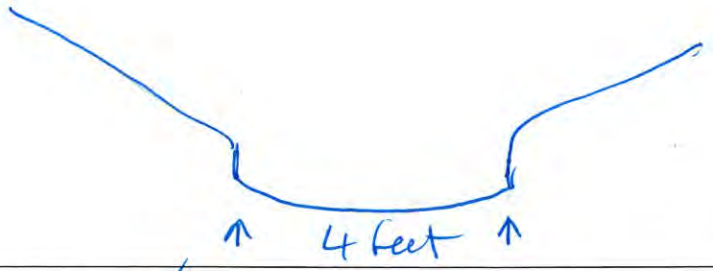
Water present in low flow channel.

Broad area below OHWM with gravel, cobble

OHWM characteristics present: water marks on bridge abutment, scour, sediment sorting, shelving, change in soil

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

Intermittent Stream = Unnamed Stream 3
PM 22.97. Crosses under SR-1 in oblique culvert, parallels road



Sheet 6

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

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100 % loam					Y
Below OHWM	~95		5			N

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM		100		
Below OHWM		100		

Notes/Description:
Dense Salix canopy, not rooted below OHWM

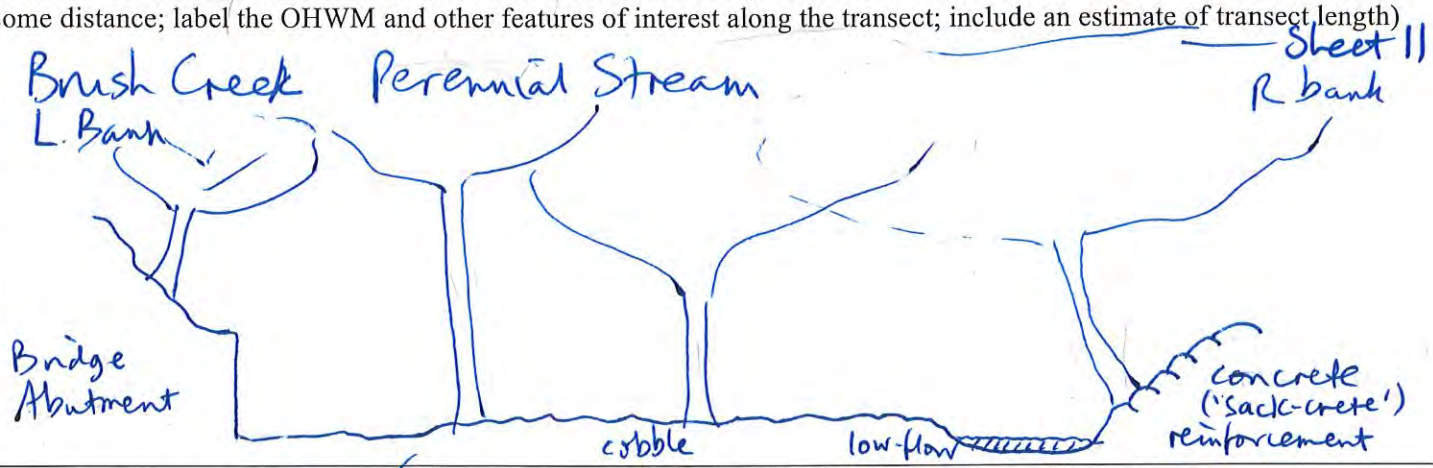
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

OHWM characteristics: scour, change in soil + vegetation, sediment sorting

RTI, Manchester

Datasheet # _____ **OHWM Delineation Datasheet** Page 8 of 9

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



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

Notes/Description: OHWM is on abutments on both banks at bridge

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

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM		or loam				Y
Below OHWM	10	10	10	50	20	N

Notes/Description: S.

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	50	~0	50	50
Below OHWM	50	40	20	80

Bacchanis - Rubus us.

Notes/Description:
Open Alnus rubra below OHWM

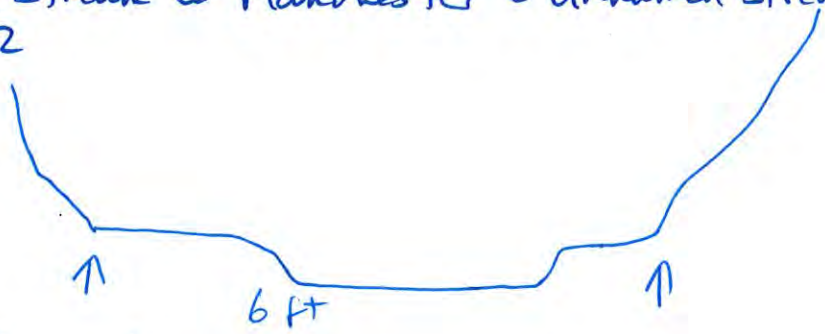
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Flowing water 9/28/2018. Shelving, scour, sediment sorting.
Low flow channels at both sides, ~10 ft wide

Datasheet # _____ **OHWM Delineation Datasheet** Page 9 of 9

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

Perennial Stream = Manchester = Unnamed Stream 4
PM 20.62



Segment E (upstream) of SR 1 Sheet 12

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

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

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

Notes/Description:

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

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	~~100~~ 100		—	—
Below OHWM		100	—	—

Notes/Description:
Dense shrub/tree layer - Salix lasiolepis, Rubus parviflorus, Rubus ursinus. Rooted above OHWM

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

OHWM characteristics: scour, shelving, change in soil, sediment sorting, change in veg

Appendix F

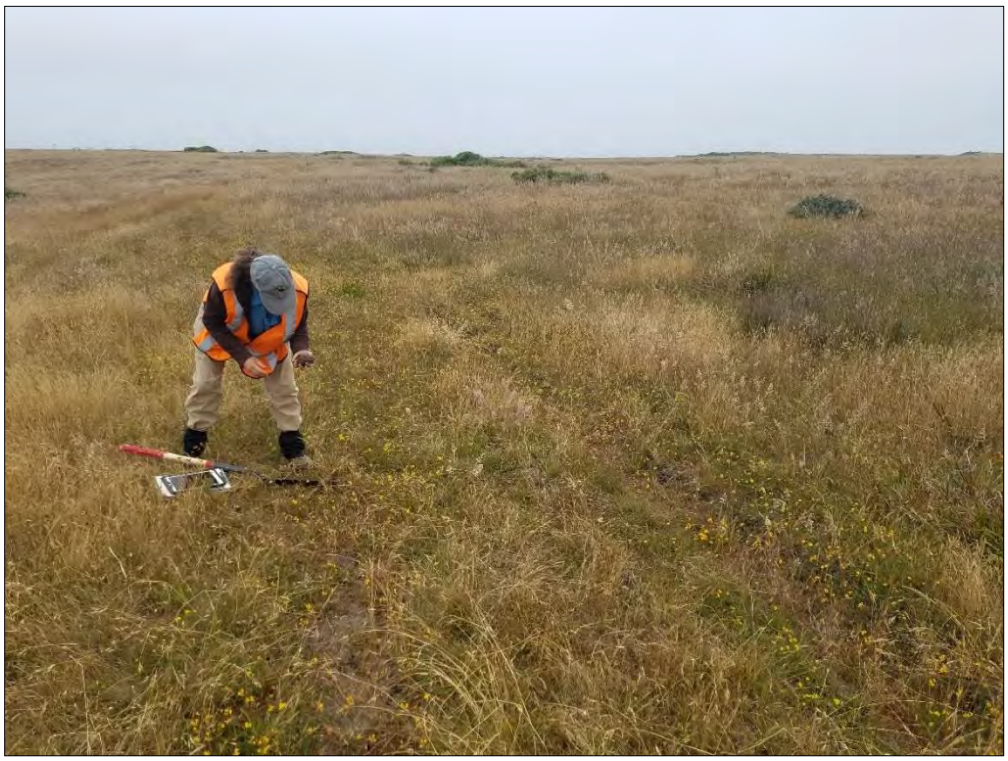
Representative Photographs

Appendix F
Representative Photographs

Photograph 1: Cable landing parcel, showing flat topography and velvet grass-dominated areas of meadow; facing east (June, 26, 2018)

Photograph 2: Cable landing parcel; facing west toward Pacific Ocean, visible in distance (June 27, 2018)

Photograph 3: Cable landing parcel, view of wetland complex from State Route 1 fence line, showing patches dominated by rush at locations of sampling points 29, 30, 31, and 32; facing northwest (June 27, 2018)



Photograph 4. Cable landing parcel wetland complex, showing surveyor investigating sampling point 27 in small emergent wetland; facing west (June 27, 2018)

Photograph 5: Roadside ditch D-1a along east side of State Route 1; facing south (June 27, 2018)

Photograph 6: Roadside ditch D-1a at culvert under residence access road; facing north (July 31, 2018)

Photograph 7: Roadside ditch D-1b that flows to Unnamed Stream 1, an intermittent stream IS-1 in far distance; facing south (July 31, 2018)

Photograph 8: Unnamed Stream 1, IS-1, a deeply down cut intermittent stream under dense willow canopy; facing southwest (July 31, 2018)

Photograph 9: Emergent wetland EW-4, with dense willow canopy associated with Unnamed Stream 1 visible in background, near location of sampling point 10.

Photograph 10: Facing south, emergent wetland EW-4 with Roadside ditch D-3 in background on east side of State Route 1 (June 27, 2018)

Photograph 11: Emergent wetland EW-4 near locations of sampling points 6 and 7; facing south (April 4, 2018)

Photograph 12: Upper end of Roadside ditch D-3 near location of sampling points 8 and 9, facing south (April 4, 2018)

Photograph 13: Seasonal wetland SW-1, facing north, formed on compacted soils in a pull out; this feature and similarly situated feature SW-2 lacked hydric soils (see sampling points 2 and 3) (June 27, 2018)

Photograph 14: View south on State Route 1, emergent wetlands EW-5 and EW-6 are located on road shoulder on east side of road (April 4, 2018)

Photograph 15: Facing north, riparian canopy dominated by red alder, associated with Unnamed Stream 2 (July 31, 2018) (Note: Unnamed Stream 2 does not surface in the survey area.)

Photograph 16: Willow canopy, associated with perennial stream PS-1, facing northeast (September 28, 2018)

Photograph 17: Emergent wetland EW-7 in stream channel at location of sampling points 21, 22, and 23 (2018 Field Season)

Photograph 18 Alder Creek bridge, showing dense alder- and willow-dominated riparian forest, facing south (July 31, 2018)

Photograph 19: Alder Creek viewed from State Route 1 bridge, showing cobble channel; facing southwest (April 4, 2018)

Photograph 20: Alder Creek bridge showing dense riparian forest canopy associated with Alder Creek, facing north (April 4, 2018)

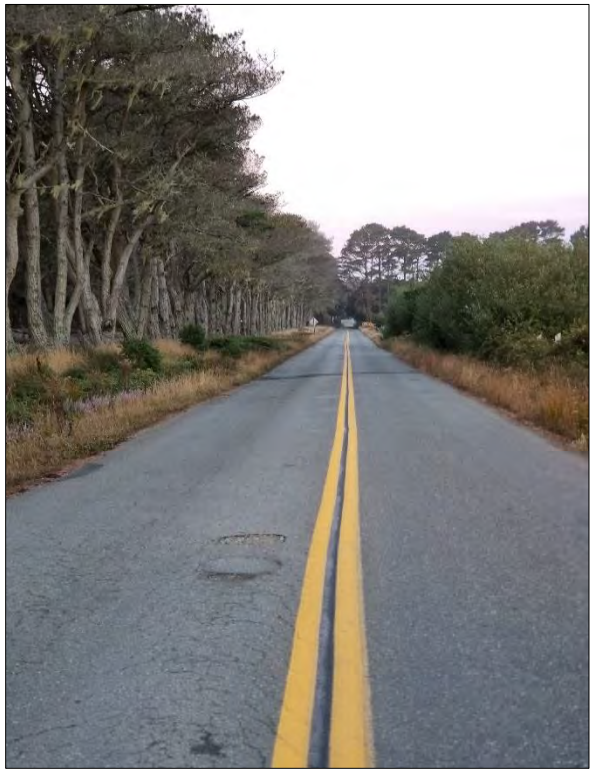
Photograph 21: Valley of Alder Creek, with scrub shrub willows associated with the floodplain of Alder Creek; facing north (April 4, 2018)

Photograph 22: Intermittent stream IS-2a, which flows along east side of State Route 1 into Unnamed Stream 3, an intermittent stream (IS-3); facing north (September 28, 2018)

Photograph 23: Channel of intermittent stream IS-3 (Unnamed Stream 3) showing distinct bed and bank with scour, sediment deposition, and water marks visible at the ordinary high water mark; facing north (September 28, 2018)

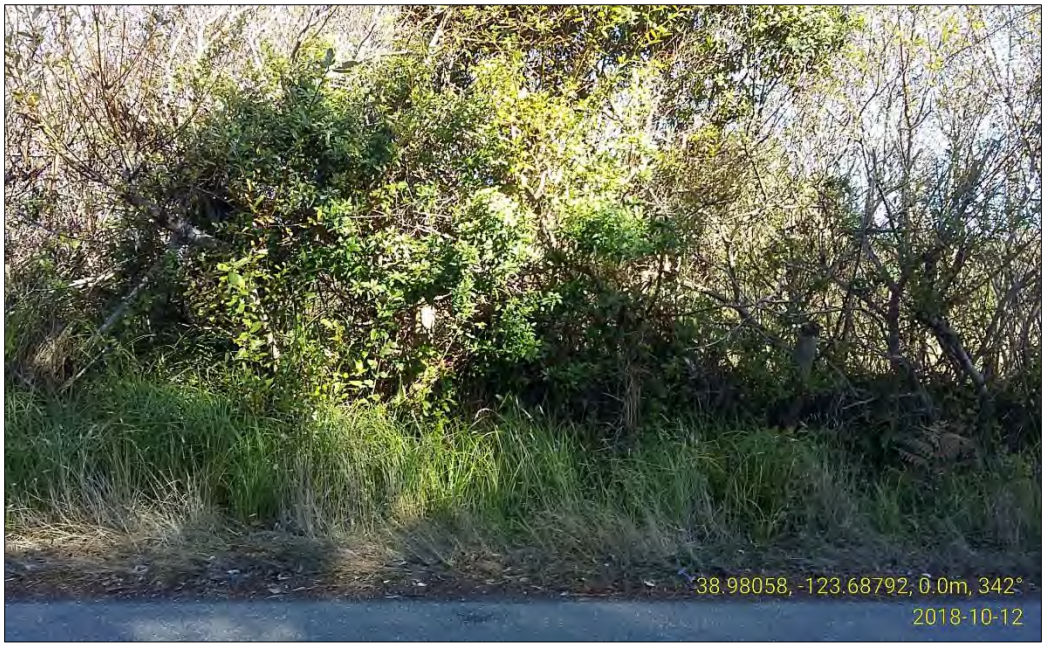
Photograph 24: View of scrub shrub willows on left (west side of State Route 1 [SR-1]) and right (east side of SR 1) associated with Unnamed Stream 3, facing north (September 28, 2018) (Note: Intermittent stream IS-2a flows along east of SR 1 in upper right of picture).

Photograph 25: View of scrub shrub willows associated with Unnamed Stream 3, facing north (September 28, 2018)



Photograph 26: Kinney Road viewed from junction with State Route 1, showing nonnative pines on south (left) and scrub shrub willows along north side of Kinney Road; facing west (September 12, 2018)

Photograph 27: Intermittent stream IS-4a, channeled along south side of Kinney Road; facing west (October 12, 2018)



Photograph 28. Willow canopy associated with intermittent stream IS-4b along north side of Kinney Road near junction with State Route 1, facing north (October 12, 2018)

Photograph 29: Willow canopy associated with intermittent stream IS-4 along north side of Kinney Road near junction with State Route 1, facing northeast (October 12, 2018)

Photograph 30: Emergent wetland EW-9 at location of sampling point 41 on road shoulder, on south side of Kinney Road; facing west (October 12, 2018)

Photograph 31: Brush Creek, showing dense riparian forest canopy dominated by red alder and willows; facing north (September 12, 2018)

Photograph 32: Brush Creek, showing dense riparian forest canopy dominated by red alder and willows; facing south (April 4, 2018)

Photograph 33: Channel of Brush Creek dominated by cobble, under dense riparian red alder forest canopy (April 4, 2018)

Photograph 34: Unnamed Stream 4 (perennial stream PS-5) in Manchester, showing small patch of willows on east side of State Route 1 associated with the stream (October 12, 2018)

Photograph 35: Roadside ditch D-7 along east side of State Route 1 at south end of Manchester, facing north (October 12, 2018)

Appendix G

Plant Species Observed in the Survey Area

Appendix G
Plant Species Observed in the Biological Survey Area

Scientific Name[a]	Common Name	Wetland Indicator Status[b]
Ferns		
Dennstaedtiaceae	**Bracken family**	
Pteridium aquilinum var. *pubescens*	Bracken fern	FACU
Dryopteridaceae	**Wood Fern Family**	
Dryopteris arguta	Coast woodfern	FACU
Polystichum munitum	Sword fern	FACU
Equisetaceae	**Horsetail Family**	
Equisetum arvense	Common horsetail	FAC
Equisetum telmateia subsp. *braunii*	Giant horsetail	FACW
Polypodiaceae	**Polypody Family**	
Polypodium sp.	Polypody fern	
Pteridaceae	**Brake Family**	
Adiantum aleuticum	Five-finger fern	FAC
Pentagramma triangularis	Goldenback fern	UPL
Gymnosperms		
Cupressaceae	**Cypress Family**	
Hesperocyparis macrocarpa	Monterey cypress	UPL
Pinaceae	**Pine Family**	
Picea sitchensis	Sitka spruce	FAC
Pinus contorta	Lodgepole pine	UPL
Pinus radiata	Monterey pine	UPL
Pseudotsuga menziesii var. *menziesii*	Douglas-fir	FACU
Eudicots		
Adoxaceae	**Muskroot Family**	
Sambucus racemosa	Red elderberry	FACU
Aizoaceae	**Iceplant Family**	
Carpobrotus chilensis	Sea fig	FAC
Carpobrotus edulis	Iceplant	UPL
Anacardiaceae	**Sumac Family**	
Toxicodendron diversilobum	Poison-oak	FAC
Apiaceae	**Carrot Family**	
Conium maculatum	Poison hemlock	FAC
Daucus pusillus	Rattlesnake weed	UPL
Foeniculum vulgare	Fennel	UPL
Heracleum maximum	Common cowparsnip	FAC
Oenanthe sarmentosa	Water parsley	OBL

Scientific Name[a]	Common Name	Wetland Indicator Status[b]
Apocynaceae	**Dogbane Family**	
Vinca major	Periwinkle	UPL
Asteraceae	**Sunflower Family**	
Achillea millefolium	Yarrow	FACU
Agoseris heterophylla var. *heterophylla*	Annual agrostis	UPL
Anaphalis margaritacea	Pearly everlasting	FACU
Anthemis cotula	Dog fennel	FACU
Artemisia douglasiana	California mugwort	FACW
Baccharis pilularis	Coyote brush	UPL
Carduus pycnocephalus	Italian thistle	UPL
Centaurea solstitialis	Yellow star-thistle	UPL
Cirsium vulgare	Bull thistle	FACU
Corethrogyne filaginifolia	Common sandaster	UPL
Crepis capillaris	Smooth hawksbeard	FACU
Delairea odorata	Cape ivy	UPL
Erigeron canadensis	Sneezeweed	FACU
Erigeron glaucus	Seaside daisy	FACU
Eriophyllum lanatum	Woolly sunflower	UPL
Eriophyllum staechadifolium	Lizard tail	UPL
Grindelia stricta var. *stricta*	Coastal gum plant	FACW
Helminthotheca echioides	Bristly ox-tongue	FAC
Hypochaeris glabra	Smooth cats ear	UPL
Hypochaeris radicata	Rough cat's ear	FACU
Lactuca saligna	Willow lettuce	FACU
Lactuca serriola	Prickly lettuce	FACU
Leontodon saxatilis	Hawkbit	FACU
Leucanthemum vulgare	Ox eye daisy	FACU
Madia sativa	Coastal tarweed	UPL
Matricaria discoidea	Pineapple weed	FACU
Psilocarphus brevissimus	Woolly marbles	FACW
Senecio glomeratus	Cutleaf burnweed	UPL
Senecio minimus	Coastal burnweed	FACU
Senecio vulgaris	Common groundsel	FACU
Silybum marianum	Milk thistle	UPL
Sonchus oleraceus	Sow thistle	UPL
Symphyotrichum chilense	Pacific aster	FAC
Symphyotrichum subspicatum	Douglas aster	FACW
Taraxacum officinale	Red-seeded dandelion	FACU
Betulaceae	**Birch Family**	
Alnus rubra	Red alder	FAC
Boraginaceae	**Borage Family**	
Plagiobothrys undulatus	Coast allocarya	OBL

Scientific Name[a]	Common Name	Wetland Indicator Status[b]
Brassicaceae	**Mustard Family**	
Brassica rapa	Common mustard	FACU
Raphanus sativus	Jointed charlock	UPL
Sinapis arvensis	Charlock	UPL
Caprifoliaceae	**Honeysuckle Family**	
Lonicera hispidula	Pink honeysuckle	FACU
Lonicera involucrata var. *ledebourii*	Twinberry honeysuckle	FAC
Caryophyllaceae	**Pink Family**	
Polycarpon tetraphyllum	Four leaved allseed	UPL
Spergularia rubra	Purple sand spurry	FAC
Stellaria media	Chickweed	FACU
Convolvulaceae	**Morning-Glory Family**	
Calystegia purpurata subsp. *purpurata*	Pacific false bindweed	UPL
Convolvulus arvensis	Field bindweed	UPL
Crassulaceae		
Dudleya farinosa	Bluff lettuce	UPL
Euphorbiaceae	**Spurge Family**	
Euphorbia lathyris	Gopher plant	UPL
Euphorbia peplus	Petty spurge	UPL
Fabaceae	**Pea Family**	
Acmispon americanus var. *americanus*	Spanish lotus	FACU
Cytisus scoparius	Scotch broom	UPL
Cytisus scoparius	Scotch broom	UPL
Hosackia gracilis	Harlequin lotus	FACW
Lathyrus hirsutus	Caley pea	FAC
Lathyrus polyphyllus	Oregon pea	UPL
Lotus angustissimus	Slender lotus	UPL
Lotus corniculatus	Birdfoot trefoil	FAC
Lupinus albifrons var. *collinus*	Silver bush lulpine	UPL
Lupinus arboreus	Yellow bush lupine	UPL
Medicago lupulina	Black medic	FACU
Medicago polymorpha	Common burclover	FACU
Melilotus albus	White sweetclover	FACU
Melilotus indica	Annual yellow sweet clover	FACU
Trifolium campestre	Hop clover	UPL
Trifolium dubium	Suckling clover	FACU
Trifolium fragiferum	Strawberry clover	FACU
Trifolium glomeratum	Clustered clover	UPL
Trifolium hirtum	Rose clover	UPL
Trifolium pratense	Red clover	FACU
Trifolium repens	White clover	FAC
Trifolium variegatum var. *major*	Large variegated clover	FAC

Scientific Name[a]	Common Name	Wetland Indicator Status[b]
Vicia benghalensis	Purple vetch	UPL
Vicia gigantea	Giant vetch	FACU
Vicia lutea	Yellow vetch	UPL
Vicia sativa subsp. *nigra*	Smaller common vetch	FACU
Vicia sativa subsp. *sativa*	Common vetch	FACU
Vicia villosa subsp. *varia*	Smooth vetch	FACU
Garryaceae	**Silk Tassel Family**	
Garrya elliptica	Coast silk tassel	UPL
Geraniaceae	**Geranium Family**	
Geranium core-core	Alderney crane's bill	UPL
Geranium dissectum	Cutleaf geranium	UPL
Pelargonium grossularioides	Gooseberry geranium	UPL
Grossulariaceae	**Gooseberry Family**	
Escallonia rubra	Red claws	UPL
Lamiaceae	**Mint Family**	
Mentha pulegium	Pennyroyal	OBL
Stachys rigida var. *quercetorum*	Rough hedgenettle	FACW
Linaceae	**Flax Family**	
Mentha pulegium	Pennyroyal	OBL
Montiaceae	**Miner's Lettuce Family**	
Claytonia perfoliata	Miner's lettuce	FAC
Myricaceae	**Mulberry Family**	
Morella californica	California wax myrtle	FACW
Myrsinaceae	**Myrsine Family**	
Lysimachia arvensis	Scarlet pimpernel	FAC
Myrtaceae	**Myrtle Family**	
Eucalyptus globulus	Blue gum	UPL
Onagraceae	**Evening-Primrose Family**	
Clarkia purpurea subsp. *quadrivulnera*	Purple clarkia	UPL
Clarkia rhomboidea	Tongue clarkia	UPL
Epilobium campestre	Smooth boisduvalia	OBL
Epilobium densiflorum	Willow herb	FACW
Orobanchaceae	**Broomrape Family**	
Castilleja affinis subsp. *affinis*	Coast Indian paintbrush	UPL
Castilleja mendocinensis	Mendocino coast paintbrush	UPL
Parentucellia viscosa	Yellow parentucellia	FAC
Oxalidaceae	**Oxalis Family**	
Oxalis pes-caprae	Bermuda buttercup	UPL
Lythraceae	**Loosestrife Family**	
Lythrum hyssopifolia	Hyssop loosestrife	OBL

Scientific Name[a]	Common Name	Wetland Indicator Status[b]
Papaveraceae	**Poppy Family**	
Eschscholzia caespitosa	Tufted eschscholzia	UPL
Eschscholzia californica	California poppy	FACU
Phrymaceae	**Lopseed Family**	
Diplacus aurantiacus var. *aurantiacus*	Bush monkeyflower	UPL
Erythranthe guttata	Seep spring monkeyflower	OBL
Plantaginaceae	**Plantain Family**	
Kickxia elatine	Sharp-leaved fluellin	FAC
Plantago lanceolata	English plantain	FACU
Plantago subnuda	Tall coastal plantain	FACW
Veronica americana	American brooklime	OBL
Veronica arvensis	Speedwell	FACU
Polemoniaceae	**Phlox Family**	
Navarretia pubescens	Purple navarretia	UPL
Polygonaceae	**Buckwheat Family**	
Eriogonum latifolium	Coast buckwheat	UPL
Polygonum aviculare	Prostrate knotweed	FAC
Rumex crassus	Willow leaved dock	FACW
Rumex crispus	Curly dock	FAC
Rumex transitorius	Willow dock	FACW
Eriogonum latifolium	Coast buckwheat	UPL
Rhamnaceae	**Buckthorn Family**	
Ceanothus thyrsiflorus var. *griseus*	Carmel ceanothus	UPL
Frangula californica ssp. *californica*	California coffeeberry	UPL
Rosaceae	**Rose Family**	
Cotoneaster hodjingensis	Earthquake cotoneaster	UPL
Cotoneaster pannosus	Woolly cotoneaster	UPL
Horkelia californica var. *californica*	California horkelia	UPL
Potentilla anserina	Silver weed cinquefoil	OBL
Pyracantha sp.	Firethorn	UPL
Rosa californica	California rose	FAC
Rubus armeniacus	Himalayan blackberry	FAC
Rubus parviflorus	Thimbleberry	FACU
Rubus spectabilis	Salmon berry	FAC
Rubus ursinus	California blackberry	FACU
Rubiaceae	**Madder Family**	
Galium aparine	Cleavers	FACU
Sherardia arvensis	Field madder	UPL

Scientific Name[a]	Common Name	Wetland Indicator Status[b]
Salicaceae	**Willow Family**	
Salix hookeriana	Dune willow	FACW
Salix lasiandra	Shining willow	FACW
Salix lasiolepis	Arroyo willow	FACW
Salix scouleriana	Scouler willow	FAC
Salix sitchensis	Sitka willow	FACW
Sapindaceae	**Soapberry Family**	
Acer macrophyllum	Bigleaf maple	FACU
Scrophulariaceae	**Figwort Family**	
Scrophularia californica	California beeplant	FAC
Solanceae	**Nightshade Family**	
Solanum americanum	White nightshade	FACU
Urticaceae	**Nettle Family**	
Urtica dioica	Stinging nettle	FAC
Monocots		
Agavaceae	**Century Plant Family**	
Chlorogalum pomeridianum var. *divaricatum*	Spreading soap plant	UPL
Amaryllidaceae		
Nerine bowdenii	Nerine lily	UPL
Cyperaceae	**Sedge Family**	
Carex obnupta	Slough sedge	OBL
Carex praegracilis	Field sedge	FACW
Carex tumulicola	Foothill sedge	FACU
Cyperus eragrostis	Tall flat sedge	FACW
Cyperus involucratus	Umbrella sedge	FACW
Isolepis cernua	Low bulrush	OBL
Scirpus microcarpus	Mountain bog bulrush	OBL
Carex obnupta	Slough sedge	OBL
Iridaceae	**Iris Family**	
Iris douglasiana	Douglas iris	UPL
Sisyrinchium bellum	Blue-eyed grass	FACW
Juncaceae	**Rush Family**	
Iris douglasiana	Douglas iris	UPL
Sisyrinchium bellum	Blue-eyed grass	FACW
Juncus balticus	Baltic rush	FACW
Juncus bolanderi	Bolander's rush	OBL
Juncus bufonius var. *bufonius*	Toad rush	FACW
Juncus capitatus	Leafy-bracted dwarf rush	FACU
Juncus effusus	Soft rush	FACW
Liliaceae	**Lily Family**	
Agapanthus africanus	Lily of the Nile	UPL

Scientific Name[a]	Common Name	Wetland Indicator Status[b]
Poaceae	**Grass Family**	
Agrostis capillaris	Colonial bentgrass	FAC
Agrostis capillaris	Redtop	FAC
Ammophila arenaria	European beachgrass	FACU
Anthoxanthum odoratum	Sweet vernal grass	FACU
Arrhenatherum elatius	Tall oatgrass	UPL
Avena fatua	Wild oat	UPL
Briza maxima	Quaking grass	UPL
Briza minor	Little quaking grass	FAC
Bromus diandrus	Ripgut brome	UPL
Bromus hordeaceus	Soft chess	FACU
Calamagrostis nutkaensis	Pacific reedgrass	FACW
Cynodon dactylon	Bermuda grass	FACU
Cynosurus echinatus	Hedgehog dog-tail grass	UPL
Dactylis glomerata	Orchard grass	FACU
Danthonia californica	California oatgrass	FAC
Elymus caput-medusae	Medusa-head	UPL
Elymus elymoides	Squirreltail grass	FACU
Elymus glaucus	Blue wildrye	FACU
Elymus trachycaulus subsp*. trachycaulus*	Slender wheatgrass	FAC
Festuca bromoides	Brome fescue	FAC
Festuca myuros	Rattail sixweeks grass	FACU
Festuca perennis	Perennial ryegrass	FAC
Gastridium phleoides	Nitgrass	FACU
Holcus lanatus	Common velvet grass	FAC
Hordeum marinum subsp*. gussoneanum*	Mediterranean barley	FAC
Hordeum murinum subsp*. leporinum*	Farmer's foxtail	FAC
Paspalum dilatatum	Dallis grass	FAC
Poa pratensis	Kentucky blue grass	FAC
Polypogon monspeliensis	Annual rabbit's-foot grass	FACW
Rumex acetosella	Sheep sorrel	FACU
Rytidosperma penicillatum	Purple-awned wallaby grass	UPL
Themidaceae	**Broadiaea Family**	
Triteleia laxa	Ithuriel's spear	UPL

[a] Nomenclature follows *The Jepson Manual,* second edition (Baldwin et al. 2012) and updates published online by the Jepson Flora Project (2018).

[b] Wetland plant indicator statuses follow the *National Wetland Plant List* (Lichvar et al. 2016).

Appendix H

Precipitation and Growing Season Data

WETS Table

WETS Station: FORT BRAGG 5 N, CA								
Requested years: 1900 - 2018								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	55.2	39.8	47.5	7.70	4.54	9.35	11	0.1
Feb	56.4	40.7	48.5	6.02	3.49	7.32	9	0.0
Mar	57.4	41.6	49.5	5.46	3.35	6.61	10	0.0
Apr	59.0	42.9	50.9	2.97	1.60	3.61	6	0.0
May	61.3	45.7	53.5	1.42	0.58	1.69	3	0.0
Jun	63.8	48.2	56.0	0.62	0.19	0.71	2	0.0
Jul	64.9	49.3	57.1	0.10	0.04	0.10	0	0.0
Aug	65.2	49.6	57.4	0.25	0.04	0.21	0	0.0
Sep	65.6	49.0	57.3	0.58	0.15	0.65	1	0.0
Oct	63.3	46.6	54.9	2.59	1.13	3.07	4	0.0
Nov	59.1	43.3	51.2	5.39	3.08	6.54	9	0.0
Dec	55.5	40.4	48.0	7.08	4.05	8.61	11	0.0
Annual:					34.68	45.31		
Average	60.6	44.8	52.7	-	-	-	-	-
Total	-	-	-	40.16			66	0.1

GROWING SEASON DATES

Years with missing data:	24 deg = 46	28 deg = 46	32 deg = 47
Years with no occurrence:	24 deg = 73	28 deg = 65	32 deg = 2
Data years used:	24 deg = 73	28 deg = 73	32 deg = 72
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	No occurrence	2/25 to 12/12: 290 days
70 percent *	No occurrence	No occurrence	2/12 to 12/25: 316 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1895					1.90	0.05	M0.40	0.02	M3.40	0.09	M2.55	M4.84	13.25
1896	M10.02	M2.97	M4.64	M6.06	M4.88		0.04	M0.19	M0.47	M1.39	M7.61	M9.53	47.80
1897	M2.66	M11.31	M6.27	M1.28	M0.62	M1.04	0.01	0.11	M1.15	M2.75	M2.92	M2.28	32.40
1898	M1.46	M7.50	0.79	M1.09	M4.03	0.25			1.77	M1.51	M3.09	M2.14	23.63
1899	M9.98	M0.62	M8.83	M1.05						4.38	M13.06	6.23	44.15
1900	M3.44	M2.37	M3.85										9.66
1901													
1902	M2.50	M14.84	5.93	4.76	M1.97			T		M2.90	10.66	7.05	50.61
1903	8.54	2.16	5.37	MT							M5.98	M3.39	25.44

1904	M4.91	M15.15	M12.41	4.10					2.55	M3.97	M3.96	M5.84	52.89
1905	8.42	1.68	7.97	0.67	4.24					0.81	4.09	3.38	31.26
1906	10.12	4.81		0.65	4.33	1.13	0.00	0.00	0.18	0.00	M1.55	9.82	32.59
1907	M5.76	10.36	13.07									M10.68	39.87
1908	7.73	5.32	1.43	0.70	2.12	0.00	0.00	0.00	0.16	2.42	4.34	M3.55	27.77
1909	27.02	12.45	5.27	0.00	0.28	0.20	0.00	M0.00	1.80	4.02	10.30	5.23	66.57
1910	M7.91	6.85	4.04	2.82	0.45	0.50			T	1.20	5.02	2.30	31.09
1911	M10.69	M4.18	3.89	2.80	M1.62				0.25	1.71	M2.17	5.36	32.67
1912	M8.29	2.86	M3.49	4.18	1.41	0.88			3.80	2.85	7.11	5.30	40.17
1913	8.49	0.56	2.89	2.93	1.07	0.50	0.15	0.10	0.23	1.38	7.34	11.18	36.82
1914	17.91	5.64	3.17	3.17	0.79	1.80			0.23	4.19	M2.70	7.13	46.73
1915	14.57	17.39	3.75	1.03	4.38					0.31	M4.17	7.76	53.36
1916	M14.70	M4.97	3.19	M0.85	0.76	2.14	M0.96	0.16	M0.11	T	M4.79	5.28	37.91
1917	M3.77	M8.84	M2.55	M4.03	0.95				M1.30		M4.64	M2.19	28.27
1918	M2.44	6.24	3.52	M1.89		M0.12	MT		M2.85	M1.67	M3.58	M5.07	27.38
1919	M9.29	M10.78	M6.35	M2.35	M0.44	M0.04			M1.29	M0.08	M2.25	M4.32	37.19
1920	M0.45	M1.62	M5.36	M3.10		M1.05	M1.42	MT	M1.11	5.30	M11.06	M12.23	42.70
1921	M9.46	4.10	M5.20	M0.68	1.57	M0.29			M0.63	M1.37	M4.71	M5.90	33.91
1922	M2.51	M7.03	M6.00	M1.25	M0.82	M0.08			M0.41	M4.80	M3.11	M9.45	35.46
1923	M3.85	M1.53	M0.88	M4.40	M0.85	M0.82		M0.23	M1.49	M1.96	M2.26	2.94	21.21
1924	M3.24	3.86	1.53	M0.22	0.08			M0.25	0.22	7.14	4.39	M7.23	28.16
1925	M3.03	M12.56	M2.62	M6.05	4.60			M0.35	M1.51	M1.11	M5.03	M3.09	39.95
1926	7.09	M7.14	0.52	M3.14	M1.48				M1.13	1.74	11.11	M3.79	37.14
1927	10.61	M11.30	M6.71	1.76	0.39	0.41			0.36	1.95	8.60	5.99	48.08
1928	M5.03	3.76	7.06	3.55	0.25		T		0.31	M1.34	5.56	6.33	33.19
1929	M4.77	4.07	2.34	1.76	M0.66	2.31				M0.33		M9.03	25.27
1930	M6.10	M5.64	2.32	2.78	0.64				1.43	0.39	M2.14	2.17	23.61
1931	6.16	2.37	3.39	1.01	1.41	0.62			0.10	2.31	3.77	M10.81	31.95
1932	6.84	0.55	1.50	3.70	0.97					0.23	2.48	5.68	21.95
1933	M9.86	2.37	7.06	0.38	3.98	0.13		T	0.27	2.02		9.34	35.41
1934	1.72	4.70	3.42	2.90	0.80	0.36		T	0.77	4.46	7.95	4.19	31.27
1935	M7.40	M2.99	4.48	5.78	0.14				1.32	M2.18	M3.04	4.91	32.24
1936	11.80	M9.31	2.21	2.17	1.85	M1.13	0.48	T		0.54	T	3.56	33.05
1937	4.80	10.62	6.53	M3.44	M0.33	2.45			0.44	3.01	M10.58	6.57	48.77

1938	6.76	11.19	M10.82	2.86	0.60				0.45	M3.25	M3.35	M5.77	45.05
1939	5.76	2.91	M2.48		M1.15			T	T	M0.09	M0.40	M2.19	14.98
1940	M7.32	12.36	5.79	1.84	M2.36	0.43			M0.57	M4.25	2.78	12.15	49.85
1941	11.88	10.85	M7.29	M6.21	3.34	1.67		T	M0.11	M1.70	4.83	M13.24	61.12
1942	M7.33	M8.79	1.78	6.79	4.57	0.17	0.04		0.05	1.74	7.90	M7.31	46.47
1943	8.56	3.05	4.89	2.44	1.67	1.07		0.05		M6.80	2.69	2.59	33.81
1944	5.41	3.91	2.03	2.29	1.42	1.28	0.10		0.21	2.81	10.15	7.39	37.00
1945	M2.15	M4.39	M7.41	M1.00	M2.48				M0.18	M5.43	M8.09	M15.15	46.28
1946	M4.26	M5.18	M4.44	M0.26	M0.51	M0.15	M0.45		0.47	1.85	4.57	2.23	24.37
1947	2.74	3.24	5.13	1.61	0.45	1.89	0.04	0.06	0.14	6.81	1.41	3.28	26.80
1948	4.54	6.79	5.09	6.86	1.86	0.32	0.05	0.02	M1.31	1.49	2.74	6.58	37.65
1949	1.82	7.02	M13.46	0.32	1.28	0.11	0.10	0.03	0.07	0.92	2.46	3.08	30.67
1950	9.48	4.76	6.79	1.86	0.80	0.21	0.00	0.04	0.09	7.15	5.09	6.11	42.38
1951	9.96	M6.44	3.20	1.49	1.85	0.02	0.03	0.03	0.04	3.44	6.60	13.41	46.51
1952	10.00	4.90	4.23	1.99	0.90	1.69	T	0.01	0.10	0.14	4.20	14.97	43.13
1953	12.94	1.21	5.14	4.82	2.50	1.48	0.00	0.94	0.02	2.49	6.77	2.57	40.88
1954	11.64	3.85	5.81	4.36	T	2.21	0.02	2.45	0.15	1.56	7.69	9.28	49.02
1955	M4.59	2.19	0.91	5.09	0.00	0.02	0.01	T	0.61	1.49	7.75	13.40	36.06
1956	14.92	7.05	0.93	0.71	0.70	0.44	T	T	0.02	3.67	0.43	1.70	30.57
1957	5.08	5.24	7.84	2.59	4.57	0.08	0.20	0.00	2.05	7.36	3.03	5.24	43.28
1958	8.31	19.53	6.90	5.63	0.50	1.20	0.06	0.08	0.18	0.22	2.04	2.54	47.19
1959	11.93	7.27	2.65	0.41	0.35	0.07	0.03	0.04	1.89	0.87	0.08	2.53	28.12
1960	7.22	7.89	7.71	2.16	2.02	0.00	0.09	0.09	0.06	2.09	6.20	6.37	41.90
1961	4.24	7.03	7.38	2.15	2.66	0.24	0.05	0.27	0.51	M1.79	M6.48	4.61	37.41
1962	3.44	7.18	5.53	1.44	0.39	0.03	0.09	1.98	1.07	6.43	3.16	4.35	35.09
1963	2.79	3.86	7.02	9.43	0.98	0.14	0.01	0.07	0.19	5.30	10.10	2.18	42.07
1964	7.58	0.79	3.99	0.64	1.29	0.60	0.18	0.07	0.06	2.57	9.63	14.58	41.98
1965	5.27	1.87	2.06	4.96	0.13	0.14	0.11	0.24	0.14	0.73	10.31	3.94	29.90
1966	8.39	4.83	3.71	2.18	0.22	0.10	0.03	0.22	0.44	0.12	9.92	7.22	37.38
1967	9.28	1.03	9.33	7.59	1.12	0.33	0.06	0.02	0.45	3.60	3.90	6.51	43.22
1968	8.05	4.33	4.43	0.56	1.19	0.09	0.05	1.34	0.43	1.84	4.88	12.81	40.00
1969	13.50	10.67	2.33	3.23	0.29	0.44	0.02	0.03	0.58	2.77	2.76	14.30	50.92
1970	13.43	3.28	3.25	0.59	0.40	0.37	0.00	0.03	0.07	3.32	8.76	10.81	44.31
1971	8.56	1.54	8.35	2.33	0.83	0.48	0.03	0.76	0.47	1.16	3.89	5.79	34.19

1972	4.78	5.79	3.83	2.17	0.71	0.50	0.04	0.22	2.69	3.18	8.02	6.28	38.21
1973	10.80	7.87	5.30	0.92	0.49	0.06	0.08	0.16	1.46	5.67	12.98	7.39	53.18
1974	7.60	5.18	9.84	4.37	0.31	0.34	0.85	0.18	0.13	2.41	1.92	6.62	39.75
1975	4.32	10.22	11.38	2.47	0.34	0.17	0.53	0.49	0.12	4.72	2.59	3.96	41.31
1976	1.31	7.56	2.30	4.08	0.19	0.05	0.36	1.58	0.10	0.19	2.61	0.68	21.01
1977	1.94	2.43	2.45	0.57	1.93	0.06	0.03	0.58	3.09	2.38	3.83	8.37	27.66
1978	11.24	6.59	5.60	6.23	0.69	0.07	0.07	0.40	2.48	0.04	1.26	2.11	36.78
1979	7.73	10.84	4.91	2.37	1.91	0.03	0.35	0.01	0.31	6.00	9.72	4.78	48.96
1980	3.23	9.42	3.31	3.90	0.50	0.26	0.03	0.01	0.12	2.41	1.49	4.47	29.15
1981	8.89	4.73	3.98	0.58	1.87	0.14		0.06	1.63	4.55	8.25	8.10	42.78
1982	M5.70	4.31	7.16	4.75	0.01	M0.43	0.06	0.06	0.29	4.73	9.34	7.42	44.26
1983	7.36	11.67		4.84	M1.10	0.16	0.46	3.00	0.37	0.86	11.44	M13.53	54.79
1984	0.55	3.63	3.67		1.32	0.76	0.04	0.09	0.51	3.54	13.64		27.75
1985	1.26	3.82	6.46	0.24	0.39	0.06	0.10	0.14	0.91	2.58	4.78	4.09	24.83
1986	6.81	11.83	7.91	0.98	0.68	0.28	M0.00	0.07	2.40	M1.70	1.39	5.34	39.39
1987	7.54	5.28	8.25	0.68	0.77	0.17	0.28	0.06	0.00	0.88	5.24	M11.30	40.45
1988									M0.09	1.22	11.46	M5.41	18.18
1989	3.08	1.89	12.53	2.49	0.96	0.57	0.00	0.24	2.40	6.96	1.97	0.32	33.41
1990	7.85	3.72	3.31	1.32	9.46	0.21	0.06	0.16	M0.22	1.92	0.98	2.45	31.66
1991	1.49	3.65	10.06	1.57	1.43	0.50	0.12	0.28	0.02	1.95	2.21	4.71	27.99
1992	4.01	9.88	5.39	2.43	0.00	1.82	0.13	0.08	0.09	3.58	1.88	12.42	41.71
1993	12.14	5.72	5.67	3.54	5.25	1.17	0.03	0.11	0.03	0.52	1.93	7.01	43.12
1994	6.59	7.71	1.55	3.47	1.74	0.18	0.04	0.02	0.05	0.41	6.20	5.65	33.61
1995	20.67	2.30	14.40	5.74	1.74	1.34	0.16	0.00	T	0.11	1.07	14.37	61.90
1996	9.29	9.46	4.42	4.79	2.31	0.03	0.09	0.03	0.67	1.86	3.61	18.72	55.28
1997	10.77	3.05	3.04	3.43	1.93	1.27	M0.00	1.14	0.86	3.60	9.74	M6.17	45.00
1998	21.50	16.83	11.09	3.68	4.25	0.27	0.09	0.01	0.08	1.51	8.17	4.68	72.16
1999	5.74	14.54	9.17	2.97	0.48	0.22	0.10	0.11	0.11	1.72	8.77	2.32	46.25
2000	9.65	11.10	2.81	2.98	M2.59	0.41	M0.08	0.03	0.45	4.78	2.16	2.51	39.55
2001	4.82	9.33	4.11	2.23	0.28	1.70	0.11	M0.24	0.04	0.75	10.48	13.32	47.41
2002	6.63	5.34	3.51	1.20	0.53	0.00	0.02	0.15	0.05	0.09	5.22	21.60	44.34
2003	6.42	4.41	5.86	11.64	0.88	0.04	0.02	0.03	0.54	0.00	4.64	12.06	46.54
2004	7.08	9.76	1.86	1.58	0.23	M0.05	0.08	0.19	M0.18	5.77	1.64	9.30	37.72
2005	5.57	5.00	6.79	3.73	M3.32	3.50	0.11	0.03	0.13	1.60	6.05	M16.47	52.30

2006	9.36	5.16	12.64	M7.28	0.85	0.22	0.00	0.02	0.04	0.64	5.63	7.53	49.37
2007	1.28	M7.86	1.23	3.17	0.80	0.33	M0.06	0.03	0.28	4.93	1.46	M8.01	29.44
2008	M7.74	M3.23	2.56	0.84	0.16	0.04	0.00	0.02	0.13	M1.41	M3.68	M4.65	24.46
2009	1.38	M4.86	M3.18	M0.72	3.37	0.03	0.03	0.03	0.37	M3.62	M2.88	5.73	26.20
2010	M9.65	M4.94	6.19	M6.68	1.99	1.95	0.01	0.02	M0.10	7.66	4.29	M11.52	55.00
2011	1.88	4.40	13.55	2.05	2.08	M1.24	M0.35	0.02	M0.30	M6.12	4.47	1.53	37.99
2012	M5.42	2.95	11.71	2.94	0.51	M0.55	M0.16	M0.12	M0.15	M2.48	M7.47	12.02	46.48
2013	1.33	0.98	3.19	M1.58	M1.18	M1.35	0.05	0.25	M0.95	M0.00	1.45	M0.27	12.58
2014	M2.21	M7.69	8.46	M1.71	0.24	0.18	M0.01	M0.00	1.44	M3.93	6.48	14.84	47.19
2015	1.29	M6.03	M1.86	3.51	M0.16	0.04	M0.47	M0.27	0.64	M0.51	3.94	M14.98	33.70
2016	13.59	M2.46	12.81	M2.50	1.22	M0.71	0.06	M0.17	M0.01	9.31	7.51	7.07	57.42
2017	13.68	13.29	5.95	5.28	0.59	M0.45	M0.02	M0.00	0.30	M1.16	M7.69	M1.06	49.47
2018	M9.18	M0.96	7.92	7.06	M0.62	M0.32	M0.03	M0.07	M0.16	M1.08			27.40

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2016-07-22