APPENDIX C2

Terrestrial Biological Resources Technical Report

TERRESTRIAL BIOLOGICAL RESOURCES TECHNICAL REPORT FOR THE MANCHESTER SUBSEA CABLES PROJECT, MENDOCINO COUNTY, CALIFORNIA

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Acronyms and Abbreviations

°F	Fahrenheit
BSA	biological study area
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CLS	cable landing station
CNDDB	California Natural Diversity Database
CRPR	California rare plant rank
CWA	federal Clean Water Act
CWHR	California Wildlife Habitat Relationships System
FESA	federal Endangered Species Act
FR	Federal Register
GIS	geographic information system
HDD	horizontal directional drilling
IS/MND	Initial Study/Mitigated Negative Declaration
LMH	landing manhole
MCV	*A Manual of California Vegetation*, Online Edition
MMU	minimum mapping unit
OHWM	ordinary high-water mark
Project	Manchester Subsea Cables Project
ROW	right-of-way
RTI	RTI Infrastructure, Inc.
SR 1	State Route 1
TNW	traditional navigable water
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Terrestrial Biological Resources Report

Introduction

ICF was retained by RTI Infrastructure, Inc. (RTI) to conduct biological and wetland surveys and prepare a terrestrial biological resources report to support planning efforts and future acquisition of required state and federal permits for the Manchester Subsea Cables Project (Project) in Mendocino County, California. The Project would be located both on land (terrestrial) and in ocean (marine) areas just north of Manchester, Mendocino County. This technical report describes the biological resources and baseline conditions of the terrestrial (onshore) components of the Project. The report also provides more detailed information to supplement the biological resources section of the California State Lands Commission's Initial Study/Mitigated Negative Declaration (IS/MND) being prepared for the Project.

Location and Setting

The Project is located in Manchester, California, approximately 35 miles south of Fort Bragg and 5 miles north of Point Arena in the southern portion of Mendocino County (Figure 1-1). The Project parallels State Route 1 (SR 1) for approximately 5 miles, with the Pacific Ocean immediately west of the Project.

Average annual rainfall in the vicinity of the Project is 40.2 inches (Western Regional Climate Center 2018). Precipitation data were sourced from the Fort Bragg 5N Weather Station (Station 06045), the closest National Weather Service Station. With 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; the coolest temperatures occur in December and January, and the warmest months are August and September (Western Regional Climate Center 2018).

Project Description

The proposed Project involves installation of fiber optic cables and associated facilities and systems that is proposed for construction in fall 2019. The fiber optic cables eventually will 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 ordinary high water level at the cable landing parcel (CLP), on either side of SR 1, and on the south side of Kinney Road. The primary Project components are described below, and terrestrial components are shown in Figure 1-2.

Landing Manhole. Four marine cables would be pulled into an LMH on the coastal terrace, east of the cliffs and bluffs, onto private land referred to as the "cable landing parcel (CLP)." 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 private beach. The LMH would provide access to the landing pipes and would be the point where the marine and terrestrial cables connect.

Staging Area. One temporary staging area would be established at the CLP to park vehicles and store construction equipment.

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.

Cable Landing Station. 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 or as needed along the routes between the CLS and the LMH. The manholes are necessary to allow access to the underground conduit system 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 would involve excavating a trench system 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 to install the terrestrial conduit system at other locations. Bores would be spaced approximately 300 feet apart; they would 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, the conduit would be secured to the bridge structure.

Staging Area in Manchester. An additional staging area would be located somewhere in Manchester (location not yet determined) to hold most of the Project-related equipment before it would be brought to the staging area in the CLP.

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 original contours, installing erosion control material, and if necessary, seeding with a commercially available erosion-control seed mixture.

Biological Study Area

For the purpose of this study, the biological study area (BSA) includes areas that could be directly and indirectly affected by the Project. The BSA extends along approximately 3 miles of the SR 1 right-of-way (ROW) and encompasses the private parcel for the proposed CLP, LMH, and access road; the shoulder of Kinney Road, where an existing CLS may be accessed; and two other possible locations for a CLS (Figure 1-2).

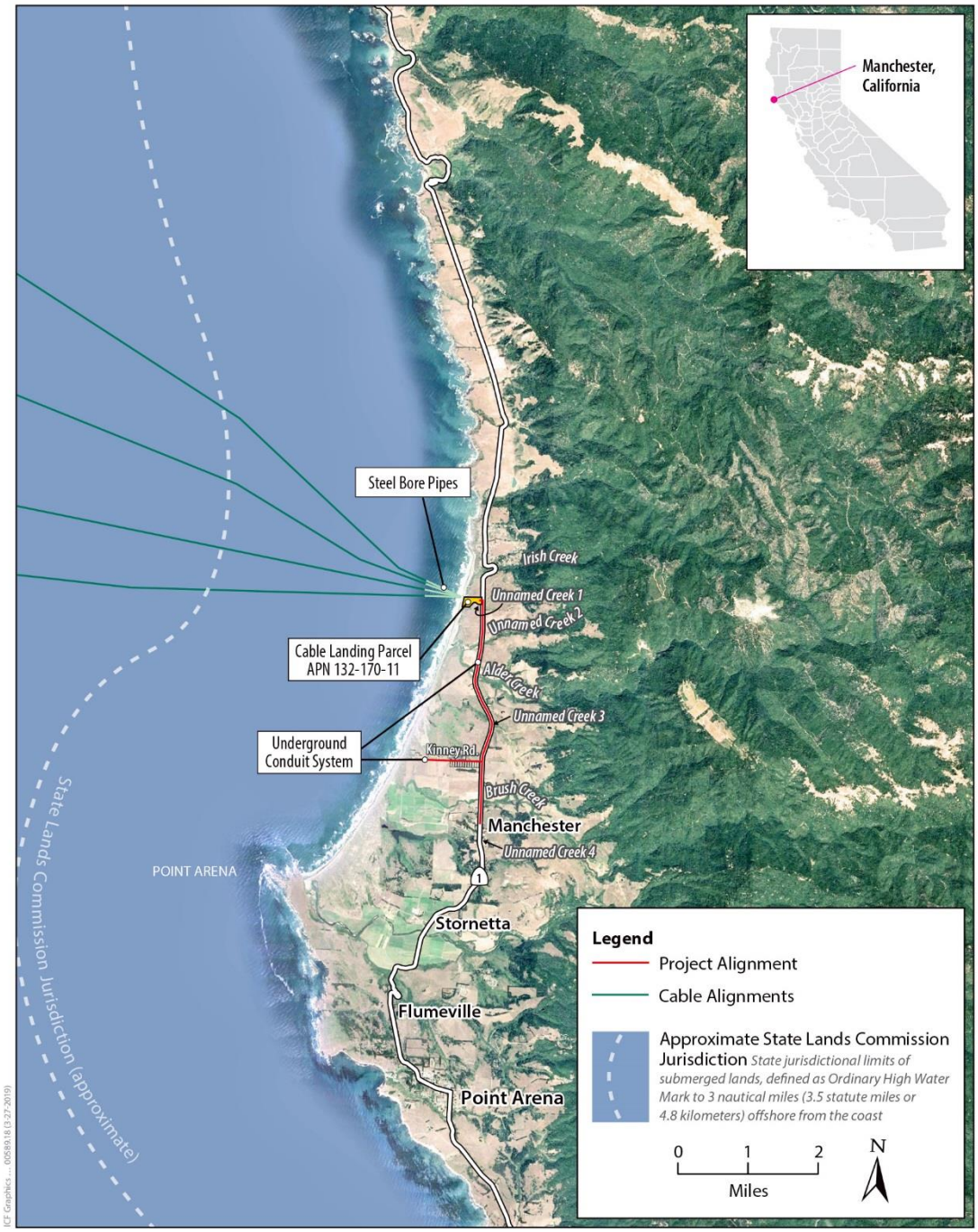

Figure 1-1
Project Location

Figure 1-2
Terrestrial Components

Vegetation communities in the BSA consist of grasslands, coastal scrub, riparian forest, and cypress stands. These vegetation communities support diverse plant assemblages of herbaceous species, shrubs, and trees. The BSA includes six stream crossings and emergent wetlands along the Project alignment.

Methods

This section describes the methods used to assess the biological resources and baseline conditions of the BSA. Limited property access prevented full assessment of the BSA during the seasonal botanical surveys; this information is outlined below in the *Botanical Survey* section.

Prefield Investigation

The prefield investigation involved reviewing existing information and developing a list of special-status plants, animals, and fish that could be affected by the Project. For the purpose of this study, special-status species are (1) those that are legally protected under the federal Endangered Species Act (FESA), California Endangered Species Act (CESA), California Fish and Game Code; and (2) species that are considered sufficiently rare by the scientific community to qualify for such listing. *Special-status species* are defined as follows.

- Species that are listed or proposed for listing as threatened or endangered under FESA (50 Code of Federal Regulations 17.11 [listed animals]; 50 Code of Federal Regulations 17.12 [listed plants]; and various notices in the Federal Register [FR]).
- Species that are candidates for possible future listing as threatened or endangered under FESA (81 FR 87246 87272, December 2, 2016).
- Species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations 670.5).
- Animals listed as California species of special concern (California Department of Fish and Wildlife 2018a).
- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Commission 1900 et seq.).
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]).
- Plants and animals that meet the criteria for listing, even if not currently included on any list, as described in the California Environmental Quality Act (CEQA) Guidelines Section 15380(b), (c), and (d). Species that may meet this definition include the following.
    - Plants ranked as “rare, threatened, or endangered in California” (California rare plant rank [CRPR] 1B and 2B).
    - Plants and animals that may warrant consideration on the basis of local significance or recent biological information (State CEQA Guidelines 15380[d]), which may include plants rated CRPR 3 (plants about which more information is needed to determine their status) and CRPR 4 (plants of limited distribution). CRPR 3 and CRPR 4 plants are not tracked in the California Natural Diversity Database (CNDDB) but are recorded at the county level and

therefore are usually not included on lists generated from specific quadrangles. However, CRPR 4 plants that were previously ranked CRPR 1 or 2 were tracked at the quadrangle level in the past, and those records remain in the CNDDB. This is why some CRPR 3 and CRPR 4 plants appear in the CNDDB. Their inclusion in the database is therefore a historical artefact and not related to current rarity or whether they would warrant consideration under CEQA (Section 15125 [c] or 15380[d]). ICF botanists were prepared to evaluate CRPR 4 species should they be observed during the field surveys.

- Some plants included on the Special Vascular Plants, Bryophytes, and Lichens List (California Department of Fish and Wildlife 2018b).
- Some animals included on the Special Animals List (California Department of Fish and Wildlife 2018a).

Sensitive habitat types are defined as follows:

- Sensitive natural communities as defined the California Department of Fish and Wildlife (CDFW) (California Department of Fish and Wildlife 2018c),
- Sensitive habitats protected by Mendocino County and the California Coastal Commission (CCC), and
- Rare habitats protected by local professional organizations or the scientific community.

Biologists reviewed existing information to evaluate which special-status species and other sensitive biological resources could occur in the BSA. The query assessed all special-status species known to occur within 3 miles of the BSA. The 3-mile buffer was selected instead of a nine-quad or 5-mile search radius because the BSA occurs in a region that supports extensive biological diversity not supported in the narrow, coastal extent of the BSA. The sources listed below were reviewed to develop lists of special-status species and other sensitive biological resources (e.g., waters of the United States) that could be present in the vicinity of the BSA. Species were included in these lists if they were known to occur in the project vicinity (within a 3-mile radius of the BSA) or if their habitats were present in the BSA.

- CNDDB records search of a 3-mile area around the BSA (California Department of Fish and Wildlife 2018c).
- The U.S. Fish and Wildlife Service (USFWS) list of endangered and threatened species that may occur in the BSA or be affected by the proposed Project (U.S. Fish and Wildlife Service 2018).
- Critical habitat defined by FESA and regulated by USFWS or the National Marine Fisheries Service.
- A Biotic Resource Assessment of the cable landing parcel west of SR 1 conducted in 2011 by BioConsultants, LLC (2011a).
- The Point Arena Mountain Beaver Survey immediately south and west of the proposed cable landing site conducted by BioConsultants, LLC (2011b).
- The IS/MND prepared by the California Department of Parks and Recreation (2005) for the Point Arena Mountain Beaver Habitat Protection Project, Manchester State Park.

- The MND prepared by Science Applications International Corporation (2000) that addressed installation of fiber optic cables and bores pipes seaward from Point Area, California and Morro Bay, California.

Field Surveys

Reconnaissance Surveys

To determine the suitability of wildlife habitat within the BSA, ICF wildlife biologists Bud Widdowson and Steve Yonge conducted reconnaissance-level wildlife surveys (Table 1). Where access was permitted, the biologists walked meandering transects to assess habitat suitability and species presence. The biologists also drove the BSA to assess and document potential suitable habitat. Suitable habitat was determined by the presence of diagnostic habitat elements. If habitat was identified as "low quality," it was assumed to be marginally suitable.

To determine the suitability of the BSA to support special-status plant species, sensitive natural communities, and potential aquatic resources, ICF botanist/wetland ecologist Devin Jokerst conducted a reconnaissance-level survey (Table 1). During the survey, Mr. Jokerst also conducted a protocol-level botanical survey of the west side of SR 1; the protocol-level botanical survey followed CDFW guidelines (California Department of Fish and Wildlife 2018d). After the reconnaissance survey and assessment of existing information (including CNDDB occurrences), Mr. Jokerst determined that follow-up botanical surveys and a wetland delineation were necessary.

Table 1. Biological Resource Survey Dates

Biological Resource Survey	Date of Fieldwork	ICF Personnel
Reconnaissance-Level Surveys		
Wildlife reconnaissance survey	April 4, October 10–11, 2018	Bud Widdowson and Steve Yonge, Wildlife Biologists
Botanical and aquatic resources reconnaissance survey	April 4, 2018	Devin Jokerst, Botanist/Wetland Ecologist
Protocol-Level Botanical Surveys		
Early-season survey	April 4, 2018	Devin Jokerst
Mid-season survey	June 26–28, 2018	Devin Jokerst; Margaret Widdowson, Botanist/Wetland Ecologist
Late-season survey	September 29–31, 2018	Margaret Widdowson; Sierra Spooner, Botanist/Wetland Ecologist
Aquatic Resource Surveys		
Aquatic resource surveys	June 26–28, 2018	Devin Jokerst; Margaret Widdowson
	September 29–31, 2018	Margaret Widdowson; Sierra Spooner
	October 10–12, 2018	Margaret Widdowson; Jordan Mayor, Botanist/Wetland Ecologist

Botanical Surveys

Per CDFW guidelines (2018d), the survey was floristic, with every plant encountered identified to the lowest taxonomic level (species, subspecies, or variety) possible, based on the availability of flowers, fruits, or other diagnostic features. At a minimum, every taxon was identified to the extent necessary to determine whether it had special status. Resources used to identify plants included *The Jepson Manual: Vascular Plants of California*, second edition (Baldwin et al. 2012), and Internet resources such as the Consortium of California Herbaria online specimen database (Consortium of California Herbaria 2018) and Calflora (2018). Nomenclature follows *The Jepson Manual*, second edition and updates published online by the Jepson Flora Project (2018). Three rounds of surveys were conducted during the 2018 season (Table 1), timed to coincide with the flowering and identification periods of the potentially occurring special-status plant species (Table 4). The stream crossings in the BSA were not surveyed due to lack of property access; the stream crossings will be avoided by directional boring.

Botanical Survey Coverage

Due to limited property access, the entire BSA was not surveyed during the 2018 field season. The following areas were floristically surveyed in the 2018 field season:

- Early-season survey: April survey covered the west side of SR 1.
- Mid-season survey: June surveys covered both sides of SR 1 and a portion of the CLP smaller than what is currently proposed.
- Late-season survey: September/October surveys covered the entire BSA—both sides of SR 1, the entire CLP, and all of Kinney Road within the BSA.

Areas of the BSA that were not surveyed will be surveyed in 2019 during the appropriate blooming and identification periods, and a supplemental report will be prepared. In early 2019, the CLSs were visited; the CLS locations are either developed or support regularly grazed, disturbed non-native annual grasslands. Therefore, the CLSs do not support suitable habitat for special-status plant species and will not require follow-up 2019 floristic surveys. The remaining portions of the BSA to be surveyed in 2019, and the appropriate times are listed below:

- Early-season survey: east side of SR 1, Kinney Road, and the CLP.
- Mid-season survey: Kinney Road and the expanded area of the CLP.
- Late-season survey: not needed for 2019.

Vegetation Alliance Mapping

The natural vegetation alliance types in the BSA were identified based on the vegetation classification and keys in *A Manual of California Vegetation,* Online Edition (MCV) (California Native Plant Society 2018); the alliances in the BSA are reported in Table 2. The classification is based on the dominant plant species and emphasizes natural, existing vegetation. Vegetation types in the BSA were identified at the alliance level where possible, but some areas of vegetation within the BSA were too small or too disturbed to allow characterization at the alliance level. The sensitivity of each vegetation type was determined from CDFW's current list of California Sensitive Natural Communities (California Department of Fish and Wildlife 2018b).

The minimum mapping units (MMUs), the smallest areas mapped for each type, typically are approximately 0.25 acre for woodland and herbaceous vegetation types and 0.1 acre for riparian, wetland, and other sensitive vegetation types. This range of MMUs balances the need for high resolution for sensitive vegetation types (lower MMU) with the resolution of the imagery; the distinctiveness of the vegetation type signature relative to adjacent types; and, for woodland types, the scale of natural variation in the tree canopy. There was no lower size limit for wetlands and streams that are potentially jurisdictional, and these features were mapped during the aquatic resources delineation survey and incorporated into the vegetation type map.

Because the ROW is a narrow linear band along SR 1 (often as narrow as 20 to 30 feet), the areas covered by vegetation alliances within the BSA are small, and often well below the recommended MMU for mapping vegetation alliances. For forest and woodland communities, the area to be mapped often was less than the canopy size of a mature tree, and it is inappropriate to assign a single tree to a forest/woodland alliance. The approach taken, therefore, was to consider the forest or woodland type surrounding the BSA and determine the vegetation alliance based on the broader vegetation context. The narrow strips of road shoulder and cut bank along the paved road also were difficult to assign to a described vegetation alliance for a number of reasons (e.g., small size, sparse vegetation, past soil disturbance, and ongoing periodic disturbance by mowing).

Mapping

A vegetation alliance (and other land cover types) database was constructed in geographic information system (GIS) software, ArcInfo 10.3.1. The ICF botanists delineated and digitized the boundaries based on the field surveys and the signatures on recent true-color aerial imagery, and a vegetation alliance type or land cover type was assigned to each polygon to create a map (Appendix A).

Aquatic Resources

During the aquatic resource reconnaissance survey, Mr. Jokerst observed potential aquatic resources. A protocol-level aquatic resources delineation was conducted of the BSA (Table 1) (ICF 2019). Described in greater detail below, these features likely would be regulated by the U.S. Army Corps of Engineers (USACE), the California Coastal Commission (CCC), CDFW, and the California Regional Water Quality Control Board. The protocol-level delineation did not survey the property containing the private CLS (Sheet 10, Appendix C); a protocol-level delineation will be conducted in 2019, and a memo summarizing the survey results will be composed.

Waters of the United States

Waters of the United States are regulated by USACE under Section 404 of the federal Clean Water Act (CWA). Waters of the United States are categorized as wetlands or non-wetland waters.

Potential jurisdictional wetlands under the CWA were mapped and delineated in accordance with indicators and guidance described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (U.S. Army Corps of Engineers 2010).

Non-wetland waters of the United States are features that demonstrate an identifiable ordinary high-water mark (OHWM) and demonstrate connectivity to navigable waters or tributaries to

navigable waters. USACE jurisdictional non-wetland waters of the United States under the CWA were mapped and delineated in accordance with indicators and USACE regulatory guidance described in *Ordinary High Water Mark Identification* (U.S. Army Corps of Engineers 2005) and *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).

Definitions of Waters of the United States

Wetlands and non-wetland waters of the United States in the BSA consist of the following categories of potential jurisdictional features:

- **Tributaries** – Perennial, intermittent, ephemeral streams and roadside ditches are tributaries to the Pacific Ocean, a traditional navigable water (TNW).
  - Perennial streams flow year round.
  - Intermittent streams flow continuously at least seasonally (typically at least 3 months of the year).
  - Ephemeral streams flow for brief periods after storm events.
  - Roadside ditches are constructed features that conduct road runoff after storm events.
- **Clean Water Act Section 404 Wetlands** – The three parameters used to determine the presence of wetlands are (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. According to the USACE wetland delineation manual (Environmental Laboratory 1987:12), "…[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation."

Definition of California Coastal Act Wetlands

The BSA is within the Coastal Zone (California Coastal Commission 2018). The CCC and associated Mendocino County Coastal Development Permit Regulations (Chapter 20.532) require a coastal zone wetland 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).

Results

The biological communities present in the BSA are described below, followed by a discussion of special-status species known or with potential to occur in the area. Results of detailed field surveys for special-status species also are provided.

Land Cover Types

The land cover types in the BSA are broadly divided into three categories: woody vegetation, herbaceous vegetation, and other land types that typically lack vegetation. The vegetation alliances mapped during the botanical surveys were grouped into dominant vegetation communities described in the California Wildlife Habitat Relationships System (CWHR) (California Department of Fish and Wildlife 2018e) to provide assessment of suitable habitat for wildlife. CWHR habitat types in the BSA include closed-cone pine-cypress, valley foothill riparian, coastal scrub, wet meadow,

non-native grassland, perennial grassland, riverine, and urban (California Department of Fish and Wildlife 2018e). Table 2 lists all vegetation alliances (according to MCV) mapped in the BSA and groups the alliances by the CWHR category. Table 2 outlines those vegetation alliances considered sensitive natural communities (California Department of Fish and Wildlife 2018b) as well as their Cowardin system classification (Cowardin et al. 1979).[1]

Closed-Cone Pine-Cypress

The closed-cone pine-cypress habitat type (California Department of Fish and Wildlife 2018e) consists of two vegetation alliances: Monterey cypress stands (*Hesperocyparis macrocarpa* alliance) and Monterey pine forests (*Pinus radiata* alliance) (California Native Plant Society 2018); these alliances are dominated by Monterey cypress and Monterey pine. Monterey cypress stands and Monterey pine forests occupy scattered dense patches along the SR 1 ROW. The native range of Monterey cypress is Point Lobos on the Monterey Peninsula, but it is widely planted and has naturalized outside of its native range (Baldwin et al. 2012). Monterey pine is from a similar geographic region and also is widely planted. In the BSA, Monterey cypress stands and Monterey pine forests support an integration of native and non-native species. Sub-dominant trees in the BSA include blue gum eucalyptus (*Eucalyptus globulus*), Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*), and California wax myrtle (*Morella californica*). Common understory shrubs include Himalayan blackberry (*Rubus armeniacus*), twinberry honeysuckle (*Lonicera involucrata* var. *ledebourii*) and poison-oak (*Toxicodendron diversilobum*). The herbaceous understory was of low coverage and includes common fern and herb species. While Monterey pine cypress stands and Monterey pine forests are classified as sensitive natural communities (California Department of Fish and Wildlife 2018b), the alliances in the BSA are not considered natural because they have been planted and the community is outside the native range. Therefore, these alliances are not considered a sensitive natural community (California Department of Fish and Wildlife 2018b).

Valley Foothill Riparian

Riparian communities in the BSA most closely resemble the valley foothill riparian habitat type described in the CWHR (California Department of Fish and Wildlife 2018e). This habitat type is found in association with the riverine land cover type in the BSA (Appendix A). Valley foothill riparian supports the following vegetation alliances: red alder forest (*Alnus rubra* alliance), coastal dune willow thicket (*Salix hookeriana* alliance), Sitka willow thicket (*Salix sitchensis* alliance), shining willow thicket (*Salix [lucida] lasiandra* alliance), arroyo willow thicket (*Salix lasiolepis* alliance), and a thicket of Scouler willow (*Salix scouleriana*). Scouler willow thicket is not defined in MCV, but could be considered an alliance (California Native Plant Society 2018).

Red Alder Forest

Red alder forest is dominated by red alder and occupies Unnamed Stream 2, Alder Creek, and Brush Creek (Appendix A). The red alder canopy in the BSA includes the following subdominant and codominant species: Sitka spruce (*Picea sitchensis*), shining willow, arroyo willow, and California wax myrtle. This vegetation community has low shrub cover, except for infrequent, dense swathes of blackberry (*Rubus ursinus* and *R. armeniacus*) on some of the stream banks.

[1] The Cowardin classification (Cowardin et al. 1979) is a system for classifying all types of wetlands and deep water habitats. It is intended to describe ecological taxa and arrange them in a system useful to resource managers, provide units for mapping, and provide uniformity of concepts and terms. Wetlands are defined by plants (hydrophytes), soils (hydric soils), and frequency of flooding.

Table 2. Vegetation Alliances and Other Land Cover Types in the Biological Study Area

CWHR Habitat Type[a]	Habitat Type Area (acres)	Vegetation Alliance[b]	CDFW Sensitive Alliance?[c]	Cowardin Classification[d]
Closed-cone pine-cypress	3.589	Monterey cypress stands (*Hesperocyparis macrocarpa)*	No[e]	Upland
		Monterey pine forest (*Pinus radiata*)	No[e]	Upland
Valley foothill riparian	5.783	Red alder forest (*Alnus rubra*)	No	PFO1
		Coastal dune willow thicket (*Salix hookeriana*)	Yes	PSS1
		Sitka willow thicket (*Salix sitchensis*)	Yes	PSS1
		Shining willow grove (*Salix [lucida] lasiandra*)	Yes	PFO1
		Scouler willow thicket proposed alliance (*Salix scouleriana*)	Not an alliance[f]	PSS1
		Arroyo willow thicket (*Salix lasiolepis*)	Yes	PSS1
Coastal scrub	15.329	Coyote brush scrub (*Baccharis pilularis*)	No	Upland
		Coastal brambles (*Rubus ursinus, R. parviflorus*)	Yes[g]	Upland
		Poison-oak scrub (*Toxicodendron diversilobum*)	No	PSS1
		Himalayan blackberry scrub (*Rubus armeniacus*)	No	PSS3
Wet meadow	0.655	Slough sedge swards (*Carex obnupta*)	Yes	PEM1
		Water-parsley marsh (*Oenanthe sarmentosa*)	Yes	PEM1
		Soft rush marsh (*Juncus effusus*)	No	PEM1
		Pacific reed grass meadow (*Calamagrostis nutkaensis*)	Yes	PEM1
		Common monkey flower seep (*Erythranthe guttata*)	No[h]	PEM1
		Small-fruited bulrush marsh (*Scirpus microcarpus*)	No[h]	PEM1
Perennial grasslands	8.479	Common velvet grass—sweet vernal grass meadows (*Holcus lanatus—Anthoxanthum odoratum*)	Not ranked	Upland
Non-native annual grasslands	9.601	Not applicable	Not ranked	Upland

CWHR Habitat Type[a]	Habitat Type Area (acres)	Vegetation Alliance[b]	CDFW Sensitive Alliance?[c]	Cowardin Classification[d]
Riverine	0.174[i]	Not applicable	Not applicable	R2UB1, R4SB3
Urban	16.414	Not applicable	Not applicable	Not applicable

[a] California Wildlife Habitat Relationships System (California Department of Fish and Wildlife 2018e).

[b] *A Manual of California Vegetation*, Online edition (MCV) (California Native Plant Society 2018).

[c] California Natural Community List (California Department of Fish and Wildlife 2018b).

[d] *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979).

PF01 = Palustrine, Forested, Broad-Leaved Deciduous.
PSS1 = Palustrine, Scrub-Shrub, Broad-Leaved Deciduous.
PSS3 = Palustrine, Scrub-Shrub, Broad-Leaved Evergreen.
PEM1 = Palustrine, Emergent, Persistent.
R2UB1 = Riverine, Lower Perennial, Unconsolidated Bottom, Cobble-Gravel.
R4SB3 = Riverine, Intermittent, Streambed, Cobble-Gravel.

[e] While Monterey cypress stands and Monterey pine forests are both sensitive natural communities (California Department of Fish and Wildlife 2018b), the Monterey cypresses and Monterey pines in the BSA were planted outside of their native range and the communities are not considered sensitive.

[f] Scouler willow thicket is not classified as an alliance in MCV (California Native Plant Society 2018), but functions as one in the BSA.

[g] While coastal brambles are as a sensitive natural community (California Department of Fish and Wildlife 2018b), some of the patches were not considered sensitive because the annual disturbance experienced from vegetation maintenance activities conducted by the California Department of Transportation.

[h] While the vegetation alliance is technically as a sensitive natural community (California Department of Fish and Wildlife 2018b), it was not considered sensitive because of its small size and annual disturbance experienced from vegetation maintenance activities conducted by the California Department of Transportation.

[i] Reported acreages include culverted waters.

Coastal Dune Willow Thicket

Coastal dune willow thicket is a riparian shrub alliance dominated by coastal dune willow (California Native Plant Society 2018); this riparian shrub alliance occupies the riparian communities in the BSA. Subdominant species in the BSA include Sitka willow and poison-oak.

Coastal dune willow thicket is a sensitive natural community (California Department of Fish and Wildlife 2018b). Coastal dune willow thicket has a wetland indicator status of FACW (i.e., it usually occurs in wetlands) (Lichvar et al. 2016); therefore, this alliance is considered a wetland community in the Cowardin system and is classified as PSS1: palustrine scrub-shrub wetland, broadleaved deciduous. This alliance would be considered a riparian community under CDFW jurisdiction.

Sitka Willow Thicket

Sitka willow thicket is a riparian shrub alliance (California Native Plant Society 2018) that occupies riparian corridors in the BSA. Sitka willow also is scattered throughout the BSA. Sitka willow thickets in the BSA are dominated by Sitka willow; and codominant and subdominant species are coastal dune willow and shining willow, respectively.

Sitka willow thickets are considered a sensitive natural community (California Department of Fish and Wildlife 2018b). Sitka willow has a wetland indicator status of FACW (Lichvar et al. 2016); therefore, this alliance is considered a wetland community in the Cowardin system and is classified as PSS1: palustrine scrub-shrub wetland, broadleaved deciduous. This alliance would be considered a riparian community under CDFW jurisdiction.

Shining Willow Thicket

Shining willow thicket is a riparian shrub alliance dominated by shining willow (California Native Plant Society 2018); the riparian shrub alliance occupies the riparian corridors of the BSA. Subdominant species in the BSA include coastal dune willow, Sitka willow, and red elderberry (*Sambucus racemosa*).

Shining willow thicket is considered a sensitive natural community (California Department of Fish and Wildlife 2018b). Shining willow has a wetland indicator status of FACW (Lichvar et al. 2016); therefore, this alliance is considered a wetland community in the Cowardin system and is classified as PSS1: palustrine scrub-shrub wetland, broadleaved deciduous. This alliance would be considered a riparian community under CDFW jurisdiction.

Scouler Willow Thicket

Scouler willow thicket is not classified as an alliance in MCV (California Native Plant Society 2018). However, for the purposes of this study, Scouler willow thicket is described as a vegetation alliance because the community supports a dense Scouler willow canopy and functions like a vegetation alliance in the riparian habitat. Subdominant species in the BSA include shrubs, coyote brush (*Baccharis pilularis*) and twinberry honeysuckle, with herbaceous mugwort (*Artemisia douglasiana*).

Scouler willow thicket is not described as a vegetation alliance and has not been assessed for sensitivity (California Department of Fish and Wildlife 2018b). Scouler willow has a wetland indicator status of FAC (i.e., it commonly occurs in wetlands but also can inhabit uplands) (Lichvar et al. 2016); therefore, this proposed alliance is considered a wetland community in the Cowardin

system and is classified as PSS1: palustrine scrub-shrub wetland, broadleaved deciduous. This alliance would be considered a riparian community under CDFW jurisdiction.

Arroyo Willow Thicket

Arroyo willow thicket is a riparian shrub alliance dominated by arroyo willow (California Native Plant Society 2018). Sitka willow is a prevalent subdominant species in the BSA.

Arroyo willow thicket is a sensitive natural community (California Department of Fish and Wildlife 2018b). Arroyo willow has a wetland indicator status of FACW (Lichvar et al. 2016); therefore, this alliance is considered a wetland community in the Cowardin system and is classified as PSS1: palustrine scrub-shrub wetland, broadleaved deciduous. This alliance would be considered a riparian community under CDFW jurisdiction.

One arroyo willow thicket, associated with Unnamed Stream 4, in the town of Manchester was not considered sensitive because it was degraded and discontinuous with natural habitats.

Coastal Scrub

Coastal scrub is common throughout the BSA, growing along the coastal bluffs and in small patches in the ROW. Coastal scrub in the BSA includes the following alliances: coyote brush scrub, coastal brambles, poison-oak scrub, and Himalayan blackberry scrub (California Native Plant Society 2018).

Coyote Brush Scrub

Coyote brush scrub is dominated by coyote brush in the BSA (California Native Plant Society 2018). Commonly associated woody species in the BSA include Carmel ceanothus (*Ceanothus thyrsiflorus* var. *griseus*), California blackberry, sticky monkey flower (*Diplacus aurantiacus*), coffee berry (*Frangula californica*), coastal silk tassel (*Garrya elliptica*), and poison-oak. This vegetation alliance is commonly transitional between non-native annual grassland and the riparian willows described above. Coyote brush scrub is also present on the coastal bluffs of the cable landing parcel, with codominant species including seaside woolly sunflower (*Eriophyllum staechadifolium*) and bracken fern (*Pteridium aquilinum*). Coyote brush scrub is not a sensitive natural community (California Department of Fish and Wildlife 2018b).

Coastal Brambles

Coastal brambles in the BSA are dominated by California blackberry (*Rubus ursinus*) or thimble berry (*R. parviflorus*). Subdominant shrubs in the BSA include: Himalayan blackberry, coyote brush, and poison-oak. Coastal brambles in the BSA intergrade with coyote brush scrub and non-native annual grassland. Prevalent herbaceous species growing in coastal brambles include sword fern (*Polystichum munitum*), coastal gumweed (*Grindelia stricta* var. *stricta*), and long-beaked filaree (*Erodium botrys*). Coastal brambles are a sensitive natural community (California Department of Fish and Wildlife 2018b), but some of the coastal brambles occurrences were not considered sensitive because of their disturbed state attributed to roadside vegetation maintenance (Appendix A).

Poison-Oak Scrub

Poison-oak scrub inhabits the fringe of riparian habitats in the BSA and is dominated by poison-oak. Poison-oak scrub in the BSA commonly includes California blackberry and/or non-native annual grasses.

Poison-oak scrub is not a sensitive natural community (California Department of Fish and Wildlife 2018b). Poison-oak has a wetland indicator status of FAC (i.e., it commonly occurs in wetlands but also can inhabit uplands) (Lichvar et al. 2016); therefore, this alliance is considered a wetland community in the Cowardin system and is classified as PSS1: palustrine scrub-shrub wetland, broadleaved deciduous; however, poison-oak scrub in the BSA contained a co-dominance with upland nonnative annual grasses. This alliance would be considered a riparian community under CDFW jurisdiction.

Himalayan Blackberry Scrub

Himalayan blackberry scrub occurs in a roadside depression in the BSA surrounded by coastal brambles. Himalayan blackberry scrub is dominated by Himalayan blackberry in the BSA. Subdominant species in the BSA include velvet grass (*Holcus lanatus*), rattle snakegrass (*Briza maxima*), and California blackberry.

Himalayan blackberry scrub is not ranked by CDFW (California Department of Fish and Wildlife 2018b). Himalayan blackberry has a wetland indicator status of FAC (i.e., it commonly occurs in wetlands but also can inhabit uplands) (Lichvar et al. 2016); therefore, this alliance is considered a wetland community in the Cowardin system and is classified as PSS3: palustrine scrub-shrub wetland, broadleaved evergreen. This alliance would be considered a riparian community under CDFW jurisdiction.

Wet Meadow

Wet meadows are seasonally inundated or saturated habitats in the cable landing parcel and roadside topographic depressions. Wet meadows in the BSA contain an assemblage of wetland species and include the following vegetation alliances: slough sedge swards (*Carex obnupta* alliance), water-parsley marshes (*Oenanthe sarmentosa* alliance), a western rush marsh (*Juncus effusus* alliance), a Pacific reed grass meadow (*Calamagrostis nutkaensis* alliance), a common monkey flower seep (*Erythranthe guttata* alliance), and a small-fruited bulrush marsh (*Scirpus microcarpus* alliance) (California Native Plant Society 2018).

Slough Sedge Swards

Slough sedge swards are common in the BSA and are dominated by slough sedge. Subdominant species in the BSA include coast gum plant (*Grindelia stricta* var. *stricta*), velvet grass, common rush (*Juncus patens*), and dogtail grass (*Cynosurus echinatus*). Some of the smaller seasonal wetlands in the BSA did not support slough sedge, but were occupied by similar subdominant species and demonstrated similar hydrologic characteristics.

Slough sedge swards are a sensitive natural community (California Department of Fish and Wildlife 2018b). Slough sedge has a wetland indicator of OBL (i.e., the species almost always occurs, under natural conditions, in wetlands) (Lichvar et al. 2016). As a result, this alliance is considered a wetland community in the Cowardin system and is classified as PEM1: palustrine, persistent, emergent wetland. ICF botanists and wetland ecologists generally observed hydric soils and

evidence of hydrology in the slough sedge swards; these habitats likely would be regulated by USACE and the CCC.

Water-Parsley Marsh

Water-parsley marshes inhabit roadside topographic depressions along the ROW in the BSA and are dominated by water-parsley. Water-parsley marshes in the BSA include the following subdominants: coastal gum plant, silver weed cinquefoil (*Potentilla anserina*), and giant horsetail (*Equisetum telmateia* subsp. *braunii*).

Water-parsley marsh is a sensitive natural community (California Department of Fish and Wildlife 2018b). Water-parsley has a wetland indicator of OBL (i.e., the species almost always occurs, under natural conditions, in wetlands) (Lichvar et al. 2016). In the BSA, water-parsley is commonly indicative of a high water table. This alliance is considered a wetland community in the Cowardin system and is classified as PEM1: palustrine, persistent emergent wetland. ICF botanists and wetland ecologists observed hydric soils and evidence of hydrology in the water-parsley marshes; these habitats likely would be regulated by USACE and the CCC.

Soft Rush Marsh

Dominated by soft rush (*Juncus effusus* subsp. *effusus*), soft rush marshes occur along the ROW; subdominant species in the BSA include those described above for slough sedge swards.

Soft rush marsh is not a sensitive natural community (California Department of Fish and Wildlife 2018b). Soft rush has a wetland indicator of FACW (Lichvar et al. 2016). As a result, this alliance is considered a wetland community in the Cowardin system and is classified as PEM1: palustrine, persistent emergent wetland. ICF botanists and wetland ecologists observed hydric soils and evidence of hydrology in the soft rush marsh; this habitat likely would be regulated by USACE and the CCC.

Pacific Reed Grass Meadow

Dominated by Pacific reed grass, the Pacific reed grass meadow was observed at one location in the northwest portion of the cable landing parcel on the coastal bluffs. Subdominant species in the BSA include seaside wooly sunflower, pearly everlasting (*Anaphalis margaritacea*), and California blackberry.

Pacific reed grass meadow is a sensitive natural community (California Department of Fish and Wildlife 2018b). Pacific reed grass has a wetland indicator of FACW (Lichvar et al. 2016). As a result, this alliance is considered a wetland community in the Cowardin system and is classified as PEM1: palustrine, persistent emergent wetland. This habitat did not demonstrate evidence of hydrology and would not likely be regulated by the USACE or CCC.

Common Monkey Flower Seep

Common monkey flower seep is dominated by seep monkey flower and was observed at one location in a topographic low on the eastside of the ROW for SR 1. Subdominant species in the BSA include common bog rush, California bee plant (*Scrophularia californica*), water-parsley, and giant horsetail.

Common monkey flower seep is a sensitive natural community (California Department of Fish and Wildlife 2018b). However, this feature was small, discontinuous, and disturbed from annual

roadside maintenance by Caltrans; as a result, this vegetation alliance in the BSA is not considered sensitive.

Common monkey flower has a wetland indicator of OBL (Lichvar et al. 2016). As a result, this alliance is considered a wetland community in the Cowardin system and is classified as PEM1: palustrine, persistent emergent wetland. ICF botanists and wetland ecologists observed hydric soils and evidence of hydrology in the common monkey flower seep; this habitat likely would be regulated by USACE and the CCC.

Small-Fruited Bulrush Marsh

The small-fruited bulrush marsh was observed at one location in a topographic low on the eastside of the ROW for SR 1. Small-fruited bulrush marsh was dominated by small-fruited bulrush. Subdominant species in the BSA include seep monkey flower, rush species (*Juncus* sp.), and tall coastal plantain (*Plantago subnuda*) (FACW).

Small-fruited bulrush marsh is a sensitive natural community (California Department of Fish and Wildlife 2018b). However, this feature was small, discontinuous, and disturbed from annual roadside maintenance by Caltrans; as a result, this vegetation alliance in the BSA is not considered sensitive.

Small-fruited bulrush has a wetland indicator of OBL (Lichvar et al. 2016). As a result, this alliance is considered a wetland community in the Cowardin system and is classified as PEM1: palustrine, persistent emergent wetland. ICF botanists and wetland ecologists observed hydric soils and evidence of hydrology in the small-fruited bulrush marsh; this habitat likely would be regulated by USACE and the CCC.

Grasslands

The BSA supports non-native annual grasslands and perennial grasslands.

Non-Native Annual Grassland

Much of the herbaceous vegetation along the road shoulders of SR 1 in the BSA are dominated by a mix of non-native annual and perennial grass and herbaceous species. Frequent disturbance associated with roadside maintenance activities and the adjacent privately-owned land has facilitated invasion by non-native species. While MCV describes non-native grassland alliances (wild oats grasslands and Mediterranean grass grasslands) (California Native Plant Society 2018), the semi-natural alliances in the BSA are collectively classified as non-native annual grassland for practical purposes. This vegetation type was dominated by rattlesnake grass, soft chess (*Bromus hordeaceus*), slender wild oats (*Avena barbata*), and ripgut brome (*Bromus diandrus*). Non-native annual grassland is not ranked by CDFW (California Department of Fish and Wildlife 2018b).

Common Velvet Grass – Sweet Vernal Grass Meadows

Common velvet grass – sweet vernal grass meadows are a dominant vegetation type on the cable landing parcel and in small, intermittent patches along the ROW in the BSA. This herbaceous semi-natural alliance is dominated by velvet grass and sweet vernal grass. This vegetation alliance is also present when either velvet grass or sweet vernal grass is dominant. Common velvet grass – sweet vernal grass meadows in the BSA primarily consist of the following subdominant, non-native species: rattlesnake grass, bird's foot trefoil (*Lotus corniculatus*), dogtail grass, ripgut brome, slender

wild oats, toad flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses present at low cover include meadow barley (*Hordeum brachyantherum*), blue wildrye (*Elymus glaucus*), and California oatgrass (*Danthonia californica*). California blackberry occasionally was intermixed in the common velvet grass – sweet vernal grass meadows in the BSA. Common velvet grass – sweet vernal grass meadows are not ranked by CDFW (California Department of Fish and Wildlife 2018b).

Riverine

The riverine habitat type consists of perennial streams, intermittent streams, ephemeral streams, roadside ditches, and culverts.

Alder and Brush Creeks are perennial streams that flow directly to the Pacific Ocean. The unnamed streams are either tributaries of the perennial creeks or flow directly to the Pacific Ocean. From north to south, the unnamed streams are referred to as Unnamed Stream 1, Unnamed Stream 2, Unnamed Stream 3, and Unnamed Stream 4 (Appendix A). Unnamed Stream 1 and Unnamed Stream 2 do not surface in the BSA. The extent of riverine habitat is contained between the OHWM of each stream. The riverine habitats are primarily low gradient and composed of gravel, small cobble, and fine sediment.

Perennial Streams

Alder Creek at SR 1 is a low-gradient stream that meanders with point-bar, riffle-pool alluvial channels and has a broad well-defined floodplain (California Department of Fish and Game 2003). Its substrates are dominated by gravel and cobble. Alder Creek has an average width of 27 feet and is 2 feet deep on average. Baseline flow in summer is about 5 cubic feet per second. Water temperature at baseline flow ranges from 54 to 66°F. Stream banks are composed primarily of sand/silt/clay, bedrock, and cobble/gravel. Both right and left banks are about 70 percent vegetated. Brush Creek at SR 1 is a low-gradient, entrenched meandering stream with a gravel-dominated substrate interspersed with small cobbles (California Department of Fish and Game 2005). Riparian density in the Project area is roughly 86 percent, consisting mostly of deciduous trees—Pacific/shining willow, Sitka willow, and red alder; conifers make up about 16 percent of the canopy. Brush Creek has an average width of 19 feet and an average depth of 2 feet. Baseline flow in summer is about 4 cubic feet per second. Water temperature at baseline flow ranges from 52 to 62°F. Stream banks are composed primarily of and cobble and gravel. Both right and left banks are about 81 percent vegetated. Unnamed Stream 4 did not surface in the BSA, is a perennial stream, and the canopy was dominated by arroyo willow. Two small perennial streams occur in the ROW south of Unnamed Stream 2 and Unnamed Stream 4 is also a perennial stream.

Intermittent Streams

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. Intermittent streams bisect SR 1 in the BSA and consist of Unnamed Streams 1, Unnamed Stream 3, and several other features that parallel SR 1 in the ROW.

Ephemeral Streams

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. Ground water is not a

source of water, and these streams are above the water table year-round in a typical year. In the BSA, ephemeral streams paralleled SR1 in the ROW.

Roadside Ditches

Ditches are linear features immediately adjacent to SR 1 that convey sheet flow runoff from the road surface. Ditches are either unvegetated or support herbaceous species described in annual grassland and/or wet meadow habitat types.

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.

Urban

The urban habitat type is composed of built structures (e.g., buildings and roads) that are unvegetated or primarily support ruderal and/or ornamental vegetation.

Special-Status Species

This section summarizes the likelihood of special-status wildlife and plant species to occur in the BSA. Special-status plant species and potential aquatic resources documented in the BSA also are reported.

Special-Status Wildlife

Based on the initial literature review, 31 special-status fish and wildlife species were identified as having the potential to occur within or adjacent to the BSA. Upon further review of existing conditions, species habitat requirements, and distribution, 18 special-status fish and wildlife species were determined to have the potential to occur within or adjacent to the BSA (Table 3). Table 3 also briefly describes the rationale for determining that a species does not have the potential to occur in the BSA.

Mammals

Point Arena Mountain Beaver. A federally endangered and State species of special concern, the Point Arena mountain beaver occurs in coastal scrub, conifer forest, riparian scrub, north coast riparian, coastal prairie, coastal dune, freshwater seep, and some ruderal plant communities (U.S. Fish and Wildlife Service 1998). The Point Arena mountain beaver is well documented as occurring within the immediate vicinity of the Project. There are 30 occurrences within 3 miles of the Project (California Department of Fish and Wildlife 2018c), and they have been documented in the northern riparian habitat of Brush and Alder Creeks and two unnamed watercourses that cross the Project (California Department of Fish and Wildlife 2018c). They also are known to occur in Manchester State Park; in 2005, State Parks conducted a habitat protection project at their Manchester State Park Campground. The campground was reconfigured and closed in some areas to improve habitat, to protect the mountain beaver from disturbance, and to encourage recolonization (California Department of Parks and Recreation 2005).

Table 3. Special-Status Fish and Wildlife Species with Potential to Occur in the Biological Study Area

Common Name *Scientific Name*	Status[a] Federal/State	Habitat Requirements	Potential for Occurrence
Mammals			
Point Arena mountain beaver *Aplodontia rufa nigra*	FE/SSC	Uses coastal scrub, coastal strand, conifer forest, and riparian habitat types with well-drained soils that provide sufficient amounts of herbaceous food plants.	High – Known to occur in Manchester State Park on private property near the north end of the Project, and in riparian habitat along Alder and Brush Creeks. Suitable habitat occurs throughout the majority of the biological study area (BSA).
Sonoma red tree vole *Arborimus pomo*	–/SSC	Primarily found in mature Douglas fir, redwood, and montane hardwood-conifer habitat types (Zeiner et al. 1990).	None – Known from the Project vicinity,[b] but suitable habitat is not found in the BSA.
American badger *Taxidea taxus*	–/SSC	Found in woodland, shrub, and grassland habitat types with friable soils for burrowing. Preys on small mammals, reptiles, insects, and birds. Also scavenges for carrion.	Moderate – Marginal foraging and denning habitat is in the BSA.
Amphibians/Reptiles			
Coastal tailed frog *Ascaphus truei*	–/SSC	Found in high-gradient perennial streams in mature and old-growth forest habitat types (Thomson et al. 2016).	None – No suitable habitat is in the BSA.
Northern red-legged frog *Rana aurora*	–/SSC	Occupies low-gradient streams with pools, marshes, and ponds with dense vegetation for cover.	High – Known from the Project vicinity; may occur in perennial creeks that bisect the Project alignment.
Foothill yellow-legged frog *Rana boylii*	–/SC	Occurs throughout the North and South Coast Ranges, south to the Transverse Range, across northern California to the west slope of the Cascade Range, and south through the foothills of the Sierra Nevada. Occurs up to 6,000 feet in the northern Sierra Nevada. Inhabits forest streams and rivers with sunny, sandy, and rocky banks, with deep pools, and shallow riffles. Occurs in both perennial and intermittent streams.	High – Known to occur in Manchester State Park. May occur in perennial creeks that bisect the Project alignment.

Common Name *Scientific Name*	Status[a] Federal/State	Habitat Requirements	Potential for Occurrence
California red-legged frog *Rana draytonii*	FT/SSC	Associated with still waters in ponds, marshes, and stream pools near woodlands, coastal scrub, and streams with dense vegetative cover. Most common in lowlands and foothills. Elevations range from sea level to 5,000 feet.	High – Known to occur in Manchester State Park and may occur in perennial creeks that bisect the Project alignment. The BSA is in critical habitat unit MEN #1.
Southern torrent salamander *Rhyacotriton variegatus*	–/SCC	Associated with late seral forest cover types in perennial seeps and streams with a course substrate (Thomson et al. 2016).	None – No suitable habitat is in the BSA.
Red-bellied newt *Taricha rivularis*	–/SSC	Occurs in redwood forests of Humboldt, Mendocino, Lake, and Sonoma Counties. Aquatic breeding habitat consists of mountain streams and creeks with a rocky substrate (Thomson et al. 2016).	None – No suitable habitat is in the BSA.
Birds			
Marbled murrelet *Brachyramphus marmoratus*	FT/SE	Nests and roosts in coastal coniferous forest habitat types. Forages in the open ocean.	Low – No suitable nesting or roosting habitat is in the BSA. The Pacific Ocean provides suitable foraging habitat.
Western snowy plover *Charadrius nivosus nivosus*	FT/SSC	Nests above the high tide line on coastal beaches, on dunes, near river mouths and along edges of lagoons and estuaries.	High– Known to nest in dune habitat of Manchester State Park.
Northern harrier *Circus cyaneus*	–/SSC	Nests in grassland, scrub, and wetland habitat types. Nests and roosts on the ground in dense cover.	High – Grassland and coastal scrub habitats provide suitable nesting and foraging habitat.
Yellow-billed cuckoo *Coccyzus americanus*	FT/SE	A neotropical migrant that winters in South America. Breeds primarily in riparian woodlands with mature broadleaf trees and shrubs that are in patches of 50 acres or more.	None – No suitable nesting or foraging habitat is in the BSA. No sighting reported within 3 miles of the BSA by California Department of Fish and Wildlife (2018) or by eBird from 2013–2018 (Cornell Lab of Ornithology 2018).
Yellow warbler *Setophaga petechia*	–/SSC	Nests and forages in early successional riparian habitats. Range includes coastal and northern California and the Sierra Nevada below approximately 7,000 feet; mostly extirpated from the southern Sacramento and San Joaquin Valleys.	Moderate – Riparian habitat associated with Alder Creek, Brush Creek, and three unnamed creeks that bisect the Project alignment provides suitable nesting and foraging habitat.

Common Name *Scientific Name*	Status[a] Federal/State	Habitat Requirements	Potential for Occurrence
Yellow-breasted chat *Icteria virens*	–/SSC	Nests and forages in riparian thickets of willow and other brushy tangles near water and thick understory in riparian woodland. Breeding range includes the northern Sacramento Valley, Cascade Range, Sierra Nevada foothills, northwestern California, most of the Coast Ranges, the Colorado River, and other scattered sites. Migrates south of California in fall/winter.	Moderate – Riparian habitat associated with Alder Creek, Brush Creek, and three unnamed creeks that bisect the Project alignment provide suitable nesting and foraging habitat.
Peregrine falcon *Falco peregrinus*	–/SFP	Occurs in a variety of habitat types. Typically nests on cliff ledges.	Low – Observed hunting in Manchester State Park (California Department of Parks and Recreation 2005); BSA lacks suitable nesting habitat.
Northern spotted owl *Strix occidentalis caurina*	FT/ST	Occurs in coniferous, hardwood, and mixed forests with complex, multi-layered structure, large-diameter trees, and high-canopy closure.	None – No suitable habitat is in the BSA.
Invertebrates			
Conservancy fairy shrimp *Branchinecta conservatio*	FE/–	Found in large vernal pools with moderate turbidity. Known from eight populations in Butte, Yolo, Tehama, Glenn, Stanislaus, Merced, and Ventura Counties.	None – The BSA is outside species known range (U.S Fish and Wildlife Service 2012).
Western bumble bee *Bombus occidentalis occidentalis*	–/PE	Found in a variety of habitat types and forages/pollinates a wide range of plant species. Constructs hives in underground burrows or crevices.	None – The BSA is outside species known range (Xerces 2018; Bumble Bee Watch 2018).
Lotis blue butterfly *Lycaeides argyrognomon lotis*	FE/–	Historically known to occur between Fort Bragg and Point Arena. Inhabits wet meadow and sphagnum willow bog habitat types. Larvae food plant believed to be coast trefoil.	Low– Not observed since 1983. Harlequin lotus (*Hosackia gracilis*), larval host plant, was identified in the BSA.
Behren's silverspot butterfly *Speyeria zerene behrensii*	FE/–	Inhabits coastal terrace prairie and grasslands on stabilized dunes where host plants (*Viola* spp.) and nectar plants are found.	Low – Known from Manchester State Park. Majority of the Project alignment is in ruderal habitat along the edge of SR 1.
California freshwater shrimp *Syncaris pacifica*	FE/SE	Found in low-gradient perennial freshwater streams in Marin, Napa, and Sonoma Counties.	None – Not known to occur in Mendocino County (U.S Fish and Wildlife Service 2011).

Common Name *Scientific Name*	Status[a] Federal/State	Habitat Requirements	Potential for Occurrence
Fish			
Tidewater goby *Eucyclogobius newberryi*	FE/SSC	Occurs in Jones Pond in Manchester State Park. Requires fresh or brackish water, and/or mud substrates to burrow into. Does best in tidally muted or seasonally disconnected lagoons, estuaries, or sloughs.	Low – BSA is within known range. And they may occur in Brush and Alder Creeks.
Northern California Coast steelhead *Oncorhynchus mykiss*	FT/–	Occurs in Alder and Brush Creeks and tributaries. Requires cold, clean water and gravel for spawning and rearing, with cover for velocity and predator refuge.	High – Known to occur in Alder and Brush Creeks (California Department of Fish and Game 2003, 2005).
California Coastal Chinook salmon *Oncorhynchus tshawytscha*	FT/–	Occurs in Garcia River. Requires cold, clean water and gravel for spawning and rearing, with cover for velocity and predator refuge.	Low – BSA is within the known range and Brush and Alder creeks may provide suitable habitat.
Central California coast steelhead *Oncorhynchus mykiss*	FT/–	Found in cool, clear, fast-moving perennial streams with riffles, pools, and dense riparian cover.	None – Not known to occur in perennial creeks in the BSA. The BSA is north of where steelhead are known to enter fresh water to spawn.
Southern Oregon/Northern California coast Coho salmon *Oncorhynchus kisutch*	FT/FT	Found in perennial streams with water temperatures of 12–14°C. Not commonly found in streams where summer temperatures exceed 22–25°C. Requires deep pools, riffles, and runs with adequate canopy cover.	None –The BSA is south of where the salmon are known to enter fresh water to spawn.
Eulachon southern distinct population segment (DPS) *Thaleichthys pacificus*	FT/–	Spawns in lower reaches of rivers during peak spring flow events. Adults in the southern DPS are semelparous. Needs sand or coarse gravel for spawning substrate. Larvae are transported to estuaries and then to the ocean.	None – Not known to occur in perennial creeks in the BSA. Known from the Klamath River (Del Norte County), Redwood Creek and Mad River (Humboldt County), and in tributaries of Humboldt Bay.
Green sturgeon southern DPS *Acipenser medirostris*	FT/SSC	Spawns and rears in upper Sacramento river. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	None – Not known to spawn in the BSA.
Central California Coast Coho salmon *Oncorhynchus kisutch*	FE/ST	Occurs in Garcia River. Requires cold, clean water and gravel for spawning and rearing, with cover for velocity and predator refuge.	Low – BSA is within known range and Brush and Alder creeks may provide suitable habitat.

Common Name *Scientific Name*	Status[a] Federal/State	Habitat Requirements	Potential for Occurrence
Pacific lamprey *Entosphenus tridentatus*	–/SSC	Occurs in Alder and Brush Creeks and tributaries. Requires cold, clean water and gravel for spawning and soft substrate for ammocoetes to burrow into, with slower water velocity areas such as backwaters.	High – Known to occur in Alder and Brush Creeks (California Department of Fish and Game 2003, 2005).

[a] Status explanations:

Federal: U.S. Fish and Wildlife Service

FE = Federally endangered.
FT = Federally threatened.

State: California Department of Fish and Wildlife

PE = Petitioned to be listed as endangered.
SC = State candidate for listing.
SE = State endangered.
ST = State threatened.
SSC = State species of special concern.
SFP = State fully protected.

[b] As used in this table, "Project vicinity" includes the BSA and a 3-mile buffer. This distance was used in the literature search for presence of special-status species.

The coastal scrub habitat near the north end of the Project and immediately south of the proposed CLP also is known to support Point Arena mountain beaver. Bio Consultants LLC (2011b) identified three different burrow complexes in this area. The three burrow complexes occupied approximately 1.83 acres. A total of 54 burrows were mapped, although additional burrows were most likely present in dense scrub habitat that could not be adequately surveyed.

American Badger. A State species of special concern, the American badger occurs in grassland and coastal scrub habitat types. The badger has not been documented in the BSA (California Department of Fish and Wildlife 2018c), but available habitat on the CLP and habitat adjacent to the Project alignment provides both foraging and denning habitat.

Amphibians

California Red-Legged Frog. A federally threatened and State species of special concern, the California red-legged frog is known to occur in the Project vicinity. Five occurrences have been reported between 1998 and 2001, with two sightings in Manchester State Park (California Department of Fish and Wildlife 2018c). They also have been documented within all drainages of Manchester State Park (California Department of Parks and Recreation 1992 *in* California Department of Parks and Recreation 2005). Both Alder and Brush Creeks and two unnamed creeks that the Project alignment crosses provide aquatic habitat for the California red-legged frog. Lagoon Creek near the south end of the Project also provides aquatic habitat, but this creek is not within the immediate work area and would be avoided. Grassland and coastal scrub habitats adjacent to aquatic habitat provide upland habitat.

USFWS designated critical habitat for the California red-legged frog was revised in March 2010 (75 FR 12816–12959). The majority of the Project is within critical habitat unit MEN-1 which is known to support California red-legged frogs. Three occurrences are within 3 miles of the Project (California Department of Fish and Wildlife 2018c); two of those occurrences (CNDDB occurrences #1263 and 1264) in Manchester State Park are approximately 3,800 feet west of the Project alignment.

Foothill Yellow-Legged Frog. A State candidate for listing, the foothill yellow-legged frog has been documented in Manchester State Park and a few other locations within 3-miles of the BSA (California Department of Fish and Wildlife 2018c). The frogs are highly aquatic and have the potential to occur in Alder and Brush Creeks and two unnamed watercourses crossed by the Project alignment. Using HDD to install the fiber cable, these watercourses would be avoided.

Northern Red-Legged Frog. A State species of special concern, the northern red-legged frog is known to occur in the Project vicinity. Similar to the California red-legged frog and foothill yellow-legged frog, this species may occur in Alder and Brush Creeks and the two unnamed watercourses crossed by the Project alignment.

Invertebrates

Behren's Silverspot Butterfly. Federally endangered, the Behren's silverspot butterfly has been documented in the vicinity of the Project. Western dog violet (*Viola adunca*), a potential larval food plant for the Behren's silverspot butterfly, is known to occur in Manchester State Park (California Department of Parks and Recreation 2005) but has not been documented during plant surveys in the BSA and landing site. Because the BSA lacks host plants, Behren's silverspot is not likely to occur within the BSA but may occur in adjacent habitat that supports host and nectar plant species.

Lotis Blue Butterfly. Federally endangered, the Lotis blue butterfly is known from a single location in a Pygmy forest habitat type north of the town of Mendocino in Mendocino County (U.S. Fish and Wildlife Service 1985). There are historical occurrences of Lotis blue butterfly near the town of Manchester but no recent sightings. During plant surveys, the Harlequin lotus (*Hosackia gracilis*), a potential larval host plant, was observed in the BSA. With the lack of recent sightings, but with the presence of larval host plants, the Lotis blue butterfly has limited potential to occur in the BSA.

Birds

Marbled Murrelet. Federally threatened and State endangered, the marbled murrelet has been documented within 3 miles of the BSA. The murrelet forages in the Pacific Ocean and nests inland in conifer forests with large, over-mature conifer trees. The BSA lacks suitable nesting habitat, and the terrestrial portion of the Project does not support foraging habitat. Consequently, the marbled murrelet does not have the potential to occur in the BSA.

Northern Harrier. A State species of special concern, the northern harrier has been observed foraging in Manchester State Park (California Department of Parks and Recreation 2005). The grassland and coastal scrub habitat adjacent to the Project alignment and the proposed CLS provides suitable foraging and nesting habitat.

Western Snowy Plover. Federally threatened and a State species of special concern, the western snowy plover is known to nest on the beach at Manchester State Park (California Department of Parks and Recreation 2005). Suitable nesting habitat occurs on the stretch of sandy beach/dune habitat within the BSA, but this area will be avoided by using HDD to install the fiber cable.

USFWS-designated critical habitat for the western snowy plover was revised in June 2012 (75 FR 36728 – 36869). Critical habitat unit CA #8 encompasses all of Manchester State Park. The northernmost CLS is immediately north of and outside of critical habitat unit CA #8. Critical habitat does not extend into the BSA.

Yellow Warbler and Yellow-Breasted Chat. These State species of special concern occupy riparian scrub/woodland habitat types. The yellow warbler and yellow-breasted chat have the potential to occur in riparian habitat on Alder and Brush Creeks and three unnamed watercourses that cross the Project alignment (California Department of Fish and Wildlife 2018c; eBird 2018).

Peregrine Falcon. A State fully protected species, the peregrine falcon has been observed foraging at Manchester State Beach (California Department of Parks and Recreation 2005). The BSA provides foraging habitat but lacks suitable nesting habitat.

Other Special-Status and Non-Special-Status Migratory Birds and Raptors

Several non-special-status migratory birds could nest in and adjacent to the BSA, based on the presence of suitable nesting habitat (coastal scrub and riparian). The breeding season for most birds is generally from February 16 to August 15. The occupied nests and eggs of these birds are protected by federal and state laws, including the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5.

Fish

Tidewater Goby. A federally endangered and State species of special concern, the tidewater goby is known to inhabit Jones Pond within Manchester State Park. Tidewater goby are a small, short-lived, estuarine/lagoon-adapted species that may infrequently disperse via marine habitat, but with no dependency on marine habitat for their life cycle. Unlike other California gobies, the tidewater goby is able to complete its entire life cycle in fresh or brackish water. The preferred juvenile/adult habitat is also slack, shallow water in seasonally disconnected or tidally muted lagoons, estuaries, and sloughs. Tidewater goby appear to prefer shallow depths (less than 3.3 feet) near emergent vegetation, possibly to avoid predation by wading birds and piscivorous fish.

Northern California Coast Steelhead. Federally threatened, the northern California coast steelhead is found in Alder and Brush Creeks and their tributaries, which bisect the BSA. Steelhead adults spawn in fresh water and spend a part of their life history at sea. Steelhead adults may spawn more than once during their life. Typically, steelhead rear in freshwater streams for 2 years, followed by up to 2 or 3 years of residency in the ocean before returning to their natal stream to spawn as 4- or 5-year olds. Steelhead enter fresh water as mature adults and spawn shortly after river entry. Steelhead enter fresh water between November and April; migrate to spawning areas; and then spawn, generally in April and May.

Spawning and initial rearing of juvenile steelhead generally takes place in small, moderate-gradient streams with water temperatures between 39 and 49 °F, with a minimum depth of 7 inches and water velocity of 1 to 3 cubic feet per second. The gravel must be clean, and the size is usually ¼ to 4 inches. Cover in various forms is needed during spawning to reduce disturbance and predation. Eggs hatch in 35 to 50 days and, after 2 to 3 weeks, alevins emerge from the gravel and begin active feeding along shallow water stream banks. As they mature, older fry will move into pool habitats and will defend territories. Juvenile steelhead occupy variable habitats and depths. Preferred water temperatures range from 54 to 59 °F. Primary food sources include aquatic and terrestrial insects and sometimes emerging fry. Freshwater rearing generally is for 2 years but can be up to 4 years. Steelhead usually smolt at about 6–8 inches in length before migrating to the ocean. The majority of this smolt migration takes place from March to May at 2 years old. The BSA provides migration pathways and spawning and juvenile rearing habitat. Both Alder and Brush Creeks and their tributaries are listed as part of the species critical habitat.

The National Marine Fisheries Service designated critical habitat on September 2, 2006 (70 FR 52488–52561). Both northern California Coast critical habitat Alder Creek Hydrologic Sub-Area 111363 and Brush Creek Hydrologic Sub-Area 111364 bisect the BSA, and both contain northern California coast steelhead (California Department of Fish and Game 2003, 2005).

California Coastal Chinook Salmon. Federally threatened, the known range of the California coastal Chinook salmon encompasses the BSA. The nearest known occurrence is in the Garcia River, 2 miles south of the southern end of the BSA. They also may occur in Alder and Brush Creeks and their tributaries, but their occurrence is highly unlikely because the creeks are small and lack suitable flow.

California coastal Chinook salmon typically spawn between September and early November following large winter storms. Spawning often is delayed in smaller coastal watersheds where low-flow barriers prevent access until a major storm produces high runoff. Spawning takes place in lower reaches of rivers and tributaries up to 1,000 feet elevation. Entering fresh water fully mature, the fish rapidly move to spawning areas where they spawn within a few weeks and then die a few

days later. Fry emerge from the gravel in late winter or spring and initiate outmigration within weeks to months. Fry immediately seek out areas behind fallen trees, back eddies, undercut banks, and other areas of bank cover. Juveniles move away from stream margins and begin to use deeper water areas with slightly faster water velocities but continue to use cover for velocity and predator refuge. They may reside in estuaries and lagoons before they enter the ocean.

Central California Coast Coho Salmon. A federally endangered and State threatened species, the known range of the central California coast Coho salmon encompasses the BSA. Occurrences of Coho salmon have been documented in Greenwood Creek to the north and the Garcia River to the south. Coho salmon were not found in Alder Creek, Brush Creek, or their tributaries by CDFG in 2003 and 2005, but Coho salmon were present in Brush Creek in 1968.

Coho salmon spend the first half of their life cycle rearing in streams and small freshwater tributaries. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean. Spawning migrations begin after heavy late-fall or winter rains. Timing varies, but in shorter coastal streams, most Coho salmon return during mid-November through January. Spawning occurs in clean gravel that is similar in size to that used by steelhead and is concentrated at the tail outs of pools that feature suitable depth and velocity. Eggs incubate from 1 to 3 months, depending on temperature. From February to May, alevins emerge from the gravel as fry and begin actively feeding in shaded backwaters, side channels, or small streams with less water velocity. As fry grow, they migrate to habitats with complex cover such as undercut banks, root wads, large woody debris, and vegetative overhangs. In-stream habitat complexity, including a mixture of pools and riffles, large woody debris, and well-oxygenated cool water from 50 to 59 °F are important habitat components for Coho salmon fry. Coho salmon have been shown to use estuaries to varying degree, with multiple life history patterns. Some may rear in the estuary during spring and summer as fry, others may arrive in late fall and rear through winter. A stream's estuary is a highly productive area that is important rearing habitat for juvenile Coho salmon.

The National Marine Fisheries Service designated critical habitat on May 5, 1999 (64 FR 24049–24060). Critical habitat for the Central California Coast evolutionary significant unit encompasses accessible reaches of all rivers (including estuarine areas and tributaries) between Punta Gorda and the San Lorenzo River, which would include the Big-Navarro-Garcia Hydrologic Unit 18010108 (Mendocino (CA)—Manchester/Point Arena Rancheria) that the BSA bisects. No Coho salmon were found in CDFW habitat surveys of Alder and Brush Creeks (California Department of Fish and Game 2003, 2005). Coho salmon are found in the Garcia River drainage, which is approximately 4 miles south of the mouth of Alder Creek and 2 miles south of Brush Creek.

Pacific Lamprey. A state species of special concern, Pacific lamprey are known to inhabit small and large streams throughout their range from Hokkaido, Japan through Alaska and down to Baja California. During habitat surveys, Pacific lamprey have been documented within the BSA in Alder and Brush Creeks (California Department of Fish and Game 2003, 2005).

Pacific lamprey spawning migrations usually occur between early March and late June but also have been noted in January and February. Pacific lampreys most commonly spawn in clear, cold, flowing water at temperatures of 54–64 °F. Spawning usually takes place in low-gradient riffles. The average time spent in spawning areas is less than 7 days. Eggs hatch in 19 days at 59 °F, but hatching is temperature dependent and may take less or more time. Upon hatching, ammocoetes may stay in the nest for a short time and then swim up into the water column; from there, they are carried by the current downstream where they burrow into areas that contain sand or mud substrate.

Plants

The pre-field investigation identified 21 special-status plant species known to occur within 3 miles of the BSA. Based on a review of the literature, existing conditions, habitat requirements, and distribution, 16 special-status plant species were identified as having the potential to occur in the BSA. Table 4 outlines the rationale for determining the potential for special-status plant species to occur in the BSA.

A total of 212 plant species were identified in the BSA (Appendix B). No federally or State-listed species were identified.

The following CRPR species were documented during floristic surveys:

- Mendocino Coast paintbrush (*Castilleja mendocinensis*), a CRPR 1B.2 species, 10 individual plants were found on the coastal bluffs near the cable landing parcel (Appendix A).
- Harlequin lotus (*Hosackia gracilis*), a CRPR 4.2 species, three individual plants were documented in a seasonal wetland of the perennial grasslands at the landing site. Harlequin lotus was found within typical habitat in its known range (Appendix A).

Excluding closed-cone pine-cypress and non-native annual grassland, the natural habitats in the BSA support suitable habitat for 16 of the 21 special-status plant species listed in Table 4. Of this total, two late-blooming special-status species, Baker's goldfields (CRPR 1B.2) and perennial goldfields (CRPR 1B.2) have suitable habitat in the BSA that was surveyed during the species' identifiable period, and neither species was observed. While suitable habitat for some of the special-status species in Table 4 includes North Coast coniferous forests and/or closed-cone pine forests, the closed-cone pine cypress habitat along SR 1 is a planted community that does not function as special-status plant habitat. Each special-status plant species with suitable habitat in the BSA is outlined below.

Pink sand verbena is an annual or short-lived perennial herb that occupies coastal dunes and bluffs. The CRPR 1B.1 species is in the Nyctaginaceae (Four O'clock) Family. The subspecies range extends along the southern Oregon and northern California coastline (Jepson Flora Project 2018). In California, pink sand verbena has the greatest number of occurrences in Humboldt County but also is known to occur in Del Norte, Marin, and Mendocino Counties (California Department of Fish and Wildlife 2018c). Pink sand verbena is threatened by vehicles, non-native plants, and foot traffic (California Native Plant Society, Rare Plant Program 2018).

The western CLP supports suitable coastal bluff habitat. During appropriately-timed surveys, pink sand verbena was not observed, but the surveys did not cover the entire CLP. Follow-up surveys will be conducted during spring and summer 2019. Should pink sand verbena be observed, the plants will be flagged and avoided; the coastal bluffs will be bored beneath, and all impacts on the habitat will be avoided.

Table 4. Special-Status Plant Species Known to Occur within 3 Miles of the Biological Study Area

Scientific Name Common Name	Status[a] Federal/ State/CRPR	Habitat Requirements	Blooming Period	Potential for Occurrence in the BSA[b]
Abronia umbellata var. *breviflora* Pink sand verbena	–/–/1B.1	Coastal dunes and bluffs; < 100 meters.	June–Oct	High— Full assessment of suitable habitat on the coastal bluffs was prevented due to lack of safe access to steep slopes.
Agrostis blasdalei Blasedale's bent grass	–/–/1B.2	Coastal dunes and bluffs; < 100 meters.	May–July	High—Suitable coastal bluff habitat occurs in the western portion of the landing parcel; appropriately timed surveys did not cover all suitable habitat in the biological study area (BSA) due to lack of safe access to steep slopes. Known occurrences have been documented in the vicinity of the cable landing parcel (BioConsultants, LLC 2011).
Calystegia purpurata subsp. *saxicola* Coastal bluff morning glory	–/–/1B.2	Coastal dunes, coastal scrub, coastal bluff scrub, North Coast coniferous forest; < 100 meters.	May–Sept	High— Suitable habitat present; due to safety concerns, portions of coastal cliffs on cable landing parcel could not be surveyed.
Campanula californica Swamp harebell	–/–/1B.2	Microhabitat of freshwater marshes and bogs/fens within coastal prairie, closed-cone pine forest, North Coast coniferous forest, and riparian habitat; ± 5–400 meters.	June–Oct	None—BSA lacks suitable microhabitat.
Carex lyngbyei Lyngbye's sedge	–/–/2B.2	Marshes and swamps; ± 0 meters.	April–Aug	None—BSA lacks suitable habitat.
Carex saliniformis Deceiving sedge	–/–/1B.2	Mesic areas in coastal prairies and coastal scrub, including marshes, swamps, seeps, and meadows; < 250 meters.	June	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA.
Castilleja ambigua subsp. *humboldtiensis* Humboldt Bay owl's-clover	–/–/1B.2	Marshes and swamps (coastal salt); 0–790 meters	April–Aug	None—BSA lacks suitable habitat.
Castilleja mendocinensis Mendocino Coast paintbrush	–/–/1B.2	Coastal strand, coastal prairie, northern coastal scrub, closed-cone pine forest, coastal dunes; < 100 meters.	April–Aug	Present—10 individual plants were observed on a bluff at the southwest corner of the cable landing parcel during October 2018 surveys.
Cuscuta pacifica var. *papillata* Mendocino dodder	–/–/1B.2	Coastal dunes (interdune depressions)	(June) July–Oct	None—BSA lacks suitable habitat.

Scientific Name Common Name	Status[a] Federal/ State/CRPR	Habitat Requirements	Blooming Period	Potential for Occurrence in the BSA[b]
Erigeron supplex Supple daisy	–/–/1B.2	Coastal bluff scrub, coastal prairie; 10–50 meters.	May–July	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA.
Fritillaria roderickii Roderick's fritillary	–/SE/1B.1	Coastal prairie, valley grassland, northern coastal scrub; < 1,300 meters.	March–May	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA.
Gilia capitata subsp. *pacifica* Pacific gilia	–/–/1B.2	Steep slopes, ravines, and open flats of coastal bluffs, grassland, and dunes; generally below 400 meters.	April–Aug	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA.
Glyceria grandis American manna grass	–/–/2B.3	Bogs and fens, meadows and seeps, marshes, swamps, and margins of stream banks and lakes; 15–1,980 meters.	June–Aug	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA.
Hesperevax sparsiflora var. *brevifolia* Short-leaved evax	–/–/1B.2	Sandy, grassy or wooded coastal bluffs, terraces, and dunes; 35–1,250 meters.	March–June	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA. A known occurrence was documented in the vicinity of the landing parcel (BioConsultants, LLC 2011).
Lasthenia californica subsp. *bakeri* Baker's goldfields	–/–/1B.2	Northern coastal scrub, openings in closed-cone coniferous forests, meadows and sweeps, marshes, and swamps; < 500 meters.	April–Oct	None—Suitable habitat present in the BSA but appropriately timed surveys did not detect species.
Lasthenia californica subsp. *macrantha* Perennial goldfields	–/–/1B.2	Coastal grassland, dunes, and scrub; < 500 meters.	Jan–Nov	None—Suitable habitat present in the BSA but appropriately timed surveys did not detect species.
Lasthenia conjugens Contra Costa goldfields	FE/–/1B.1	Vernal pools in grassland habitat; < 100 meters.	March–June	Moderate— Designated critical habitat overlaps with the BSA. Suitable vernal pool habitat occurs immediately adjacent to the BSA and the margin of the vernal pool occurs inside the BSA. Contra Costa goldfields were not observed during the mid-season survey (June 26–June 28, 2018), but the species is very rarely observed that late in during the blooming period (California Consortium of Herbaria 2019). Therefore, the species may not have been identifiable during the mid-season survey and could still occur in the BSA.

Scientific Name Common Name	Status[a] Federal/ State/CRPR	Habitat Requirements	Blooming Period	Potential for Occurrence in the BSA[b]
Lilium maritimum Coast lily	–/–/1B.1	Usually in wetland-riparian habitat; coastal prairie, mixed evergreen forest, northern coastal scrub, closed-cone pine forest, north coastal coniferous forest; < 150 meters.	May–Aug	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA.
Microseris paludosa Marsh microseris	–/–/1B.2	Grassland, coastal scrub, closed-cone-coniferous forest, cismontane woodland; < 300 meters.	April–June	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA.
Potamogeton epihydrus Nuttall's ribbon-leaved pondweed	–/–/2B.2	Freshwater marsh; 369–2,172 meters.	July–Sept	None—BSA lacks suitable habitat.
Sidalcea malviflora subsp. *purpurea* Purple-stemmed checkerbloom	–/–/1B.2	Broadleaved upland forest, coastal prairie; < 30 meters.	May–June	High—Suitable habitat is present; appropriately timed surveys did not cover all suitable habitat in the BSA.

[a] Status explanations:

Federal

FE = Listed as endangered under the federal Endangered Species Act.
– = No listing status.

State

SE = Listed as endangered under the California Endangered Species Act.
– = No listing status.

California Rare Plant Rank (CRPR)

1B = rare, threatened, or endangered in California and elsewhere.
2B = rare, threatened, or endangered in California but more common elsewhere.
.1 = Seriously endangered in California (more than 80% of occurrences threatened / high degree and immediacy of threat).
.2 = Moderately threatened in California (20–80% occurrences threatened / moderate degree and immediacy of threat).
.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

[b] Potential for occurrence explanations:

Present: Species was observed in the BSA during appropriately-timed surveys.

Moderate: Known occurrence of species is within 3 miles of BSA; the margin of suitable habitat is present in the BSA, but is of medium to low quality from roadside vegetation maintenance.

High: Known occurrence of species is within 3 miles of BSA; suitable habitat and microhabitat is present and of good quality.

None: Plant is not known to occur in the region from California Natural Diversity Database or other documents in the vicinity of the Project; or suitable habitat is not present in any condition.

Blasedale's bent grass is a perennial, rhizomatous grass that occupies coastal dunes and bluffs. The CRPR 1B.2 species is in the Poaceae (Grass) Family. The species is known to occur in the southern North Coast, the northern Central Coast, and the northern San Francisco Bay Area (Jepson Flora Project 2018). Blasedale's bent grass is known to occur in Mendocino, Marin, San Mateo, Santa Cruz, and Sonoma Counties—with the greatest density of occurrences in Marin County (California Department of Fish and Wildlife 2018c). Blasedale's bent grass is threatened by agriculture, recreation, development, and competition with non-native plants (California Native Plant Society, Rare Plant Program 2018).

The CLP supports suitable coastal bluff habitat for Blasedale's bent grass. Blasedale's bent grass was documented in coastal bluffs north of the CLP (BioConsultants, LLC 2011a). During appropriately-timed surveys, Blasedale's bent grass was not observed, but the surveys did not cover the entire CLP. Follow-up surveys will be conducted during spring and summer 2019. Should Blasedale's bent grass be observed, the plants will be flagged and avoided; coastal bluffs of the CLP will be bored beneath, and all impacts on the habitat will be avoided.

Coastal bluff morning glory is a perennial herb that is known to inhabit rocky coastal scrub. The CRPR 1B.2 species is in the Convolvulaceae (Morning-Glory) Family. The subspecies' range extends along the North Coast, Central Coast, and San Francisco Bay Area (Jepson Flora Project 2018). Coastal bluff morning glory is known to occur in Contra Costa, Marin, Mendocino, and Sonoma Counties—with the greatest number of occurrences in Sonoma County (California Department of Fish and Wildlife 2018c). Coastal bluff morning glory is threatened by development, foot traffic, and non-native plants (California Native Plant Society, Rare Plant Program 2018).

The CLP in the BSA supports suitable coastal bluff habitat. Coastal bluff morning glory was documented in the vicinity of the CLP, but further analysis demonstrated that coastal bluff morning glory had hybridized with the common purple western morning glory (*Calystegia purpurata* subsp. *purpurata*) (BioConsultants, LLC 2011a); it was concluded coastal bluff morning glory was not a species of concern for the site. During appropriately-timed surveys, coastal bluff morning glory was not observed, but the surveys did not cover the entire CLP. Follow-up surveys will be conducted during spring and summer 2019. Should coastal bluff morning glory be observed, the plants will be flagged and avoided; in addition, coastal bluffs will be bored beneath, and all impacts on the habitat will be avoided.

Deceiving Sedge is a perennial, grass-like herb that inhabits mesic areas in coastal scrub and coastal prairie habitats, including marshes, swamps, seeps, and meadows. The CRPR 1B.2 species is in the Cyperaceae (Sedge) Family. Deceiving sedge's range extends along the North Coast and the San Francisco Bay Area (California Department of Fish and Wildlife 2018c; Jepson Flora Project 2018). The species is known to occur in Humboldt, Mendocino, Sonoma, and Santa Cruz Counties—with the greatest number of occurrences in Mendocino County (California Department of Fish and Wildlife 2018c). Deceiving sedge is threatened by grazing (California Native Plant Society 2018; California Native Plant Society, Rare Plant Program 2018).

The BSA supports suitable habitat for deceiving sedge in the wet meadow land cover type. During appropriately-timed surveys, deceiving sedge was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should deceiving sedge be observed, the plants will be flagged and avoided. Deceiving sedge likely would occur in the delineated wetlands described below (ICF 2019); these features will be flagged and avoided.

Mendocino paintbrush is a perennial herb that inhabits coastal strand, coastal prairie, northern coastal scrub, closed-cone pine forest, and coastal dunes. The CRPR 1B.2 species is in the Orobanchaceae (Broomrape) Family. Mendocino paintbrush is only known to occur in Mendocino County of the North Coast subregion (California Department of Fish and Wildlife 2018c; Jepson Flora Project 2018). Mendocino paintbrush is threatened by coastal development, erosion, recreation, foot traffic, non-native plants, and habitat fragmentation (Jepson Flora Project, Rare Plant Program 2018).

Ten Mendocino paintbrush individuals were observed in the coastal bluffs of the CLP during a September 2018 survey that covered the entire CLP. Mendocino paintbrush was observed immediately outside of the BSA. The coastal bluffs will be avoided by directional boring, and no impacts on Mendocino paintbrush are anticipated.

Supple daisy is a perennial herb that inhabits coastal bluff scrub and coastal prairie. The CRPR 1B.2 species is in the Asteraceae (Sunflower) Family. Supple daisy's range extends along the North Coast (Jepson Flora Project 2018); the species is known from Marin, Mendocino, and Sonoma Counties—with the greatest number of occurrences in Mendocino County (California Department of Fish and Wildlife 2018c). Supple daisy is threatened by trampling, non-native plants, and pipeline construction (California Native Plant Society, Rare Plant Program 2018).

Suitable habitat for supple daisy occurs in coastal scrub and prairie on the CLP and coastal scrub along SR 1. During appropriately-timed surveys, supple daisy was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should supple daisy be observed, the plants will be flagged and avoided.

Rodericks's fritillary is a perennial herb that inhabits coastal prairie, valley grassland, and coastal scrub. The State endangered and CRPR 1B.1 species is in the Liliaceae (Lily) Family. Roderick's fritillary is treated as a synonym to *Fritillaria biflora* var. *biflora* (a common, widespread species) by the Jepson Flora Project (2019). However, the California Native Plant Society, Rare Plant Program (2018) and *the State and Federally Listed Endangered, Threatened, and Rare Plants of California List* (California Department of Fish and Wildlife 2018f) treat Roderick's fritillary as a distinct and rare species. The analysis in this report follows the treatment by the California Native Plant Society Rare Plant Program (2018) and CDFW (2018f). Roderick's fritillary is known to occur along the North Coast in Mendocino and Sonoma Counties, with the greatest number of occurrences in Mendocino County. Roderick's fritillary is threatened by road maintenance, residential development, and erosion (California Native Plant Society 2018).

Suitable habitat for Roderick's fritillary occurs in the coastal scrub and coastal prairie on the CLP and the coastal scrub along SR 1. During appropriately-timed surveys, Roderick's fritillary was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should Roderick's fritillary be observed, the plants will be flagged and avoided.

Pacific gilia is an annual herb that inhabits steep slopes, ravines, and open flats of coastal bluffs, grassland, and dunes. The CRPR 1B.2 species is in the Polemoniaceae (Phlox) Family. Pacific gilia's range extends along the North Coast, outer North Coast Ranges, and western Klamath Ranges (Jepson Flora Project 2018). Pacific gilia is known to occur in Del Norte, Humboldt, Mendocino, and Sonoma Counties—with the greatest number of occurrences in Humboldt County (California Department of Fish and Wildlife 2018c). Pacific gilia is threatened by development, recreational activities, road construction, and logging (California Native Plant Society, Rare Plant Program 2018).

Suitable habitat for Pacific gilia occurs in the coastal bluff scrub and coastal prairie in the CLP. During appropriately-timed surveys, Pacific gilia was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should Pacific gilia be observed, the plants will be flagged and avoided.

American manna grass is a perennial, rhizomatous grass that inhabits the following mesic habitats: bogs, fens, meadows, seeps, marshes, swamps, and the margins of streambanks and lakes. The CRPR 2B.3 species is in the Poaceae Family. American manna grass's range extends along the North Coast, the North Coast Ranges, the Sierra Nevada, and east of the Sierra Nevada (Jepson Flora Project 2018). Outside of California, American manna grass is known to occur in Alaska and the eastern United States. The species is known to occur in Fresno, Mono, Mendocino, Placer, Humboldt, Tulare, Fresno, El Dorado, and Placer Counties—with each county containing one occurrence (California Department of Fish and Wildlife 2018c). American manna grass is likely threatened by development, alteration of hydrology, non-native grasses, erosion, and trail use.

The BSA supports suitable habitat for American manna grass in the wet meadows of the CLP and along the stream crossings of SR 1. During appropriately-timed surveys, American manna grass was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should American manna grass be observed, the plants will be flagged and avoided. American manna grass would likely occur in association with the delineated wetlands and the non-wetland waters described below (ICF 2019); these features will be flagged and avoided.

Short-leaved evax is an annual herb that inhabits sandy, grassy, or wooded coastal bluffs, terraces, and dunes. The CRPR 1B.2 species is in the Asteraceae Family. Short-leaved evax's range extends along the northern Central Coast, North Coast, and into southwestern Oregon (Jepson Flora Project 2018). The subspecies is known to occur in Del Norte, Mendocino, Marin, San Mateo, and Sonoma Counties—with the greatest number of occurrences in Mendocino County (California Department of Fish and Wildlife 2018c). Short-leaved evax is threatened by development, competition with non-native plants, foot traffic, and recreational activities (California Native Plant Society, Rare Plant Program 2018).

Suitable habitat for short-leaved evax occurs in the coastal bluffs of the CLP. During appropriately-timed surveys, short-leaved evax was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should short-leaved evax be observed, the plants will be flagged and avoided. Furthermore, the coastal bluffs will be avoided by directional boring.

Baker's goldfields is an annual herb that inhabits Northern coastal scrub, coastal sage scrub, coastal prairie, northern oak woodland, valley grassland, and foothill woodland. The CRPR 1B.2 species is in the Asteraceae Family. The range of Baker's goldfields extends from the Central Coast to the North Coast (Jepson Flora Project 2018). Baker's goldfields are known to occur in Marin, Mendocino, Sonoma, and San Luis Obispo Counties—with the greatest number of occurrences in Mendocino County (California Department of Fish and Wildlife 2018c). Similar to perennial goldfields, Baker's goldfields are likely threatened by competition with non-native grasses and recreation.

The BSA supports suitable habitat for Baker's goldfields in the coastal prairie and coastal scrub of the CLP and coastal scrub along SR 1. During appropriately-timed surveys, Baker's goldfields was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted

during spring and summer 2019. Should Baker's goldfields be observed, the plants will be flagged and avoided.

Perennial goldfields are a perennial herb that inhabits coastal grasslands, dunes, and scrub. The CRPR 1B.2 species is in the Asteraceae Family. Perennial goldfields' range extends along the Central Coast and North Coast (Jepson Flora Project 2018). Perennial goldfields are known from Del Norte, Humboldt, Marin, Mendocino, San Luis Obispo, San Mateo, Santa Cruz, and Sonoma Counties—with the greatest number of occurrences in Marin County. Perennial goldfields are threatened by non-native plants and recreational activities (California Native Plant Society 2018).

The BSA supports suitable habitat for perennial goldfields in the coastal scrub and grasslands of the CLP and the coastal scrub along SR 1. During appropriately-timed surveys, perennial goldfields were not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should Baker's goldfields be observed, the plants will be flagged and avoided.

Contra Costa goldfields is an annual herb that inhabits vernal pools. The annual species in in the Asteraceae Family. The federally endangered and CRPR 1B.1 species is in the Asteraceae Family. Historically, Contra Costa goldfields were known to occur in the North Coast, outer North Coast Ranges, and the South Coast—in addition to their current range that includes the Sacramento Valley, Central Coast, and San Francisco Bay Area (Jepson Flora Project 2018). The species is known to occur in Alameda, Contra Costa, Marin, Mendocino, Monterey, Napa, Solano, and Sonoma Counties—with the greatest number of occurrences in Sonoma County (California Department of Fish and Wildlife 2018c). Contra Costa goldfields are threatened by development, habitat alteration, hydrological alterations, overgrazing, and non-native plants (California Native Plant Society, Rare Plant Program 2018).

The BSA is within designated critical habitat for Contra Costa goldfields (Unit MEN-1 [71 FR 7118–7316]). The federally listed species has a CNDDB occurrence (No. 16) in the immediate vicinity of the BSA, but the exact location of the occurrence is unknown (California Department of Fish and Wildlife 2018c); the occurrence was sourced from a 1937 collection lacking precise location coordinates. In 1987, vernal pools around Manchester were surveyed, Contra Costa goldfields were not detected, and grazing was listed as a threat to the species (California Department of Fish and Wildlife 2018c). The primary constituent elements of Contra Costa goldfields critical habitat include topographic lows with an adequate vernal pool hydroperiod, underlying restrictive soil layers, and a vegetation predominance of native wetland annuals.

Private property adjacent to the BSA along SR 1 appears to support suitable Contra Costa goldfields habitat; the margin of the feature crosses the fence line and into the BSA. During the protocol-level aquatic resources delineation of the BSA, the feature was co-dominated by a vernal pool native, coast allocarya (*Plagiobothrys undulatus*), and the upland exotic slender lotus (*Lotus angustissimus*); the feature lacked hydric soils and demonstrated evidence of wetland hydrology (ICF 2019). Wetlands are known to be colonized by upland plants during the drier portions of the season after wetland plants have completed their life cycle (Environmental Laboratory 1987). The absence of hydric soils suggests that an adequate vernal pool hydroperiod does not occur in the portion of the feature in the BSA; the ROW vegetation is periodically disturbed by vegetation maintenance performed by the California Department of Transportation. The presence of native vernal pool species and the absence of hydric soils suggests that Contra Costa goldfields could occur in the BSA, but that more suitable vernal pool habitat occurs outside the BSA.

Contra Costa goldfields are known to bloom from March to June (Jepson eFlora 2018); this feature was surveyed during the mid-season survey (June 26–28, 2018), at the end of the reported blooming period. However, consultation of the California Consortium of Herbaria (2019) demonstrates that only 4 of the 114 Contra Costa goldfields records report an observation after June 2; these 4 records are from Fort Ord in Monterey, California. Without visiting a Contra Costa goldfields reference population to confirm that the species would be identifiable prior to the late-June survey, the absence of the species at the feature in the BSA cannot be confirmed. The feature is delineated as a coastal zone wetland in the BSA and will be avoided.

Coast lily is a perennial herb that usually inhabits wetland-riparian habitat in addition to coastal prairie, mixed evergreen forest, northern coastal scrub, closed-cone pine forest, and north coastal coniferous forest. The CRPR 1B.1 species is in the Liliaceae Family. Coast lily's range extends from the northern Central Coast to the southern North Coast (Jepson Flora Project 2018). Coast lily is known to occur in Marin, Mendocino, and Sonoma Counties—with the greatest number of occurrences in Mendocino County (California Department of Fish and Wildlife 2018c). Coast lily is threatened by roadside maintenance, urbanization, development, horticultural collecting, logging, grazing, non-native plants, habitat fragmentation, homeless encampments, foot traffic, and recreational activities (California Native Plant Society, Rare Plant Program 2018).

The BSA supports suitable habitat for coast lily in the wet meadows, stream crossings, and roadside ditches of the BSA. During appropriately-timed surveys, coast lily was not observed, but the surveys did not cover the entire BSA during the species' identifiable period. Follow-up surveys will be conducted during spring and summer 2019. Should coast lily be observed, the plants will be flagged and avoided. Coast lily likely would occur in the delineated aquatic resources described below (ICF 2019); these features will be flagged and avoided.

Marsh micoseris is an annual herb that inhabits moist grasslands and open woodlands. The CRPR 1B.2 species is in the Asteraceae Family. The range of marsh micoseris extends along the Central Coast and San Francisco Bay Area (Jepson Flora Project 2018). Marsh microseris is known to occur in Marin, Mendocino, Monterey, San Luis Obispo, San Mateo, Santa Cruz, Solano, and Sonoma Counties—with the greatest number of occurrences in Marin County (California Department of Fish and Wildlife 2018c). The Mendocino County occurrence (CNDDB Occurrence No. 31) is outside the range described in the Jepson Flora Project (2019); this occurrence is from a 1968 collection specimen, and the exact location is unknown (California Department of Fish and Wildlife 2018c). Threats to marsh microseris are likely similar to those described above for the special-status species that inhabit moist grasslands.

The BSA supports suitable habitat for marsh microseris in grasslands of the CLP and riparian fringe along SR 1. During appropriately-timed surveys, marsh microseris was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should marsh microseris be observed, the plants will be flagged and avoided**.**

Purple-stemmed checkerbloom is a perennial, rhizomatous herb that inhabits meadows, open coastal forest, and prairie. The CRPR 1B.2 species is in the Malvaceae (Mallow) Family. Purple-stemmed checkerbloom's range extends from the northern Central Coast to the southern North Coast (Jepson Flora Project 2018). The subspecies is known to occur in Marin, Mendocino, and Sonoma Counties—with the greatest number of occurrences in Sonoma County (California Department of Fish and Wildlife 2018c). Purple-stemmed checkerbloom is threatened by development and non-native grasses (California Native Plant Society, Rare Plant Program 2018).

The BSA supports suitable habitat for purple-stemmed checkerbloom in grasslands of the CLP and riparian areas along SR 1. During appropriately-timed surveys, purple-stemmed checkerbloom was not observed, but the surveys did not cover the entire BSA. Follow-up surveys will be conducted during spring and summer 2019. Should purple-stemmed checkerbloom be observed, the plants will be flagged and avoided. Riparian habitat in the BSA will be avoided by directional boring.

Sensitive Natural Communities

Depicted in Appendix A and listed in Table 2, eight sensitive natural communities were mapped in the BSA: coastal dune willow thickets, Sitka willow thickets, shining willow groves, arroyo willow thickets, coastal brambles, slough sedge swards, water-parsley marshes, and a Pacific reed grass meadow.

Several potential sensitive natural communities identified in the right-of-way in the BSA, consisting of several degraded coastal bramble patches, one common monkey flower seep (*Erythranthe guttata*), one arroyo willow thicket, and one small-fruited bulrush marsh (*Scirpus microcarpus*), were not considered sensitive because they are of small size, are discontinuous with natural habitats, and/or are annually disturbed by vegetation maintenance activities conducted by Caltrans (Appendix A).

Wetland and Non-Wetland Waters of the United States

In total, 0.556 acre of potential waters of the United States was identified in the BSA, consisting of 0.101 acre of wetlands and 0.455 acre of non-wetland waters (Appendix C; ICF 2019). Potential wetlands in the BSA consisted of 9 emergent wetlands on the CLP and in the ROW. Non-wetland waters in the BSA comprised 5 perennial streams, 4 intermittent streams, 2 ephemeral streams, 7 roadside ditches, and 12 culverts. Table 5 identifies potential USACE jurisdictional features mapped in the BSA.

Table 5. Potential U.S. Army Corps of Engineers Jurisdictional Features Mapped in the Biological Study Area

Feature Type and Name	Area (acres)[a]	Cowardin Type[b]	Number of Features
Wetlands			
Emergent wetland	0.101	PEM1	9
Subtotal	0.101		9
Non-Wetland Waters			
Perennial streams	0.286	R2UB3	5
Intermittent streams	0.057	R4SB3	4
Ephemeral streams	0.015	R4SB3	2
Roadside ditches	0.057	R4SB3	7
Culverts	0.040	R4SB3	12
Subtotal	0.455		30
Total waters of the United States	**0.556**		

[a] Potential USACE jurisdictional acreage would likely be considered California Coastal Commission jurisdictional features.

[b] Cowardin types (Cowardin et al. 1979) are:
PEM1 = Palustrine, emergent wetland, persistent.
R2UB3 = Riverine, lower perennial, unconsolidated bottom, cobble-gravel.
R4SB3 = Riverine, intermittent, streambed, cobble-gravel.

California Coastal Commission Jurisdictional Features in the Biological Study Area

Potential CCC jurisdictional features include 0.101 acre of emergent wetlands, 0.036 acre of seasonal wetlands, and 0.447 acre of riverine wetlands (consisting of 5 perennial streams, 4 intermittent streams, 2 ephemeral streams, 5 roadside ditches, and 12 culverts) (Appendix C; Table 6). Table 6 reports acreages for all features in the BSA that demonstrate at least wetland hydrology and one other wetland parameter regulated by USACE. Riverine wetlands occur below the OWHM of the non-wetland waters described in Table 5. Two roadside ditches delineated as non-wetland waters under potential jurisdiction of the U.S. Army Corps of Engineers were not classified as coastal zone wetlands because the features were excavated from upland areas and carry only stormwater runoff (County of Mendocino Planning & Building Services 2006).

Table 6. Potential California Coastal Act Jurisdictional Features Mapped in the Biological Study Area

Feature Type and Name	CCC Jurisdictional Acres[a]	Cowardin Type[b]	Number of Features
Emergent wetlands	0.101	PEM1	9
Seasonal wetlands	0.036	PEM2	3
Riverine wetlands	0.447	R2UB3, R4SB3	28
Total	**0.584**		**40**

[a] Mapped California Coastal Commission (CCC) jurisdictional acreage includes wetland and non-wetland waters acreage of potential U.S. Army Corps of Engineers jurisdiction.

[b] Cowardin types (Cowardin et al. 1979) are:

PEM1 = Palustrine, emergent wetland, persistent.
PEM2 = Palustrine, emergent wetland, nonpersistent.
R2UB1 = Riverine, lower perennial, unconsolidated bottom, cobble-gravel.
R4SB3 = Riverine, intermittent, streambed, cobble-gravel.

Laws, Ordinances, Regulations, and Standards

Table 7 describes the applicable laws, ordinances, regulations, and standards that the proposed Project may be required to comply with as part of environmental compliance and permitting efforts.

Table 7. Anticipated Agencies with Review and Approval of Project Activities

Permitting Agency	Anticipated Approvals/Regulatory Requirements
Local	
County of Mendocino	Coastal Development Permit
County of Mendocino	Conditional Use Permit
County of Mendocino	Encroachment Permit
State	
California State Lands Commission	Submerged Lands Lease
California Coastal Commission	Coastal Zone Management Act Consistency Certification for the USACE Section 404 Authorization Coastal Development Permit
North Coast Regional Water Quality Control Board	Clean Water Act (CWA) Section 401 Water Quality Certification
State Water Resources Control Board	CWA Section 402/National Pollutant Discharge Elimination System Permit
State Historic Preservation Office	Section 106 compliance
California Department of Fish and Wildlife	Section 1602 Lake or Streambed Alteration Agreement
Mendocino County Air Quality Management District	Authority to Construct and Permit to Operate
California Department of Transportation	Encroachment Permit
Federal	
U.S. Army Corps of Engineers (USACE)	CWA Section 404 and Section 10 Permit (under Nationwide Permit No. 12)
U.S. Fish and Wildlife Service	Federal Endangered Species Act (FESA) Section 7 consultation, Migratory Bird Treaty Act
National Marine Fisheries Service	FESA Section 7 consultation, if required; consultation on marine mammal/sea turtle protection/anadromous fish
U.S. Coast Guard	Notice to Mariners

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Appendix A

Vegetation Alliances Mapped in the Biological Study Area

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Common velvet grass - sweet vernal grass meadows

Sensitive Natural Communities (CDFW 2018a)

- Pacific reed grass meadow

Rare Plants

- Mendocino paintbrush (CRPR 1B.2)

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

*** While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because it was planted outside of its native range.

ICF

N

0 100 200 Feet
1:1,200

Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 1 of 25

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Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coastal brambles**
- Coyote brush scrub
- Common velvet grass - sweet vernal grass meadows
- Developed
- Nonnative annual grassland
- Riverine
- Scouler willow proposed alliance

Sensitive Natural Communities (CDFW 2018a)

- Arroyo willow thickets
- Slough sedge swards

Rare Plants

- Harlequin lotus (CRPR 4.2)

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

*** While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because it was planted outside of its native range.

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ICF

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 2 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coastal brambles**
- Coyote brush scrub
- Common velvet grass - sweet vernal grass meadows
- Developed
- Himalayan blackberry scrub
- Monterey cypress stand***
- Nonnative annual grassland
- Riverine

Sensitive Natural Communities (CDFW 2018a)

- Water-parsley marsh

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

*** While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because it was planted outside of its native range.

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1:1,200

Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 3 of 25

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Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coastal brambles**
- Coyote brush scrub
- Developed
- Monterey cypress stand***
- Nonnative annual grassland

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

*** While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because it was planted outside of its native range.

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ICF

N

0 100 200 Feet
1:1,200

Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 4 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Monterey cypress stand***
- Nonnative annual grassland
- Poison oak scrub
- Red alder forest
- Soft rush marsh

Sensitive Natural Communities (CDFW 2018a)

- Sitka willow thickets
- Slough sedge swards

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

*** While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because it was planted outside of its native range.

ICF

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 5 of 25

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Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Nonnative annual grassland
- Poison oak scrub
- Red alder forest

Sensitive Natural Communities (CDFW 2018a)

- Sitka willow thickets

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 6 of 25

P:\DOT\RDSGS\Projects_HRT\Solutions\0016_17 Manchester\Figures\Doc\BA\Fig A Veg_Alliances.mxd User: f6916 Date: 2/15/2019

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Common monkey flower seep**
- Common velvet grass - sweet vernal grass meadows
- Developed
- Monterey pine forest***
- Nonnative annual grassland
- Riverine

Sensitive Natural Communities (CDFW 2018a)

- Coastal brambles
- Shining willow groves
- Shining willow thickets
- Sitka willow thickets

Notes:
* Feature does not surface in BSA

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 7 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Nonnative annual grassland
- Red alder forest
- Riverine

Sensitive Natural Communities (CDFW 2018a)

- Coastal dune willow thickets
- Shining willow groves
- Sitka willow thickets

Notes:
* Feature does not surface in BSA

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 8 of 25

P:\DOT\RDSGIS\Projects_1R\1 Solutions\00718_17 Mendocino\Figures\Doc\BA\Fig X Veg Alliances.mxd User: fj016 Date: 2/15/2019

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Nonnative annual grassland

Sensitive Natural Communities (CDFW 2018a)

- Coastal dune willow thickets
- Sitka willow thickets

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 9 of 25

P:\DOT\RDSGS\Projects_HRT\Solutions\00718_17 Manchester\Figures\Doc\BA\Fig A Veg Alliances.mxd User: f0016 Date: 2/15/2018

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Nonnative annual grassland
- Poison oak scrub

Sensitive Natural Communities (CDFW 2018a)

- Coastal dune willow thickets

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

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P:\DOT\RDSGIS\Projects_IRT_Solutions\0078_17_Manzanita\Figures\Doc\BA\fig_X_Veg_Alliances.mxd User: rbrill Date: 2/15/2019

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 10 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Nonnative annual grassland
- Poison oak scrub
- Riverine

Sensitive Natural Communities (CDFW 2018a)

- Coastal brambles
- Coastal dune willow thickets

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 11 of 25

P:\DOC\TRDS0151\Projects_1\RT1_Solutions\60718_17_Manchester\Figures\Doc\BA\Fig_X_Veg_Alliances.mxd Use: 18/16 Date: 2/15/2018

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Nonnative annual grassland
- Riverine

Sensitive Natural Communities (CDFW 2018a)

- Coastal brambles
- Shining willow groves
- Sitka willow thickets

Notes:
* Feature does not surface in BSA

**While listed as a sensitive natural community, the vegetation alliance is not considered sensitive because of its small size, is discontinuous with natural habitats, and/or is periodically disturbed by Caltrans roadside vegetation maintenance.

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 12 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Nonnative annual grassland
- Riverine
- Small-fruited bulrush marsh**

Sensitive Natural Communities (CDFW 2018a)

- Sitka willow thickets

Notes:
* Feature does not surface in BSA

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 13 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Monterey cypress stand***
- Nonnative annual grassland

Notes:
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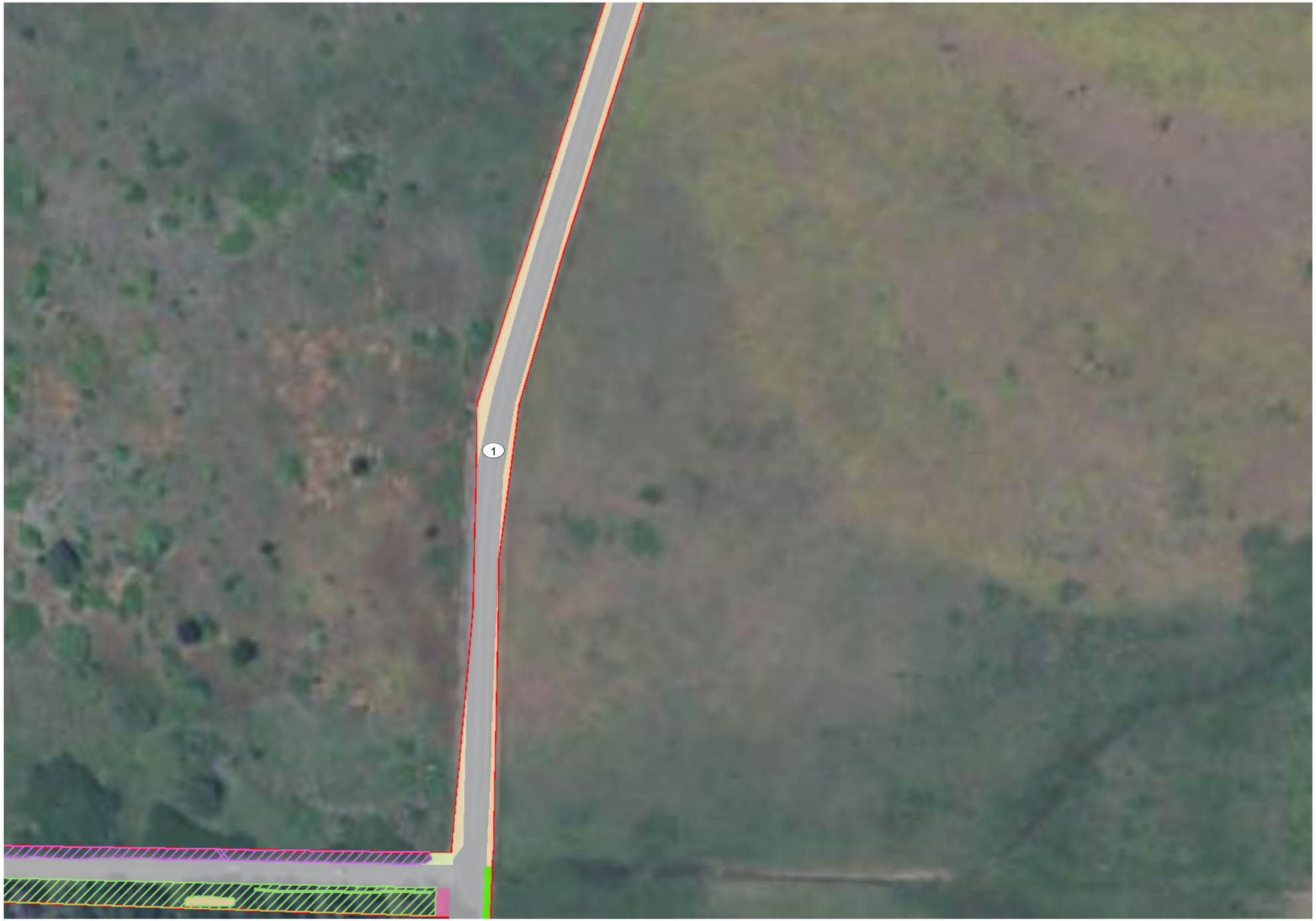
Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 14 of 25

P:\DOT\RDSGS\Projects_IRT\ Solutions\0016_17 Mendocino\Figures\Doc\BA\Fig A Veg Alliances.mxd User: f0016 Date: 2/15/2019



Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coastal brambles**
- Coyote brush scrub
- Common velvet grass - sweet vernal grass meadows
- Developed
- Monterey pine forest***
- Nonnative annual grassland
- Riverine

Sensitive Natural Communities (CDFW 2018a)

- Arroyo willow thickets
- Coastal brambles

Notes:
* Feature does not surface in BSA

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 15 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Common velvet grass - sweet vernal grass meadows
- Developed
- Monterey pine forest***
- Nonnative annual grassland

Sensitive Natural Communities (CDFW 2018a)

- Arroyo willow thickets
- Coastal brambles

Notes:
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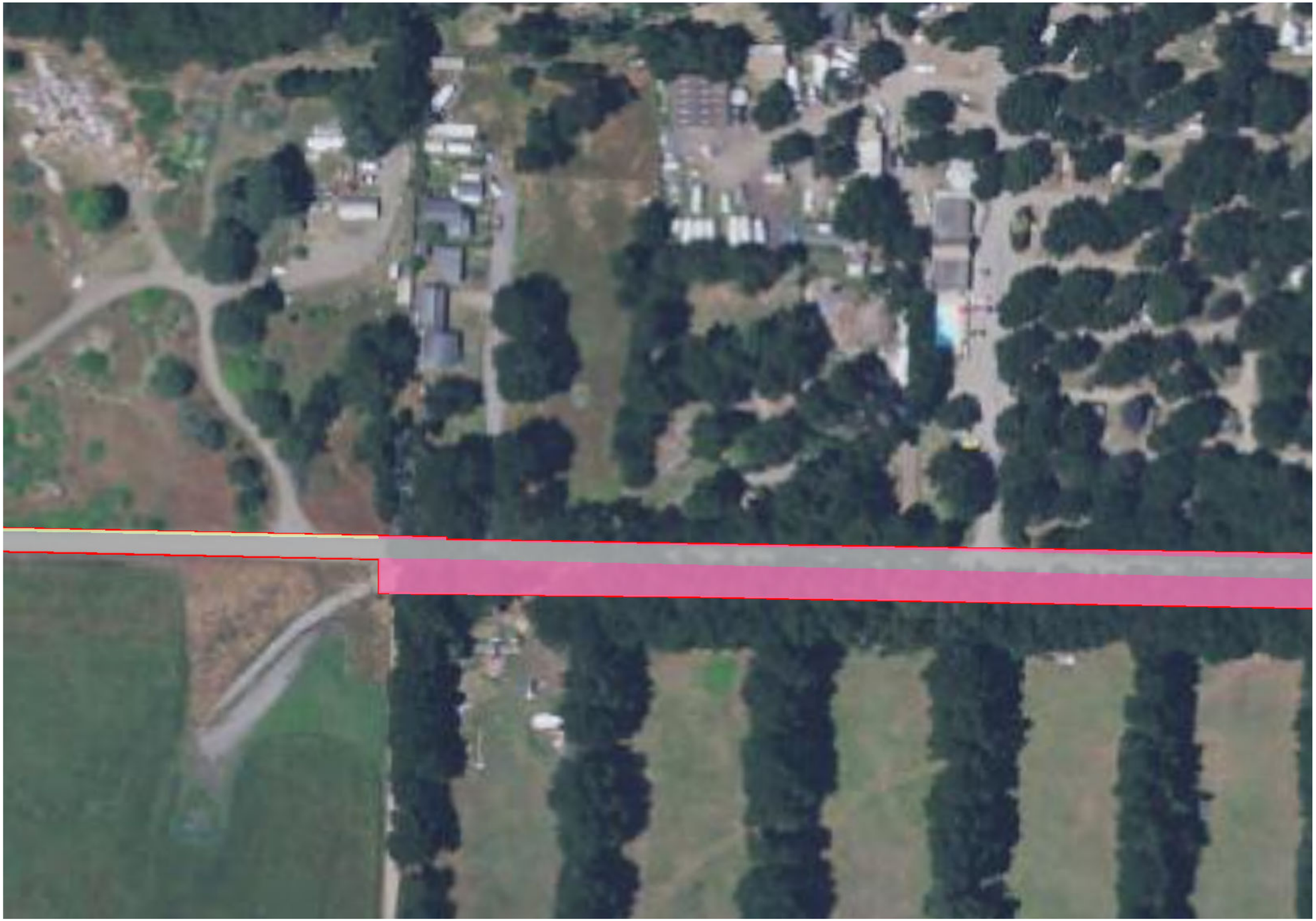
Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 16 of 25



Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Monterey pine forest***

Notes:
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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 17 of 25

F:\DOCTRIS\GIS\Projects_IRT_Solutions\0718_17_Manchester\Figures\DocBA\Fig_X_Veg_Alliances.mxd User: tb016 Date: 2/15/2019

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed

Notes:
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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 18 of 25

P:\DOT\RDSGS\Projects_HRT\Solutions\0016_17 Manchester\Figures\Doc\BA\Fig A Veg_Alliances.mxd User: f0016 Date: 2/15/2019

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed

Notes:
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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 19 of 25

P:\DOCTRDSGIS\Projects_IRT\Solutions\0716_17_Manchester\Figures\Doc\BA\fig_X_Veg_Alliances.mxd Use: (0016) Date: 2/15/2019

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coastal brambles**
- Developed
- Monterey pine forest***
- Nonnative annual grassland

Sensitive Natural Communities (CDFW 2018a)

- Coastal brambles

Notes:
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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 20 of 25

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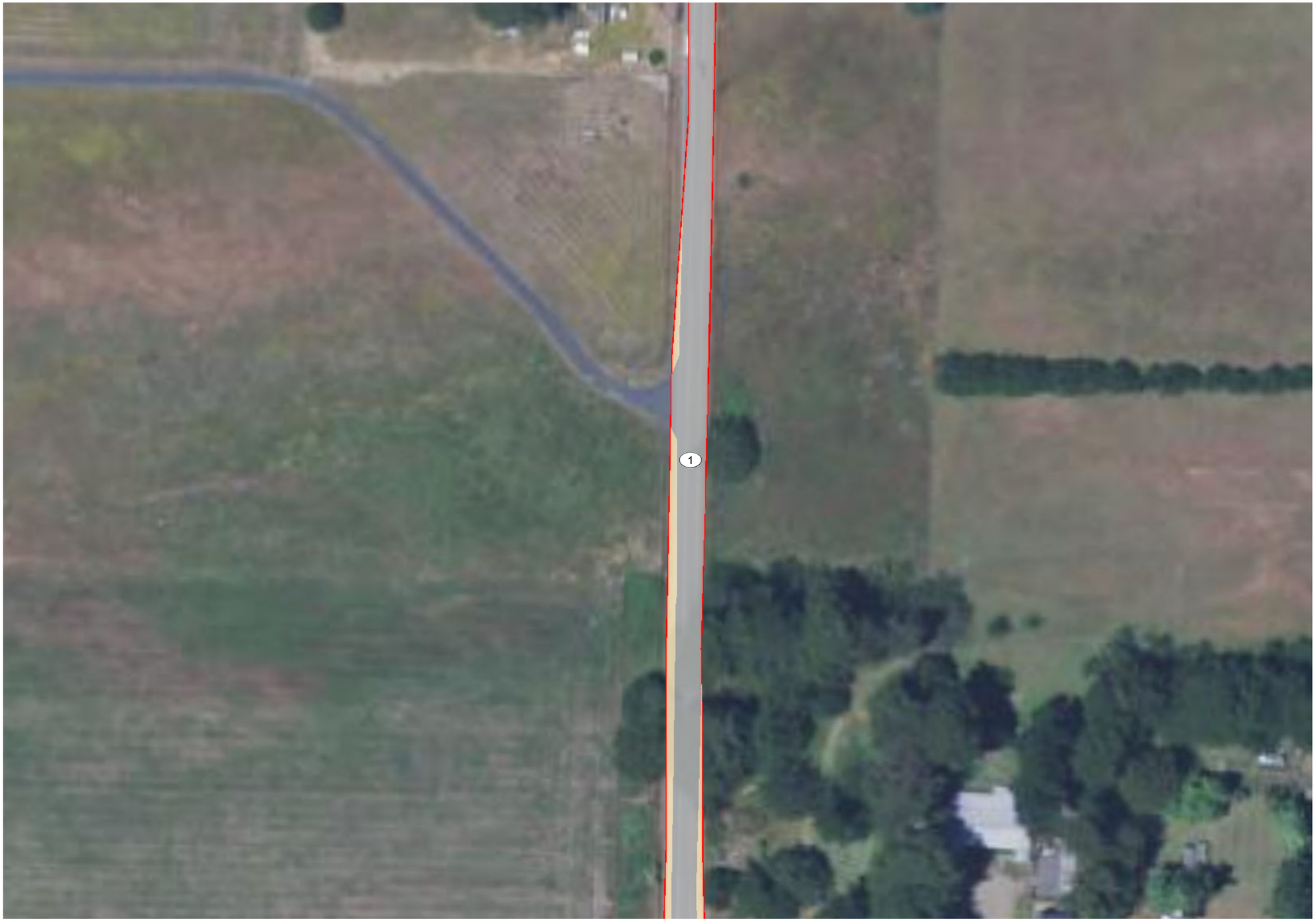

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Developed
- Nonnative annual grassland

Notes:
* Feature does not surface in BSA

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 21 of 25

P:\DC\TRDS\GIS\Projects_1\RT_Solutions\00718_17_Manchester\Figures\Doc\BA\Fig X Veg Alliances.mxd Use: 1916 Date: 2/15/2019

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Developed
- Monterey cypress stand***
- Nonnative annual grassland

Sensitive Natural Communities (CDFW 2018a)

- Coastal brambles

Notes:
* Feature does not surface in BSA

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 22 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Coyote brush scrub
- Developed
- Nonnative annual grassland
- Red alder forest
- Riverine

Sensitive Natural Communities (CDFW 2018a)

- Arroyo willow thickets
- Coastal brambles
- Sitka willow thickets

Notes:
* Feature does not surface in BSA

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 23 of 25

F:\DOC\TRDSGIS\Projects_IRT_Solutions\0718_17_Manchester\Figures\DocBA\Fig_X_Veg_Alliances.mxd User: jb016 Date: 2/5/2018

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Arroyo willow thickets**
- Developed
- Monterey pine forest***
- Nonnative annual grassland
- Riverine

Notes:
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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 24 of 25

Legend

- No Survey Access
- Cable Landing Parcel APN 132-170-11
- Cable Landing Stations (CLS)

Vegetation Alliance (California Native Plant Society 2018)

- Developed
- Nonnative annual grassland

Notes:
* Feature does not surface in BSA

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Appendix A
Vegetation Alliances Mapped in the Biological Study Area
Sheet 25 of 25

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Appendix B

Plant Species Observed in the Biological Study Area

Appendix B

Plant Species Observed in the Biological Study 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

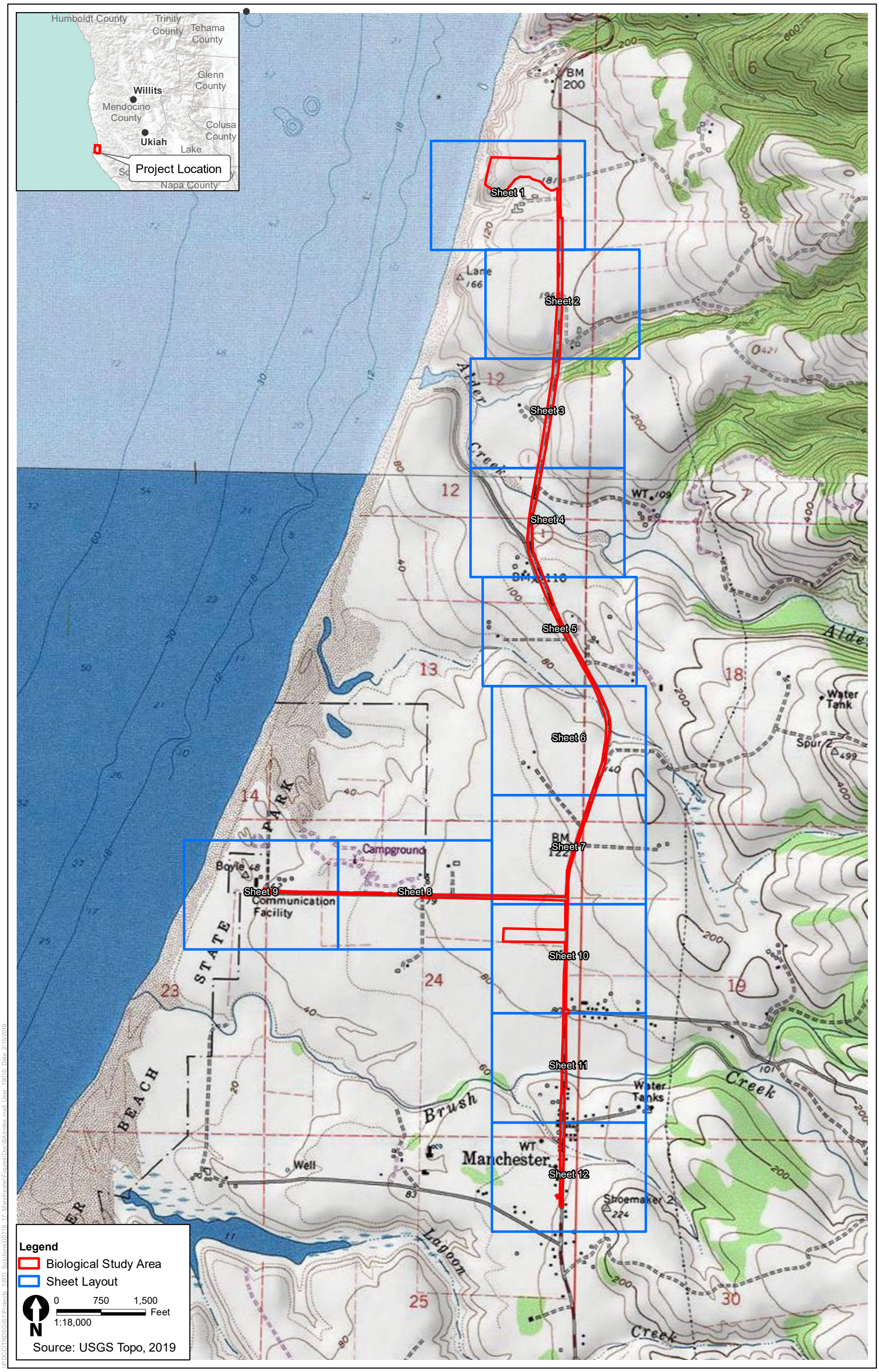
Scientific Name[a]	Common Name	Wetland Indicator Status[b]
Poaceae	**Grass Family**	
Agrostis capillaris	Colonial bentgrass	FAC
Agrostis capillaris	Redtop	FAC
Ammophila arenaria	European beachgrass	FACU
Anthoxanthum odoratum	Sweet vernal grass	FACU
Arrhenatherum elatius	Tall oatgrass	UPL
Avena fatua	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 C

Clean Water Act Features Mapped in the Biological Study Area



Appendix C - Index
Waters of the United States Delineation Map

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

Legend

- Biological Study Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
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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.)
- 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
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1 inch = 200 feet

Notes:

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Elevation Data: U.S. Geological Survey, 20180831, USGS NED one meter x44y432 CA FEMA R9 Mendocino HF 2017
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Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson, S. Spooner and J. Mayor
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Appendix C
Clean Water Act Features Mapped in the Biological Study Area

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

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*Feature does not surface in BSA

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Appendix C
Clean Water Act Features Mapped in the Biological Study Area

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

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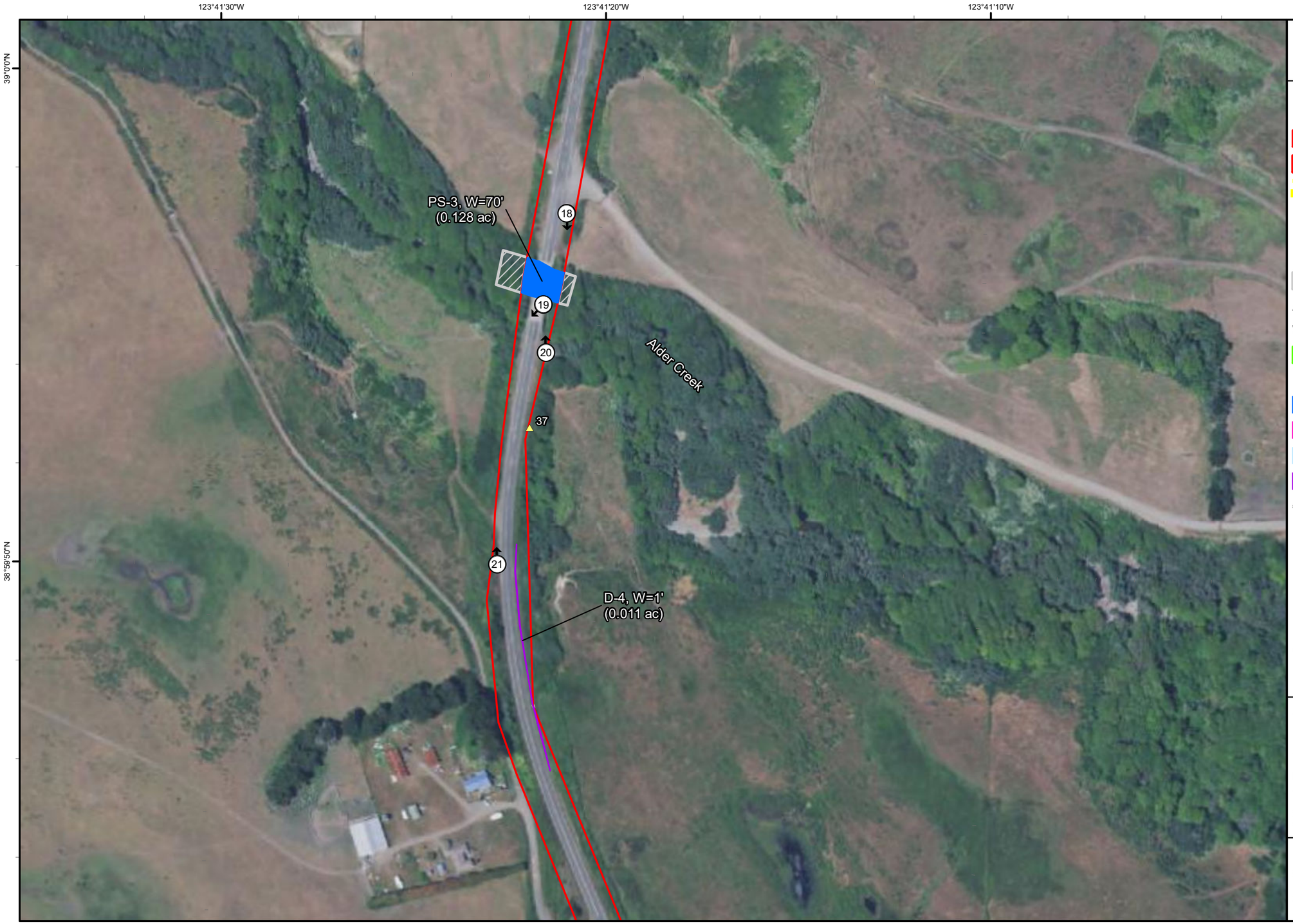
Appendix C
Clean Water Act Features Mapped in the Biological Study Area



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

Legend

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Appendix C
Clean Water Act Features Mapped in the Biological Study Area

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

Legend

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Appendix C
Clean Water Act Features Mapped in the Biological Study Area

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

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Appendix C
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Manchester Subsea Cables Project
February 19th, 2019
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Appendix C
Clean Water Act Features Mapped in the Biological Study Area

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

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Appendix C
Clean Water Act Features Mapped in the Biological Study Area

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

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Appendix C
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Manchester Subsea Cables Project
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Sheet 10 of 12

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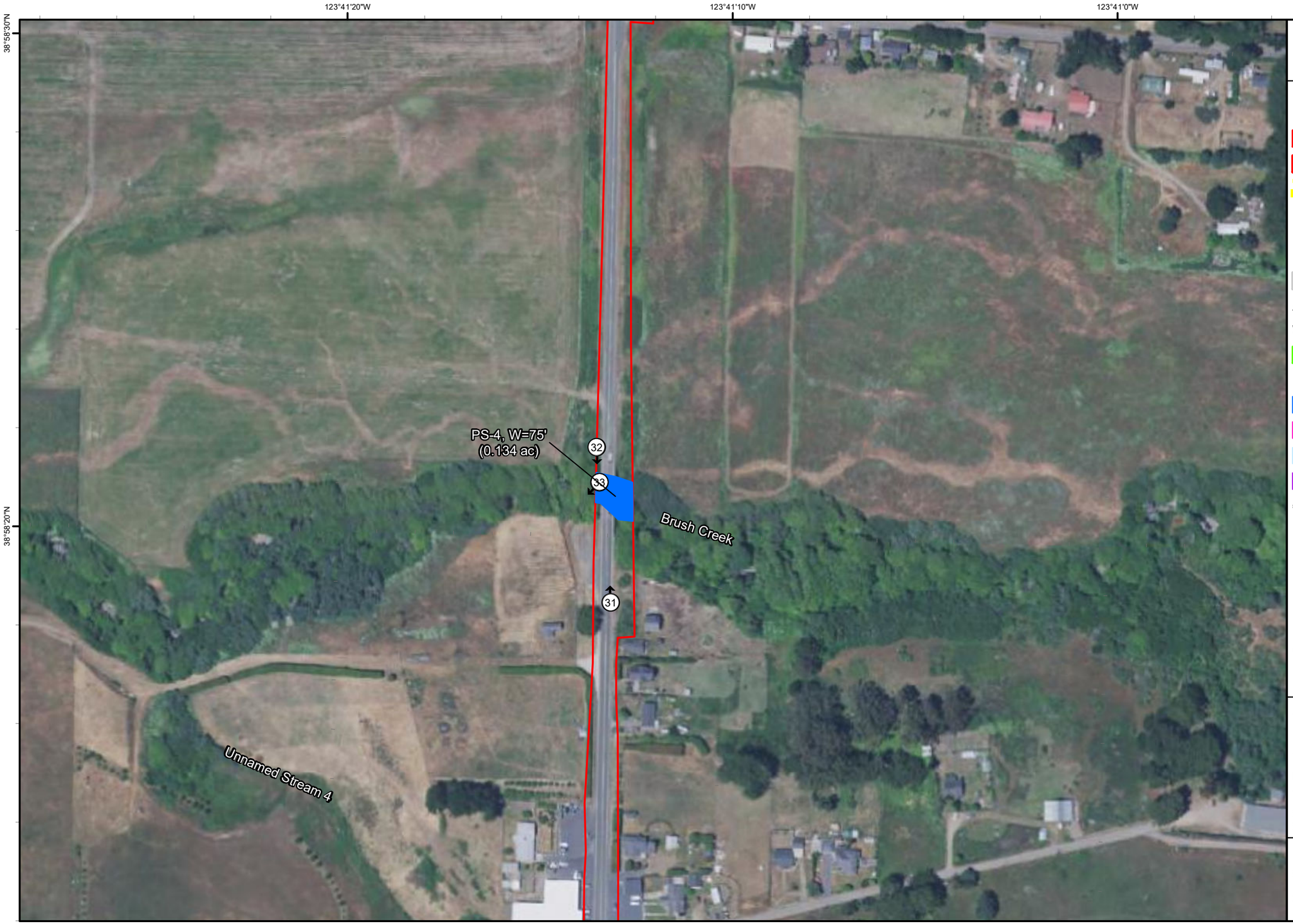
Prepared By: ICF 916.737.3000
Delineated By: D. Jokerst, M. Widdowson, S. Spooner and J. Mayor
Delineation Date: June 26-28, Sept. 29-31 and Oct. 10-12, 2018
Drawn By: A. Angier

Path: \\PDC01\RDSGIS1\Projects_1\R1_Solutions\00718_17_Manchester\Figures\Doc\BA\App_C_AR_USACE.mxd; Author: ; Date: 2/19/2019

Appendix C
Clean Water Act Features Mapped in the Biological Study Area



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

Legend

- Biological Study 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.)

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
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Appendix C
Clean Water Act Features Mapped in the Biological Study Area

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

Legend

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Appendix C
Clean Water Act Features Mapped in the Biological Study Area

Appendix D

California Coastal Act Features Mapped in the Biological Study Area

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

Legend

- Biological Study Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
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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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Notes:

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S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

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Appendix D
California Coastal Act Features Mapped in the Biological Study Area

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

Legend

- Biological Study Area (48 Acres)
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*Feature does not surface in BSA

W = Average Width

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S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

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Appendix D
California Coastal Act Features Mapped in the Biological Study Area

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

Legend

- Biological Study Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
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S23 T13N R17W, S24 T13N R17W, S25 T13N R17W

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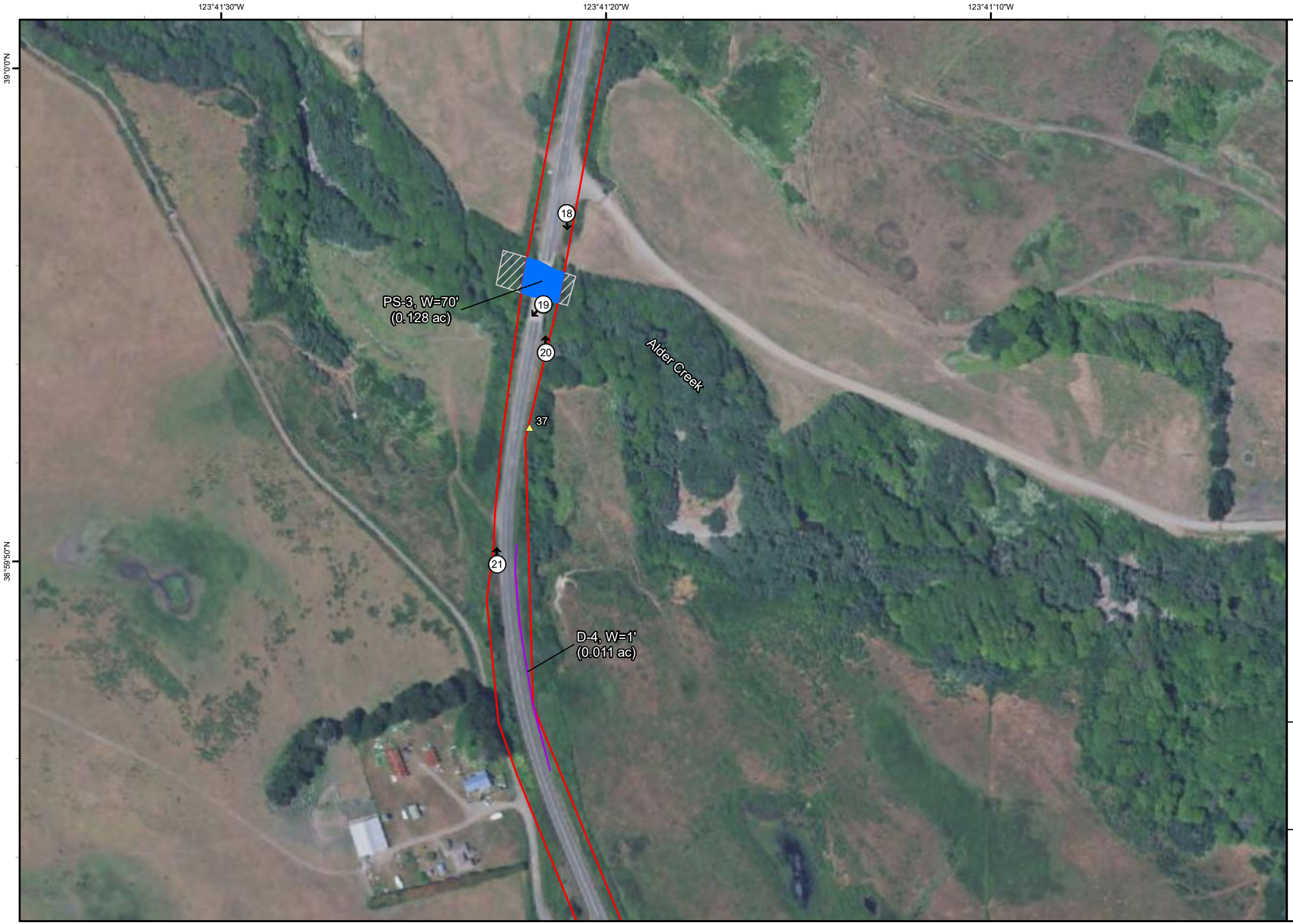
Appendix D
California Coastal Act Features Mapped in the Biological Study Area



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

Legend

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

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0 50 100 200
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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,
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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,
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Drawn By: A. Angier

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Appendix D
California Coastal Act Features Mapped in the Biological Study Area

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

Legend

- Biological Study 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)

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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

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Delineated By: D. Jokerst, M. Widdowson,
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Delineation Date: June 26-28, Sept. 29-31 and
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Appendix D
California Coastal Act Features Mapped in the Biological Study Area

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

Legend

- Biological Study Area (48 Acres)
- Area Without Access
- Cable Landing Stations (CLS)
- Data Point
- Photo Locations
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S1 T13N R17W, S12 T13N R17W, S13 T13N R17W,
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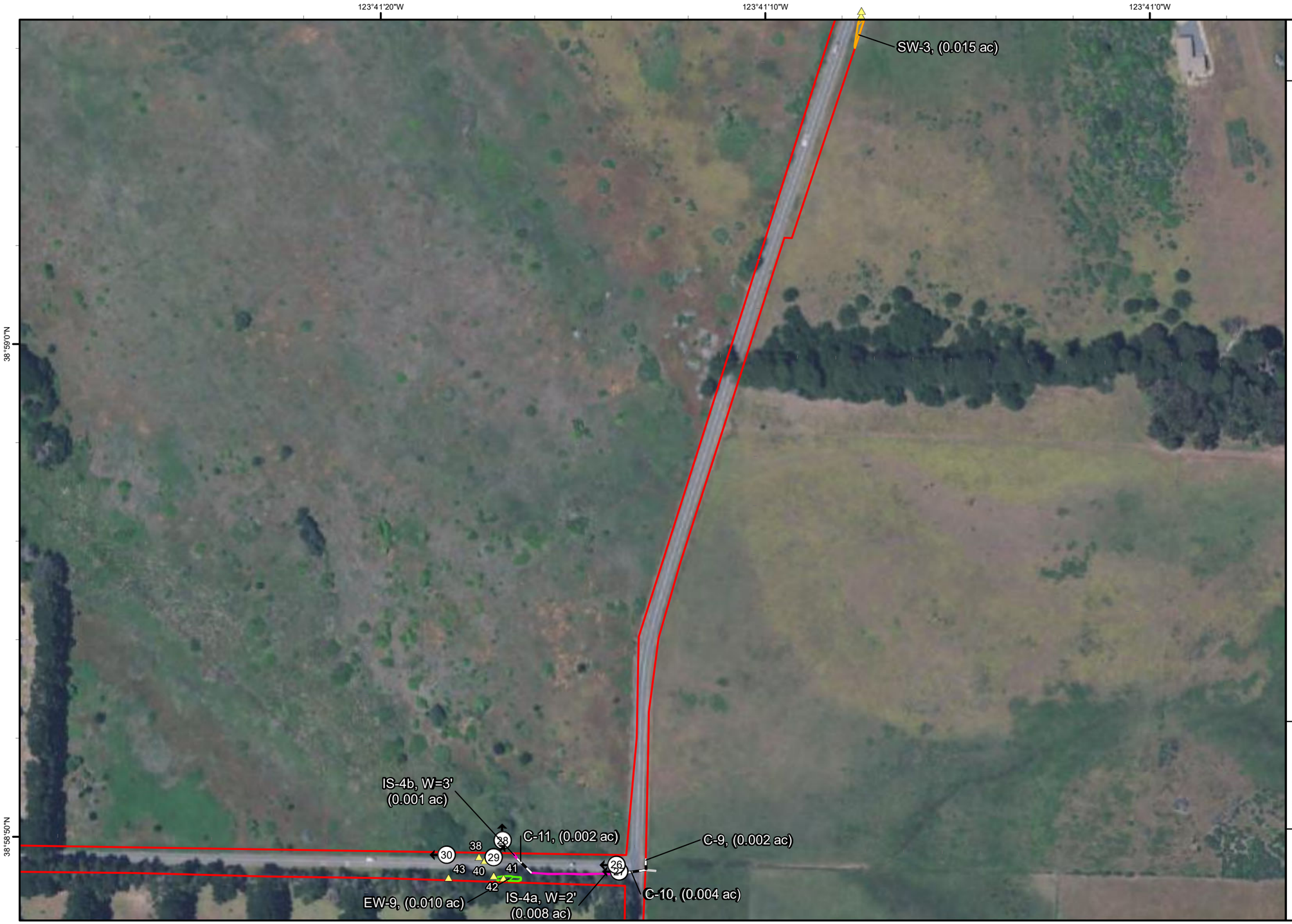
Appendix D
California Coastal Act Features Mapped in the Biological Study Area



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

Legend

- Biological Study Area (48 Acres)
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Appendix D
California Coastal Act Features Mapped in the Biological Study Area

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

Legend

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Appendix D
California Coastal Act Features Mapped in the Biological Study Area

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

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Appendix D
California Coastal Act Features Mapped in the Biological Study Area

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

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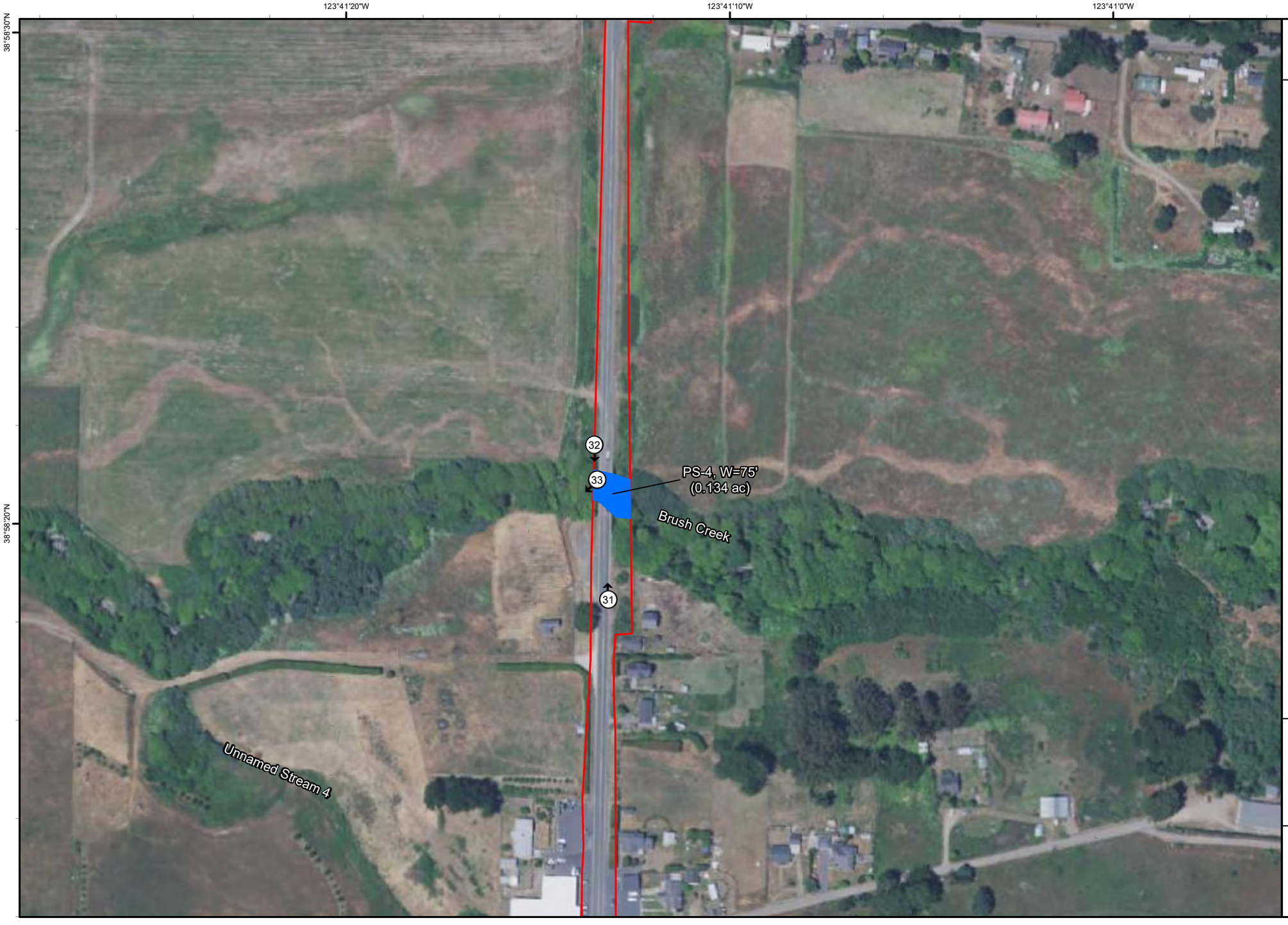

Manchester Subsea Cables Project
February 19th, 2019
Sheet 11 of 12

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Appendix D
California Coastal Act Features Mapped in the Biological Study Area

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

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