Attachment A

Project Location Map

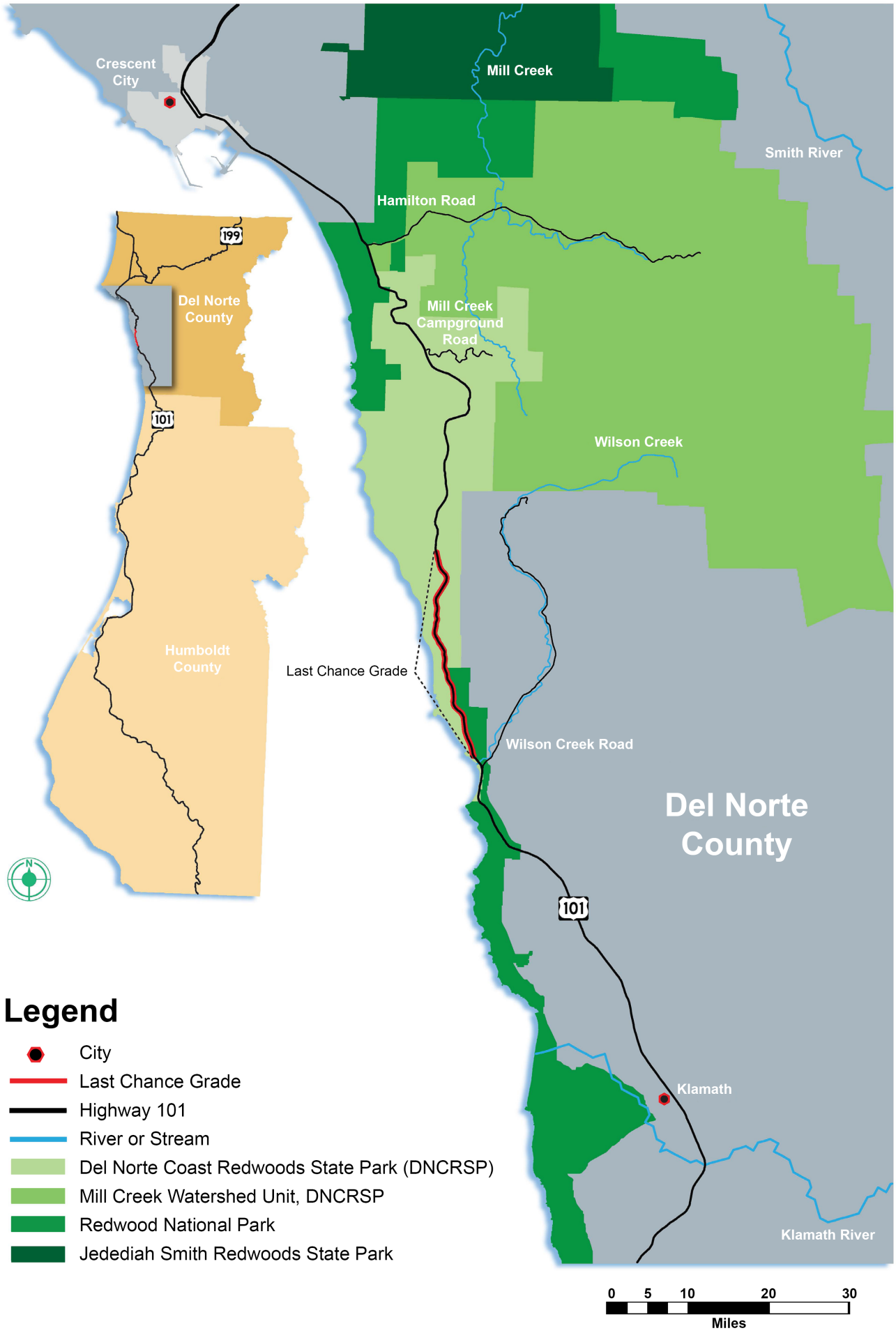


FIGURE 1 – Project Location Map

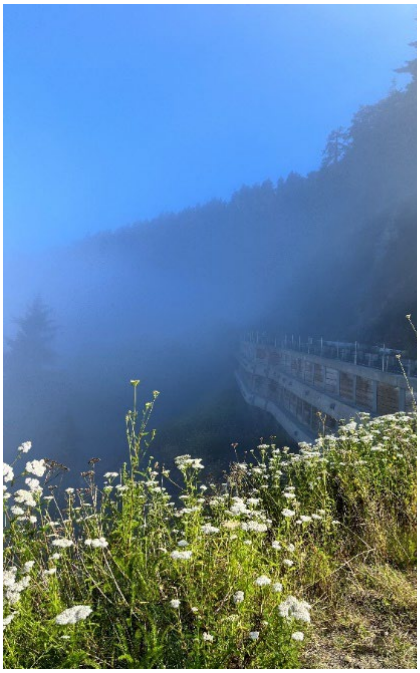
Attachment B

Storm Water Data Report

STORM WATER DATA REPORT

for the

LAST CHANCE GRADE
PERMANENT RESTORATION PROJECT
U.S. Highway 101 (01-DN-101)
from Post Miles 12.7 to 16.5
in Del Norte County, California



December 2023

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

Dist-County-Route: 01-DN-101
Post Mile Limits: PM 12.7/16.5
Type of Work: Highway Replacement
Project ID (EA): 0115000099 (EA 01-0F280)
Program Identification: N/A
Phase: ☐ PID ☒ PA/ED ☐ PS&E

Regional Water Quality Control Board(s): North Coast (Region 1)

Total Disturbed Soil Area: Alt X: 20.85 acres
Alt F: 29.57 acres

PCTA: Alt X: 4.85 acres
Alt F: 1.18 acres

Alternative Compliance (acres): 0

ATA 2 (50% Rule)? Yes ☐ No ☒

Estimated Const. Start Date:
Alt X: 01/01/2031
Alt F: 01/01/2031

Estimated Const. Completion Date:
Alt X: 12/31/2035
Alt F: 12/31/2038

Risk Level: RL 1 ☐ RL 2 ☐ RL 3 ☒ WPCP ☐ Other: _____

Is MWELO applicable? Yes ☐ No ☐ TBD in PS&E

Is the Project within a TMDL watershed? Yes ☐ No ☒

TMDL Compliance Units (acres):_____

Notification of ADL reuse (if yes, provide date): Yes ☐ Date:_____ No ☒

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E only.

Analette Ochoa — 12/1/2023

Analette Ochoa, P.E., Registered Project Engineer — Date

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Jaime Matteoli — 12/9/2023

Jaime Matteoli, Project Manager — *Date*

Scott Lezchuk — 12/8/2023

Scott Lezchuk, Designated Maintenance Representative — *Date*

c/o Erin Ponte — 12/08/2023

Laura Lazzorotto, Designated Landscape Architect Representative — *Date*

Samantha Hadden — 12/8/23

[Stamp Required at PS&E only]

Samantha Hadden, District/Regional Design SW Coordinator or Designee — *Date*

STORMWATER DATA INFORMATION

1. Project Description

The proposed Last Chance Grade Permanent Restoration Project (Project) is located on a section of U.S. Highway 101 (U.S. 101) known as Last Chance Grade (LCG) in southern Del Norte County, California. It is approximately 10 miles south of Crescent City, from post mile (PM) 12.7 to PM 16.5. See Required Attachments for the Project Location Map.

The purpose of the Project is to develop a long-term solution to the instability and potential roadway failure at LCG. The Project considers alternatives that would provide a more reliable connection, reduce maintenance costs, and protect the economy, natural resources, and cultural landscapes.

A long-term sustainable solution at LCG is needed to address:

- Economic ramifications of a long-term failure and closure
- Risk of delay/detour to traveling public
- Increasing maintenance and emergency project costs
- Increase in frequency and severity of large storm events caused by climate change

Project Alternatives

The Project proposes two build alternatives—Alternative X and Alternative F—in addition to the no-build alternative. See Required Attachments for the Project Alternatives Overview.

Alternative X would involve reengineering a 1.6-mile-long section of the existing highway to minimize the risk of landslides. Main Project components would include an underground drainage system, a series of retaining walls, and strategic eastward retreats.

Alternative F would involve constructing a 6,000-foot (1.1-mile) tunnel to the east of the existing highway to avoid the most intense areas of known landslides and geologic instability. Main components would include a tunnel and its portals, a bridge, and an Operations Maintenance Center (OMC).

Geotechnical investigations would be needed for both Alternative X and Alternative F to inform Project design.

Under the no-build alternative, no work would be done on the existing highway; existing conditions would persist, including the continuation of emergency repairs and enhanced maintenance.

Disturbed Soil Area and Impervious Areas

The disturbed soil area (DSA) is estimated from the proposed grading areas and impervious surface improvement areas. Work would be entirely within Caltrans' right-of-way. The net new impervious surface (NNI) consists of both the removed and added impervious areas. The estimates for the DSA, total new impervious surface (NIS), and replaced impervious surface (RIS) for Alternative X and Alternative F are listed in Table 1. The NNI is the difference between pre- and post-Project impervious surface areas, whereas the NIS is the sum of the NNI and the RIS. In both alternatives, a 15-foot buffer was added outside the cut and fill lines and included as DSA. In Alternative X, the

gravel access road to the drainage outfall and the landscaped sections between the tiered retaining walls were considered DSA. In Alternative F, the temporary access road around the OMC, the green roof at the OMC, boring and drainage work areas, highway decommissioning, and the cut-and-cover portion of the south tunnel portal were considered DSA. The paved portions of the OMC, walls, bridge, and paved surface roadways were considered NIS. Portions of the existing highway and shoulder that are repaved were considered RIS. The DSA and impervious area values are likely to be further refined during the Plans, Specifications, and Estimates (PS&E) phase once the limits of grading, construction staging locations, and other areas of improvement have been further developed. See DSA Exhibits under Required Attachments for illustrations of the DSA and impervious surfaces for each alternative.

Table 1. Project DSA and Impervious Surface Areas

	Alternative X (acres)	Alternative F (acres)
Disturbed Soil Area (DSA)	20.85	29.57[1]
Pre-Project Impervious Area	5.11	7.33
Post-Project Impervious Area	7.46	6.43
Replaced Impervious Surface (RIS)	2.50	2.08
Net New Impervious Surface (NNI)	2.35	-0.90
Total New Impervious Surface (NIS)	4.85	1.18
Post-Construction Treatment Area (PCTA)	4.85	1.18

Table Notes:

[1] The DSA for Alternative F excludes the proposed tunnel because it would be constructed underground and would not create surface impacts.

Source: Caltrans, 2023b

The Project's NIS would be more than 0.23 acres (10,000 square feet) for either build alternative; therefore, the Project is required to implement stormwater treatment best management practices (BMPs) under the Caltrans National Pollutant Discharge Elimination System (NPDES) Permit, Order No. 2022-0033-DWQ, NPDES No. CAS000003 that was adopted on June 22, 2022, and effective on January 1, 2023 (SWRCB, 2022a).

Additionally, the Project proposes to involve work within jurisdictional features, which would require a Section 401 Water Quality Certification from the North Coast Regional Water Quality Control Board (RWQCB); this certification stipulates that treatment would be required for projects that add and/or replace more than 0.11 acres (5,000 square feet) of impervious surfaces. Because the Project's NIS would be more than 0.11 acres (5,000 square feet), the Project would be required to treat only the added and/or replaced impervious surfaces within the Project area. Therefore, the Project would have a post-construction treatment area (PCTA) of 4.85 acres under Alternative X and 1.18 acres under Alternative F.

2. Site Data and Stormwater Quality Design Issues

The Project is located within Caltrans District 1 and the North Coast RWQCB Region 1 jurisdictions.

Hydrologic Unit

Per the Cal Water watershed delineation in Caltrans' Water Quality Planning Tool (2022a), the Project area is within an undefined hydrologic sub-area (HSA #103.50) in the Wilson Creek Hydrologic Area (HA) of North Coast Hydrologic Region's Smith River Hydrologic Unit (HU).

Receiving Water Bodies

The *Federal Aquatic Resources Delineation* and *State Aquatic Resources Delineation* (Federal and State ARDs) (Caltrans, 2023c and 2023d) provide detailed delineations of all the aquatic resources within the environmental study limits (ESL) and a 100-foot buffer around the ESL for analysis of coastal resources. Streams within the ESL and 100-foot buffer drain either directly to the Pacific Ocean or indirectly through tributary systems and Wilson Creek, as shown in the Federal and State ARD Maps in Required Attachments. All streams within the ESL and 100-foot buffer, as well as Wilson Creek, are located within the Wilson Creek HA.

Beneficial Uses and Water Quality Objectives

Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning. The *Water Quality Control Plan for the North Coast Region* (Basin Plan) lists the beneficial uses for surface waters in the HUs, HAs, HSAs, and drainage features within the North Coast Region (North Coast RWQCB, 2018). Beneficial uses for the Project's HSA #103.50 as well as ocean waters are shown in Table 2.

The Project ultimately discharges to the Pacific Ocean. The Pacific Ocean, as stated in the *Water Quality Control Plan Ocean Waters of California* (Ocean Plan) (SWRCB, 2019), has the following beneficial uses:

- Industrial water supply
- Water contact and non-contact water recreation, including aesthetic enjoyment
- Navigation
- Commercial and sport fishing
- Mariculture
- Preservation and enhancement of designated Areas of Special Biological Significance (ASBS)
- Rare and endangered species
- Marine habitat
- Fish migration
- Fish spawning
- Shellfish harvesting

Table 2. Beneficial Uses for Project Receiving Water Bodies

HU/HA / HSA #	Water Body	Beneficial Uses																			
		MUN	AGR	IND	PRO	FRSH	NAV	POW	REC1	REC2	COMM	COLD	ASBS	WILD	RARE	MAR	MIGR	SPWN	SHELL	AQUA	CUL
103.50	Wilson Creek HA	E	E	E	P	E	E	E	E	E	E	E	–	E	E	–	E	E	–	P	E
–	Ocean Waters	–	–	P	P	–	E	–	E	E	E	–	P	E	E	E	E	E	E	E	–

Source: North Coast RWQCB, 2018

Notes:

- MUN – municipal and domestic supply
- AGR – agricultural supply
- IND – industrial service supply
- PRO – industrial process supply
- FRSH – freshwater replenishment
- NAV – navigation
- POW – hydropower generation
- REC1 – water contact recreation
- REC2 – non-contact water recreation
- COMM – commercial and sport fishing
- COLD – cold freshwater habitat
- ASBS – Areas of Special Biological Significance
- WILD – wildlife habitat
- RARE – rare, threatened, or endangered species
- MAR – marine habitat
- MIGR – migration of aquatic organisms
- SPWN – spawning, reproduction, and/or early development
- SHELL – shellfish harvesting
- AQUA – aquaculture
- CUL – Native American culture
- E – existing
- P – potential

Table 3 summarizes the numerical water quality objectives for dissolved oxygen in the North Coast Region.

Table 3. Water Quality Objectives for Dissolved Oxygen

Beneficial Use	Daily Minimum Objective (mg/L)	7-Day Moving Average Objective (mg/L)[1]
MAR	5.0	N/A
COLD[2]	6.0	8.0
SPWN[3]	9.0	11.0

Table Notes:
[1] A 7-day moving average is calculated by taking the average of each set of seven consecutive daily averages.
[2] Water quality objectives designed to protect COLD-designated waters are based on the aquatic-life-based requirements of salmonids but apply to all waters designated in Table 2-1 of the Basin Plan as COLD regardless of the presence or absence of salmonids.
[3] Water quality objectives designed to protect SPWN-designated waters apply to all fresh waters designated in Table 2-1 of the Basin Plan as SPWN in those reaches and during those periods of time when spawning, egg incubations, and larval development are occurring or have historically occurred. The period of spawning, egg incubations, and emergence generally occur in the North Coast Region between the dates of September 15 and June 4.

Source: North Coast RWQCB, 2018

Specific water quality objectives for other streams in the Smith River HU are identified in Chapter 3 of the Basin Plan (North Coast RWQCB, 2018) (see Table 4). Although the streams identified within the Project ESL do not confluence with Smith River, they are located within the Smith River HU and would have the same specific water quality objectives.

Table 4. Specific Water Quality Objectives

Water Body[1]	Specific Conductance (micro-ohms) @77 degrees Fahrenheit (°F)		Total Dissolved Solids (mg/L)		Hydrogen Ion (pH)		Hardness (mg/L)	Boron (mg/L)	
	90% Upper Limit[2]	50% Upper Limit[3]	90% Upper Limit[2]	50% Upper Limit[3]	Max	Min	50% Upper Limit[3]	90% Upper Limit[2]	50% Upper Limit[3]
Smith River HU Other Streams	150[4]	125[4]	--	--	8.5	7.0	60[4]	0.1[4]	0.0[4]

Table Notes:
[1] Water bodies are grouped by HU, HA, or HSA.
[2] Ninety percent (90%) upper and lower limits represent the 90 percentile values for a calendar year. 90% or more of the values must be less than or equal to an upper limit and greater than or equal to a lower limit.
[3] Fifty percent (50%) upper and lower limits represent the 50 percentile values of the monthly means for a calendar year; 50% or more of the monthly means must be less than or equal to an upper limit and greater than or equal to a lower limit.
[4] Measurement does not apply to estuarine areas.
Dashes (--) indicate that no water-body-specific objective is available.

Source: North Coast RWQCB, 2018

Clean Water Act 303(d) List

The *2018 California Integrated Report* (Clean Water Act [CWA] Section 303[d] List/305[b] Report) does not list the Wilson Creek HA (HSA #103.50) as impaired or having Total Maximum Daily Loads (TMDLs) (SWRCB, 2021).

Areas of Special Biological Significance

There are eight designated ASBS within the North Coast RWQCB's jurisdiction, one of which falls within the vicinity of the Project ESL. Per Caltrans' Water Quality Planning Tool (2022a), the Redwood National and State Parks (RNSP) provide 35.9 miles of shoreline for the Redwood National Park ASBS, with 10.6 miles of U.S. 101 draining to the ASBS. Currently, there are two ASBS discharge points identified along the U.S. 101 within the Project ESL, RED014 and RED015 (located at PMs 14.65 and 14.56, respectively), which may be impacted by Project activities. The RED014 and RED015 outfalls are 24-inch corrugated metal pipes that carry only stormwater runoff and not waters of the State (see Federal and State ARD Maps under Required Attachments). The Redwood National Park ASBS and priority discharge locations within the Project ESL are identified as shown in the ASBS Map under Required Attachments.

Key pollution threats for this ASBS include septic leakage, urban and agricultural runoff, and sediment from timber harvesting. The Project's watershed is also impacted by altered flows and removal of riparian vegetation (Caltrans, 2022a).

All outfall locations within the Project area would remain unchanged under either build alternative. Additionally, Alternative X proposes the construction of a new outfall to the Redwood National Park ASBS that would be part of the underground drainage system; this proposed outfall is not expected to carry waters of the State and would only capture and redirect groundwater from within the slope to the Pacific Ocean.

ASBS monitoring is performed to assess how the water quality in receiving waters near ASBS discharge locations compares with natural water quality near reference drainage locations. Per Caltrans' *Final Compliance Plan for Areas of Special Biological Significance* (2016a), two seasons of monitoring data at the Redwood National Park ASBS showed no exceedances of natural water quality or toxicity at the outfalls within the Project ESL. However, the Redwood National Park ASBS outfall RED028, which is located on Wilson Beach at PM 12.2 (south of the Project area), had been found to exceed natural water quality for total suspended solids, arsenic, copper, lead, mercury, nickel, and selenium. Therefore, while outfall RED028 lies outside the Project limits, the Project should plan on evaluating and implementing BMPs at appropriate locations associated with the two outfalls (RED014 and RED015) within the Project ESL.

See the Project's *Water Quality Assessment Report* (WQAR) for more information on the Redwood National Park ASBS within the vicinity of the Project ESL (Caltrans, 2023e).

401/404 Permits

Work is proposed within jurisdictional waters; therefore, a Clean Water Act Section 401 Water Quality Certification from the North Coast RWQCB and a Clean Water Act Section 404 Nationwide Permit 14 from the United States Army Corps of Engineers would be required for this Project.

RWQCB Special Requirements/Concerns

The Project would not be required to implement trash control measures in accordance with Caltrans' *Statewide Trash Implementation Plan* (2019a) because the Project is not located within a Significant Trash Generating Area (STGA). The Statewide STGA Map is included under Supplemental Attachments.

Drinking Water Reservoirs and/or Recharge Facilities

Based on the Caltrans *District 1 Work Plan*, there are no drinking water reservoirs or recharge facilities near the Project area (2021a). However, the Basin Plan does identify the Wilson Creek HA (HSA #130.50) and all groundwaters of the North Coast Region as having the beneficial use of municipal and domestic supply (North Coast RWQCB, 2018).

Climate and Precipitation

Climate in the North Coast Air Basin generally is characterized by cool (dry) summers and mild (relatively damp) winters. Along the coast, temperatures are relatively constant throughout the year (41 to 63 degrees Fahrenheit). Annual average rainfall within the vicinity of the Project (as reported by the Crescent City climate monitoring station) is about 71 inches (Western Regional Climate Center, 2022).

Soil Classification

The subsurface conditions encountered at the Project area vary throughout the 3.8-mile corridor. Refer to the Project's *Geology Summary Memorandum* (2023f) and *Initial Site Assessment* (2023g) for detailed information regarding the soil surveys.

The soils are mostly of Hydrologic Soil Group C and are classified as having low infiltration rates and high runoff potential. These soil units are not on the USDA Highly Erodible Land list (Caltrans, 2022b). Also, the fine-grained portions of these soil complexes are classified as silts and lean clays with plasticity indexes less than 18.

Slope Stabilization

Per Caltrans' Water Quality Planning Tool (2022a), the soil erodibility (K) factor found in the soil within the Project site is 0.28 (see the Project's K factor map in the Risk Level Determination Documentation under Required Attachments), and, therefore, the Project has a moderate susceptibility to erosion. This is confirmed in Caltrans' *Geotechnical Data Report – Final* (2022b), which indicates that the Project's erosion hazard is low to moderate. The overall susceptibility of soils to sheet and rill erosion by water often increases during excavation and grading activities, as vegetative cover is removed and/or local gradients and slope lengths are increased.

Groundwater

The Project ESL are within areas not delineated as groundwater basins, as defined by the Department of Water Resources (DWR) Bulletin 118. However, the Basin Plan states that, while the DWR has identified 62 groundwater basins within the North Coast Region, groundwater may also exist even where groundwater basins have not been identified. Groundwater basins do not always follow the same boundaries as surface waters (North Coast RWQCB, 2018).

Data indicates that regional groundwater flow is generally from east to west towards the Pacific Ocean; however, restrictive geologic structures such as fault zones and landslide boundaries can locally affect groundwater movement. Based on previous studies in the Project area, groundwater levels can vary with the passage of time due to seasonal fluctuations, recharge, and other environmental factors that may not be present at the time of the previous field explorations. Three stand-pipe monitoring wells were installed to monitor and test groundwater within the Project area; the well readings indicated that groundwater potentiometric depths ranged from 83.8 feet to 233.9 feet below ground surface (Caltrans, 2022b).

The Basin Plan does not list beneficial uses for specific groundwater basins; however, it does indicate that all groundwaters of the North Coast Basin have the following existing beneficial uses (North Coast RWQCB, 2018):

- Municipal and domestic water supply
- Agricultural supply
- Industrial service supply
- North American Culture

The North Coast Basin groundwaters also have the following potential beneficial uses (North Coast RWQCB, 2018):

- Industrial process supply
- Aquaculture

Hazardous Waste

The Project's *Initial Site Assessment* (Caltrans, 2023g) states that contaminants within the Project ESL may include aerially deposited lead (ADL) in exposed soil along the roadways from historic vehicle emissions during the leaded gasoline era; lead-based paint from yellow traffic striping and pavement marking; and hexavalent-chromium-based paint in soil from former structures at the OMC that contained green paint.

Based on the *Geotechnical Data Report – Final* (Caltrans, 2022b), a groundwater sample was taken on December 6, 2021, and was tested for constituents listed with effluent limitations per the Basin Plan (North Coast RWQCB, 2018), the Ocean Plan (SWRCB, 2019), *Monitoring Results Report: Fiscal Year 2015–2016* (Caltrans, 2016b) for ASBS monitoring requirements, and the *Waste Discharge Requirements* (WDR) *for Discharges of Highly Treated Groundwater to Surface Waters Following Extraction and Treatment of Groundwater Polluted with Petroleum Hydrocarbons and Volatile Organic Compounds* (North Coast RWQCB, 2016). The groundwater sample monitoring results showed that, of the analyzed parameters, all parameters except for pH and hardness were non-detectable. The pH level detected in the sample was within the thresholds specified in the aforementioned water quality requirements. However, the sample reported a hardness reading of 270 mg/L, which exceeds the Basin Plan reporting limit of 60 mg/L and the ASBS monitoring requirements of 2 mg/L. See the Project's WQAR (Caltrans, 2023e) for more detailed information on existing groundwater conditions as well as the list of constituents tested with effluent limitations.

The specific handling and disposal methods for the aforementioned hazardous materials will be identified during the PS&E phase, when a Preliminary Site Investigation is conducted and a hazmat report is prepared. The findings and recommendations from these documents will be summarized in

the PS&E phase Storm Water Data Report (SWDR). Any soils containing ADL to be reused or disposed of would comply with the California Department of Toxic Substances Control *Soil Management Agreement for ADL-Contaminated Soils* (2016c), and soil and groundwater would be handled and disposed of in accordance with state and federal requirements.

Topography

The Project area features mountainous terrain, sloping from east to west towards the Pacific Ocean. U.S. 101 within the Project ESL slopes southerly towards Wilson Creek, with elevations ranging from 197 feet North American Vertical Datum 1988 (NAVD 88) to 920 feet NAVD 88 (Caltrans, 2021b).

The topography mainly consists of irregular outcrops that are prone to landslides. A majority of the Project is within the coastal area; however, the easternmost Project locations (e.g., helicopter staging areas) are outside of the coastal area.

Land Use

U.S. 101 is the only direct route connecting the southern and northern areas of Del Norte County; it also brings tourist traffic to coastal destinations. The Project ESL is almost entirely within the RNSP. Other lands in the immediate vicinity of the Project ESL include timberlands (owned by Green Diamond Resource Company) (Del Norte County, 2022).

Right-of-Way Acquisition

The Project would need to acquire additional right-of-way for both alternatives:

- Under Alternative X, the Project would require up to 11.2 acres of new right-of-way, primarily to the east of the existing highway. A subterranean easement of approximately 37.8 acres would be needed for the underground drainage system.
- Alternative F would require approximately 18.7 acres of new right-of-way at the OMC and the tunnel portals. In addition, a subterranean easement of approximately 12.1 acres would be needed for belowground portions of the tunnel, and a temporary construction easement of approximately 2 acres, for utility work south of the OMC. Once operational, Alternative F would bypass approximately 8,000 linear feet of existing roadway and Caltrans' right-of-way, totaling about 35 acres, all of which would be decommissioned. Decommissioning would include removing existing structures to the extent feasible, such as the roadway, culverts, and walls.

Measures for Avoiding or Minimizing Potential Stormwater Impacts

The Project would involve work within and over multiple streams (as seen in the Federal and State ARD Maps under Required Attachments) and would discharge to the Redwood National Park ASBS under both alternatives. The proposed Project alternatives analyses consider design elements to minimize or avoid impacts to the aforementioned receiving water bodies and other jurisdictional features.

Slopes are planned to be less than 2:1 (Horizontal:Vertical [H:V]), where feasible, compacted as specified in the Caltrans' *Standard Specifications* (2022e), and stabilized using the permanent erosion control measures to be specified during the PS&E phase. For locations with existing slopes greater than 2:1 (H:V), the existing slopes would be maintained where feasible, and proposed slopes would be graded to match the existing condition and stabilized with permanent erosion control measures. Retaining walls and an underground drainage system are proposed to improve slope

instability for Alternative X. Permanent erosion control measures, such as hydroseeding and fiber rolls or compost socks, would also be placed as needed at construction staging areas and access roads.

Temporary construction site BMPs would be employed to avoid or reduce potential stormwater impacts as discussed in Section 3 of this report. Permanent BMPs for stormwater pollution prevention and treatment are discussed in Section 6 of this report.

Existing Treatment BMPs

There are no known existing treatment BMPs or maintenance facilities along U.S. 101 within the Project area. If any are present, they would be avoided during construction, if possible, and would be identified on the plans during the PS&E phase.

3. Construction Site BMPs to Be Used on Project

Risk Level Determination

The Project would disturb 20.85 acres of soil under Alternative X and 29.57 acres of soil under Alternative F (Caltrans, 2023b) and must comply with the Construction General Permit (CGP) (NPDES No. CAS000002, SWRCB Order No. 2022-0057, adopted on September 8, 2022, and effective on September 1, 2023) (SWRCB, 2022b), which includes performing risk level assessments to determine the required monitoring and sampling of stormwater to be conducted during construction. The risk level assessment is determined from the combined receiving water and sediment risks.

The Project has a high receiving water risk because the Wilson Creek HA (HSA #103.50) has the combined existing beneficial uses of cold freshwater habitat, fish spawning, and fish migration, as listed in the Basin Plan, Table 2-1 "Beneficial Uses of Waters of the North Coast Region."

The Project sediment risk factor was determined from the product of the rainfall erosivity (R), K, and length-slope (LS) factors. Caltrans' Water Quality Planning Tool (2022a) identified the K and LS factors within the Project area to be 0.28 and 13.41, respectively.

- Using the U.S. EPA's "Rainfall Erosivity Factor Calculator for Small Construction Sites" (2022), the most conservative R factor for the Project site under Alternative X is 1015.00 for a construction duration of 5 years. The product of R, K, and LS factors is 3811.12 tons/acre (1015.00 × 0.28 × 13.41); because the product is greater than 75, the Project, under Alternative X, has a high sediment risk.
- Using the U.S. EPA's "Rainfall Erosivity Factor Calculator for Small Construction Sites" (2022), the most conservative R factor for the Project site under Alternative F is 1624.00 for a construction duration of 8 years. The product of R, K, and LS factors is 6097.80 tons/acre (1624.00 × 0.28 × 13.41); because the product is greater than 75, the Project, under Alternative F, has a high sediment risk.

Table 5 summarizes the receiving water and sediment risks and presents the calculated risk level. The sediment risk assessment may be updated during the PS&E phase as more detailed Project information becomes available. The calculations for the risk level assessment can be found in the Risk Level Determination Documentation under the Required Attachments.

Table 5. Project Risk Factors

Alternative	R Factor	K Factor	LS Factor	Product (R*K*LS)	Sediment Risk	Receiving Water Risk	Risk Level
X	1015	0.28	13.41	3811.12	High	High	3
F	1624	0.28	13.41	6097.80	High	High	3

Source: Caltrans, 2022a; North Coast RWQCB, 2018; U.S. EPA, 2022

The high receiving water risk and high sediment risk result in the Project being classified as Risk Level 3. In addition to the BMP requirements required for Risk Level 1 and 2 projects, Risk Level 3 projects also require the contractor to implement additional construction site BMPs. Risk Level 3 project water quality monitoring and reporting requirements for visual inspections and sampling include compulsory stormwater runoff pH and turbidity monitoring during all qualifying precipitation events (QPEs) (forecasted 50% probability of precipitation of 0.5 inches or more; monitoring continues for subsequent 24-hour periods when 0.25 inches or more is forecast). Stormwater samples should be representative of the flow and characteristics of the discharge. If any samples exceed applicable Numeric Action Levels, sampling results should be reported electronically to the SWRCB no later than 10 days after the conclusion of the storm event. Additionally, sampling is required for non-visible pollutants identified in the SWPPP or known to be on site that may be discharged due to failure to implement a BMP, a container spill or leak, or a BMP breach or malfunction. Visual inspections are required weekly, pre QPEs, every 24 hours during and post QPEs (within 96 hours). Additional and more detailed requirements for Risk Level 3 projects are given in Attachment D of the adopted 2022 CGP.

This assessment may be updated during the PS&E phase as more detailed Project information becomes available.

Storm Water Pollution Prevention Plan

The Project would disturb more than 1 acre of soil and, therefore, would need to prepare a Stormwater Pollution Prevention Plan (SWPPP) per the CGP requirements. A SWPPP would be prepared by the Contractor and approved by the Resident Engineer prior to the start of construction. The SWPPP describes the measures to be implemented by the Contractor to comply with the CGP. It includes the development of a Construction Site Monitoring Program, which presents procedures and methods related to the visual monitoring and sampling and analysis plans based on the Project's risk level.

The lump sum cost for the SWPPP and other stormwater fees will be determined during the PS&E phase.

Additionally, as the Project is expected to discharge construction stormwater runoff to ASBS, the Project would be required to prepare an ASBS Compliance Plan, which would be included in the Project's SWPPP. The ASBS Compliance Plan would address the ASBS non-stormwater discharge prohibition and the requirement to maintain natural water quality for construction stormwater discharges to an ASBS. The ASBS Compliance Plan would be subject to approval by the Executive Director of the SWRCB. If construction stormwater runoff altered natural ocean water quality in the ASBS, the Project would be required to submit a report to the SWRCB. The report would identify constituents that alter natural ocean water quality and their sources. It would also describe BMPs that are currently and/or would be implemented per the SWPPP and any additional BMPs that may

be added to the SWPPP to address the alteration of natural water quality. The Project would also need to revise the ASBS Compliance Plan to incorporate any new or modified BMPs, updates to the implementation schedule, and any additional monitoring required.

Construction Site BMP Strategy

Construction work for this Project is estimated to last approximately 5 years for Alternative X and 8 years for Alternative F. When possible, earth-disturbing construction activities would not be scheduled during anticipated rain events. To minimize potential runoff or run-on within the Project area, construction site BMPs would be installed prior to the start of construction or as early as feasibly possible during construction.

Measures to be implemented by this Project will be detailed on the temporary water pollution control plans in the PS&E phase SWDR. The general construction site BMP strategy for this Project consists of the following measures in accordance with Caltrans' *Standard Specifications* (2022c). The actual minimum temporary construction site BMPs necessary for the Project to comply with the CGP and Caltrans' standards will be determined during the Project's PS&E phase.

The construction site BMPs feasible for the Project include:

- Soil Stabilization Measures;
- Erosion and Sediment Control Measures;
- Tracking and Dust Control;
- Non-stormwater Management Measures;
- General Construction Site Management;
- Waste Management and Materials Pollution Control; and
- Stormwater Sampling Analysis.

The strategy used for implementing construction site BMPs depends on specific Project conditions, anticipated construction operations, and staging. The level of detail and coordination in support of the estimate is different at each phase of the Project. Construction site BMPs are temporary and are expected to be removed at the end of the Project.

Soil stabilization and sediment control measures include placing linear sediment barriers, including gravel berms, to intercept and slow the sediment-laden flow runoff during excavation and fill activities. Contour grading of slopes at the interchanges and widened pavement areas include surface roughening with tracking equipment. Immediately thereafter, slope interruption devices such as fiber rolls would be installed at intervals as specified in Caltrans' *Standard Specifications* (2022c), and a soil stabilizer like hydraulic mulch would be hydraulically applied. For slopes determined to be at high risk for erosion or failure, rolled erosion control products would be placed until permanent erosion control measures or slope paving can be applied. Wherever possible, early implementation of permanent erosion control seeding or landscape planting would be performed.

Temporary drainage inlet protection would be deployed at existing and proposed inlets throughout the Project. It is not anticipated that active treatment systems would be necessary for this Project. Where feasible, staging areas and stockpiling of materials would occur at paved locations to reduce dust and tracking of sediment. At unpaved staging and stockpiling areas, perimeter control measures such as temporary silt fence would be used to prevent sediment-laden runoff. Off-site

tracking of sediment and associated hauling from soil stockpiles would be limited by placing temporary construction site entrances in combination with regular street sweeping and vacuuming.

The Project proposes to conduct geotechnical investigations prior to the construction of the build alternative to confirm the location of basal failure planes and landslide depths.

- The Project design for Alternative X includes the realignment of U.S. 101 by reengineering a portion of the existing roadway and constructing retaining walls, underground drainage features, and strategic eastward retreats to minimize the risk of landslides.
- Alternative F would involve deviating from the existing U.S. 101 roadway that is most prone to closure by constructing a tunnel and bridge around areas of known landslides and geologic instability.

Temporary dewatering would be necessary in areas where groundwater is encountered during geotechnical investigations and excavation activities for either build alternative and would need to comply with Caltrans' *Field Guide to Construction Site Dewatering* (2014) and Caltrans' *Project Planning and Design Guide* (PPDG) (2019b). The Project would be required to obtain a dewatering permit compliant with the North Coast RWQCB *WDRs for Discharges of Highly Treated Groundwater to Surface Waters Following Extraction and Treatment of Groundwater Polluted with Petroleum Hydrocarbons and Volatile Organic Compounds* (NPDES No. CAG911001, Order No. R1-2016-0034). The groundwater sampling analysis showed that groundwater within the Project ESL had a hardness level of 270 mg/L $CaCO_3$, which exceeds the ASBS effluent limitations (see Section 3.1.3.7.2 of the Project's WQAR). Therefore, the hardness levels of the ocean waters could be impacted by groundwater discharge from dewatering activities during construction. The Project would need to ensure that extracted groundwater from temporary dewatering activities is either treated on-site prior to disposal or transported to a legally permitted off-site facility, the nearest of which is in Crescent City. An active treatment system may also be necessary to meet CGP requirements and to treat contaminated groundwater encountered during excavation activities. Dewatering requirements, costs, and design of the active treatment system would be determined during the PS&E phase.

Temporary concrete washouts would be used during the installation of the retaining walls and bridge widening. Concrete waste management would be implemented during these activities and would comply with Caltrans' *Standard Specifications* (2022c).

Various waste management, materials handling, and other housekeeping BMPs would be used throughout the duration of the Project. Stockpiles of various kinds are anticipated and would be maintained with the appropriate BMPs. Measures would also be taken to prevent and reduce trash from entering storm drain inlets. Locations and details would be identified and discussed during the PS&E phase.

Per Table F-2 of Caltrans' PPDG (2019b), the total adjustment for the water pollution control cost estimate would be 1.25% of the proposed total construction costs (excluding right-of-way costs); therefore, the Project's Project Approval/Environmental Document phase estimate for construction site BMPs is $9,336,000 ($746,880,000 x 1.25%) for Alternative X and $21,170,000 ($1,693,600,000 x 1.25%) for Alternative F.

Detailed Temporary Water Pollution Control Plans and cost estimates for all temporary water pollution control items will be prepared during the PS&E phase.

4. Maintenance BMPs

The Project would enhance bicyclist and pedestrian access along U.S. 101, and, therefore, would require drain inlet stenciling. Required stenciling would be designed in accordance with Caltrans' *Standard Specifications* (2022c). There are existing maintenance vehicle pullouts along the Project corridor at PMs 13.29, 14.46, 14.94, 15.37, 15.62, 15.71, and 15.88. Implementation of maintenance BMPs, including additional maintenance vehicle pullouts, will be considered during the PS&E phase and coordinated with the Caltrans Maintenance Staff.

5. Other Water Quality Requirements and Agreements

The Project may impact jurisdictional features under either build alternative. Therefore, the environmental permits expected for the Project may include a Section 404 Nationwide Permit 14 from the United States Army Corps of Engineers, a Section 401 Water Quality Certification from the RWQCB, a Section 1602 Streambed Alteration Agreement from the California Department of Fish and Game, and consultation under Section 7 of the Federal Endangered Species Act. The Project would also involve work within park lands, and, therefore, a Section 4(f) evaluation will be prepared to consider the degree of use of Section 4(f) resources. Discussion of stormwater treatment and hydromodification management that are expected as conditions of the Section 401 Water Quality Certification from the North Coast RWQCB is included in Section 6 of this report.

6. Permanent BMPs

Permanent BMPs are strategies and measures to minimize and/or avoid water quality impacts in the post-construction condition. Permanent BMPs include design pollution prevention (DPP) and treatment BMP strategies.

Rapid Stability Assessment

Multiple streams cross through the Project ESL for both alternatives (as identified in the Federal ARD [Caltrans, 2023c] and the State ARD [Caltrans, 2023d]). Alternative X would add more than 0.23 acres (10,000 square feet) to the Threshold Drainage Area of the stream crossings; therefore, the Project would be required to perform a rapid stability assessment and implement hydromodification management measures for Alternative X per Caltrans' *Hydromodification Requirements Guidance* (2015). However, because the Project would create less than 0.23 acres (10,000 square feet) of NNI for Alternative F, a rapid stability assessment would not be required for Alternative F. The Caltrans Stormwater Coordinator will verify this assessment and determine whether hydromodification management would need to be addressed during the PS&E phase.

DPP BMP Strategy

Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

The Project would result in the creation and reduction of impervious areas under Alternative X and F, respectively; the added impervious area could increase sediment-laden flow directly discharging to receiving water bodies under Alternative X. Under both alternatives, the overall existing drainage patterns would not change.

- Alternative X would include the construction of an underground drainage system with a new outfall to the Pacific Ocean, as well as the extension of existing culverts to match the new roadway widths.

- While Alternative F also proposes to extend existing culverts, new culverts would be installed that would connect to existing culverts.

Stormwater impacts would be minimized through the proper implementation of hydromodification management measures and stormwater treatment BMPs that promote infiltration and dispersion of runoff, which are discussed later in this report. Downstream effects would be further minimized through the use of permanent erosion control measures along slopes and disturbed soils to achieve permanent stabilization and vegetation establishment.

Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

The Project would be constructed to minimize erosion by disturbing slopes only when necessary, minimizing cut and fill areas to reduce slope lengths, providing cut and fill slopes flat enough to allow revegetation to limit erosion rates, and providing concentrated flow conveyance systems consisting of storm drains, ditches, and gutters.

All disturbed slopes and construction locations would be applied with permanent erosion control materials. All permanent erosion control would follow BMPs and comply with Caltrans' requirements. Slopes, where feasible, would be constructed at 4:1 (H:V) or flatter, with a maximum allowable steepness of 2:1 (H:V). The length of slope disturbance would be minimized to the extent practicable and use standard erosion control practices, such as hydraulically applying a combination of hydroseed with native seed mix, hydromulch, straw, tackifier, and compost to promote vegetation establishment, and installing fiber rolls to prevent sheet flow from concentrating and causing gullies. For steeper slopes or areas that may be difficult for vegetation to establish, measures such as netting, blankets, or slope paving could be considered to provide stabilization. The potential for erosion would be further evaluated once geotechnical boring information is available during the PS&E phase.

Alternative X proposes utilizing tiered walls on high cut and fill slopes to reduce concentration of flows, and also to shorten slope length.

Temporary irrigation may be required for vegetation and erosion control establishment. Permanent irrigation is not currently expected, but if it is determined during the PS&E phase that replacement highway planting is necessary, then permanent irrigation would be provided. The irrigation would be designed in accordance with the Model Water Efficient Landscape Ordinance.

The need for hard surface erosion control measures would be determined during the PS&E phase and would likely include rock slope protection, energy dissipation devices at culvert outlets, and possible ditch lining if concentrated flow velocities result in the erosion of slopes.

Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4

Sheet flow would be promoted to the extent practicable to reduce concentrated flows and promote flow over vegetated surfaces.

- Because the roadway geometry is mostly constrained by the existing right-of-way, runoff from the proposed Alternative X improvements would mostly be routed through both the existing on-site drainage facilities consisting of inlet and culvert systems, as well as the proposed underground drainage system with its new outfall to the Pacific Ocean.

- For Alternative F, the Project proposes adding new inlets for the tunnel and modifying the existing culvert system to reach the proposed tunnel.

Every effort would be made to reduce and prevent channelizing, gullying, or scouring of the surrounding slopes. Types and details of the proposed drainage facilities and erosion control measures would be provided in the design phase. Risks due to erosion, overtopping, flow backups, or washout would also be further evaluated during the PS&E phase. Refer to the Project's *Hydrology and Hydraulics Report* (Caltrans, 2023h) for more details regarding the Project's drainage systems.

Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

Existing mature vegetation and landscaping within the Project limits would be protected in places where possible. Areas of clearing and grubbing would be limited to those areas impacted by new construction. Environmentally sensitive areas would be protected with temporary high-visibility fencing during construction. Details of the areas to be preserved would be shown in the Project plans to be developed in the PS&E phase.

Treatment BMP Strategy

Implementation of permanent stormwater treatment BMPs is required because the Project area indirectly discharges to surface waters and the NIS is anticipated to be greater than 0.23 acres (10,000 square feet). The treatment BMP strategy for all Project impervious areas within Caltrans' right-of-way would comply with the Caltrans NPDES Permit requirements.

The permit states that treatment must be designed according to the following priorities, in the following order of preference:

i. Infiltrate, harvest, and reuse, and/or evapotranspire the runoff;
ii. Capture and treat the stormwater runoff

The Project would need to implement stormwater treatment measures based on Caltrans' PPDG (2019b) to reduce pollutant discharges. Additionally, due to the Project requiring a Section 401 Water Quality Certification, the Project would need to treat and retain the runoff from the 85th percentile/24-hour storm event, or 1 inch of rainfall every 24 hours, from added and/or replaced impervious surfaces within the Project area. Caltrans has an approved list of treatment BMPs that have been studied and verified to remove targeted design constituents and provide general pollutant removal. The implementation of treatment BMPs would avoid and/or minimize impacts to water quality.

The Project would implement treatment BMPs such as biofiltration swales/strips and/or bioretention areas to remove pollutants from stormwater runoff for both alternatives. The Project also proposes to incorporate porous pavement, infiltration trenches, and additional measures to reduce overall impervious surface areas which will be implemented in the PS&E phase:

- For Alternative X, porous pavement would be utilized for the access road to the underground drainage galleries, whereas infiltration trenches (with underdrain) would be implemented within the roadway shoulder.
- For Alternative F, revegetated areas would be implemented on the tunnel to blend with the surrounding terrain, whereas porous pavement and green roofs would be utilized within the parking lots and roof of the OMC and by the northern portal to infiltrate stormwater. Similar to

Alternative X, infiltration trenches (with underdrain) would be implemented within the roadway shoulder.

The proposed stormwater treatment measures would meet the PCTA requirements for either alternative; the Project would treat 4.85 and 1.18 acres of impervious areas for Alternative X and F, respectively. Design details will be provided in the PS&E phase.

Due to expected stormwater and non-stormwater discharges to the Redwood National Park ASBS, Caltrans would be required to comply with the approved Caltrans ASBS Compliance Plan, which includes inspections of all construction sites that discharge stormwater runoff to an ASBS. Weekly inspections would be required during the rainy season (October 1 through April 30). Furthermore, Caltrans would also be required to inspect all stormwater outfall drains equal to or greater than 18 inches (457 millimeters) in diameter or width within an ASBS at the following frequencies:

- Once before the beginning of the rainy season
- Once during the rainy season

Bioretention

The Project proposes to implement bioretention devices to treat the impervious areas for both alternatives:

- For Alternative X, the Project would not be removing any impervious areas along the shoulder. However, these areas can be removed at spot locations if they are deemed suitable for the implementation of bioretention devices.
- For Alternative F, the Project proposes to implement bioretention devices by the OMC, south, and north tunnel portals.

Bioretention devices are feasible for this Project because site conditions allow for the establishment of vegetation and it is expected that adequate area exists within proposed Caltrans' right-of-way to place bioretention devices.

Bioretention devices would intercept stormwater runoff and remove sediments and pollutants through infiltration in vegetation and biologically active soils. The BMPs would be sized to meet the water quality flow criteria of Caltrans' PPDG (2019b), which states that the rainfall intensity for Del Norte County is 0.36 inches per hour. The exact design and locations of these bioretention devices will be determined during the PS&E phase and would adhere to Caltrans' PPDG (2019b).

Porous Pavement

The Project proposes to implement porous pavement in non-public access locations, including the access roads, OMC parking lot, and the parking lot by the north tunnel portal. Porous pavement is designed primarily to promote stormwater infiltration and improve the quality of stormwater runoff. It is typically designed to capture rainfall on the pavement surface area but may also accept run-on from adjacent impervious areas and other hardscapes (sidewalks), rooftops, or gutters. Porous pavement also reduces the amount of pollutants that enter stormwater runoff by reducing the amount of splash and spray that wash pollutants from the underside of vehicles. Additional details on porous pavement will be provided in the PS&E phase.

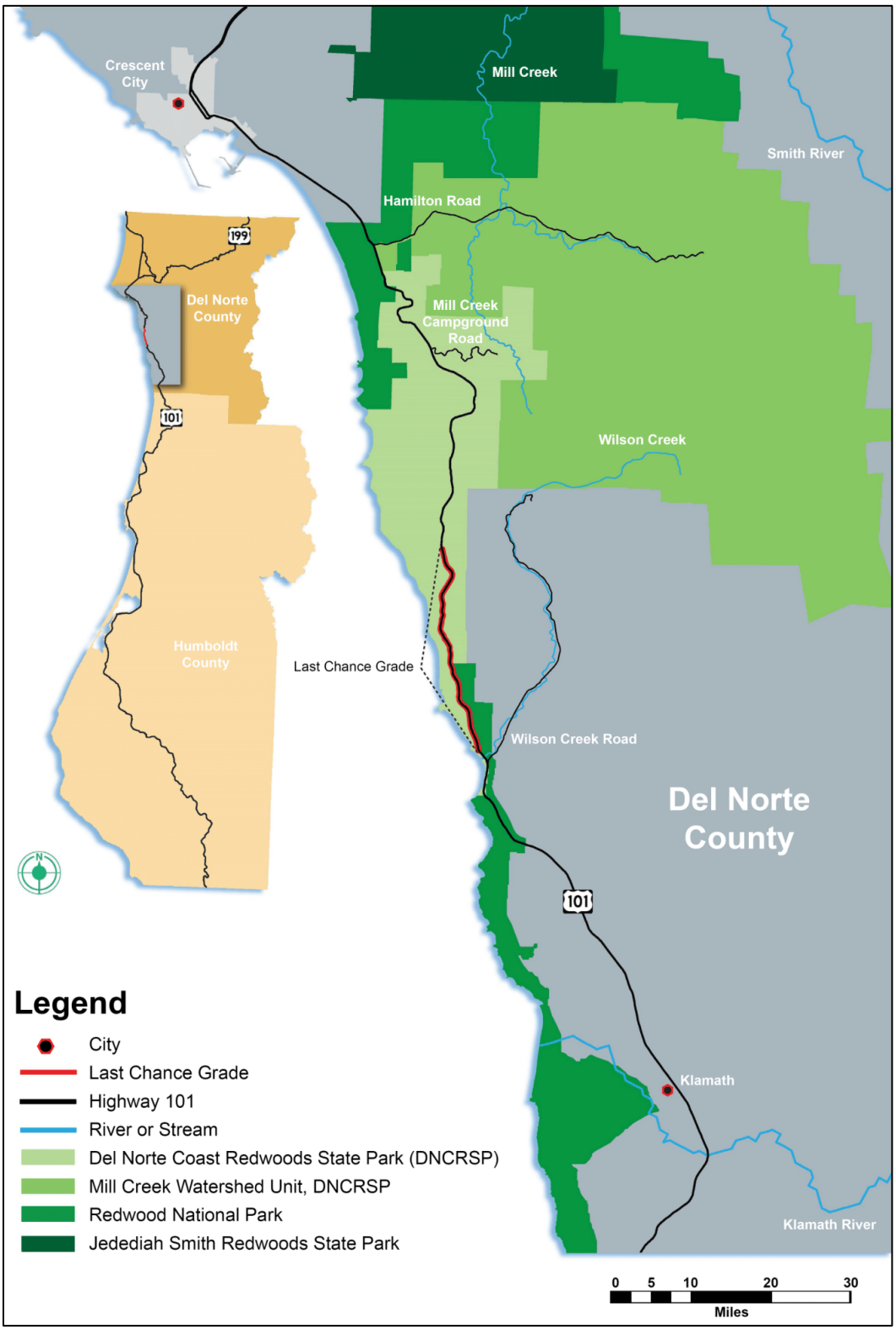
Required Attachments

- Project Location Map
- Project Alternatives Overview
- DSA Exhibits
- Federal and State ARD Maps
- ASBS Map
- Evaluation Documentation Form
- Risk Level Determination Documentation

Supplemental Attachments

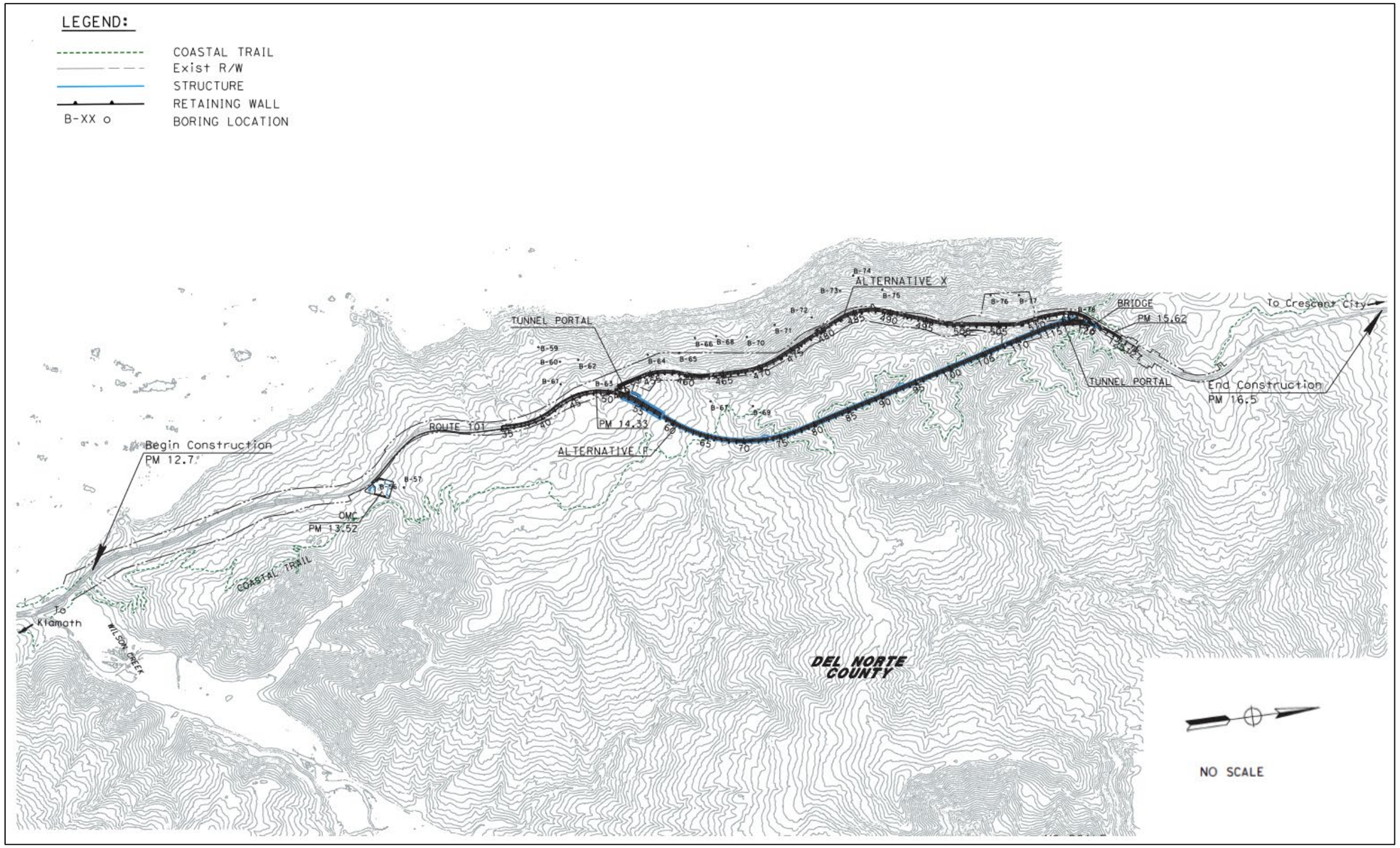
- Checklist SW-1, Site Data Sources
- Checklist T-1, Part 1 (Treatment BMPs)
- Checklist SW-2, Stormwater Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Stormwater Impacts
- Checklist DPP-1, Parts 1–5 (Design Pollution Prevention BMPs)
- Checklist T-1, Part 3 (Treatment BMPs)
- Construction Site BMP Consideration Form
- Checklist CS-1, Parts 1–6 (Construction Site BMPs)
- Caltrans Statewide STGA Map

PROJECT LOCATION MAP

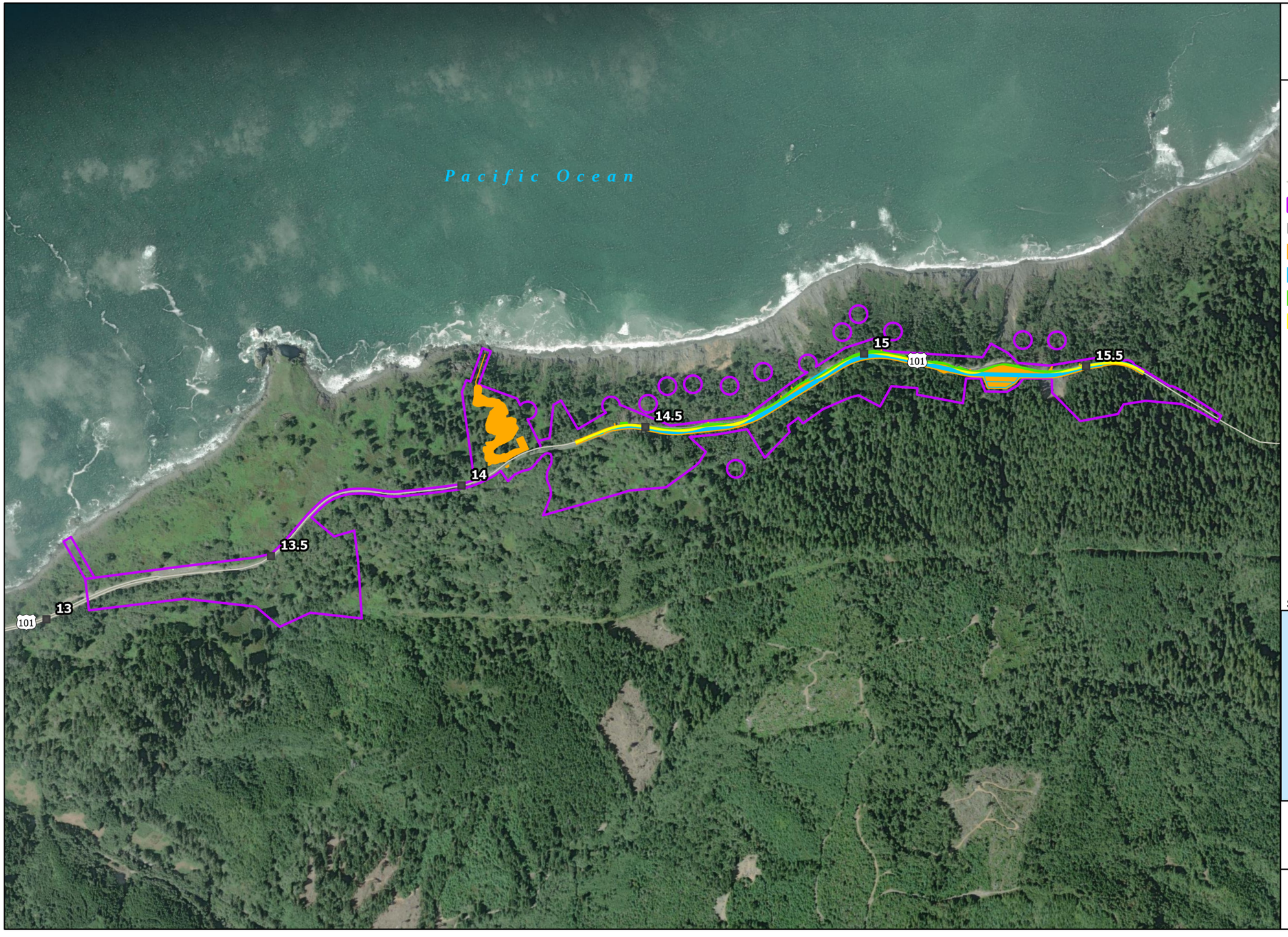


Source: Caltrans, 2023a

PROJECT ALTERNATIVES OVERVIEW



Source: Caltrans, 2023a



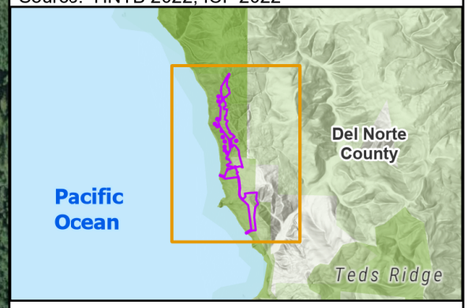
Last Chance Grade
Permanent Restoration Project
SR-101 Post Mile 12.7 to 16.5

- Post Miles
- Highway
- Environmental Study Limit

Disturbed Soil Area (DSA)

- New Disturbed Pervious
- New Impervious
- Removed Impervious
- Replaced Impervious

Source: HNTB 2022, ICF 2022



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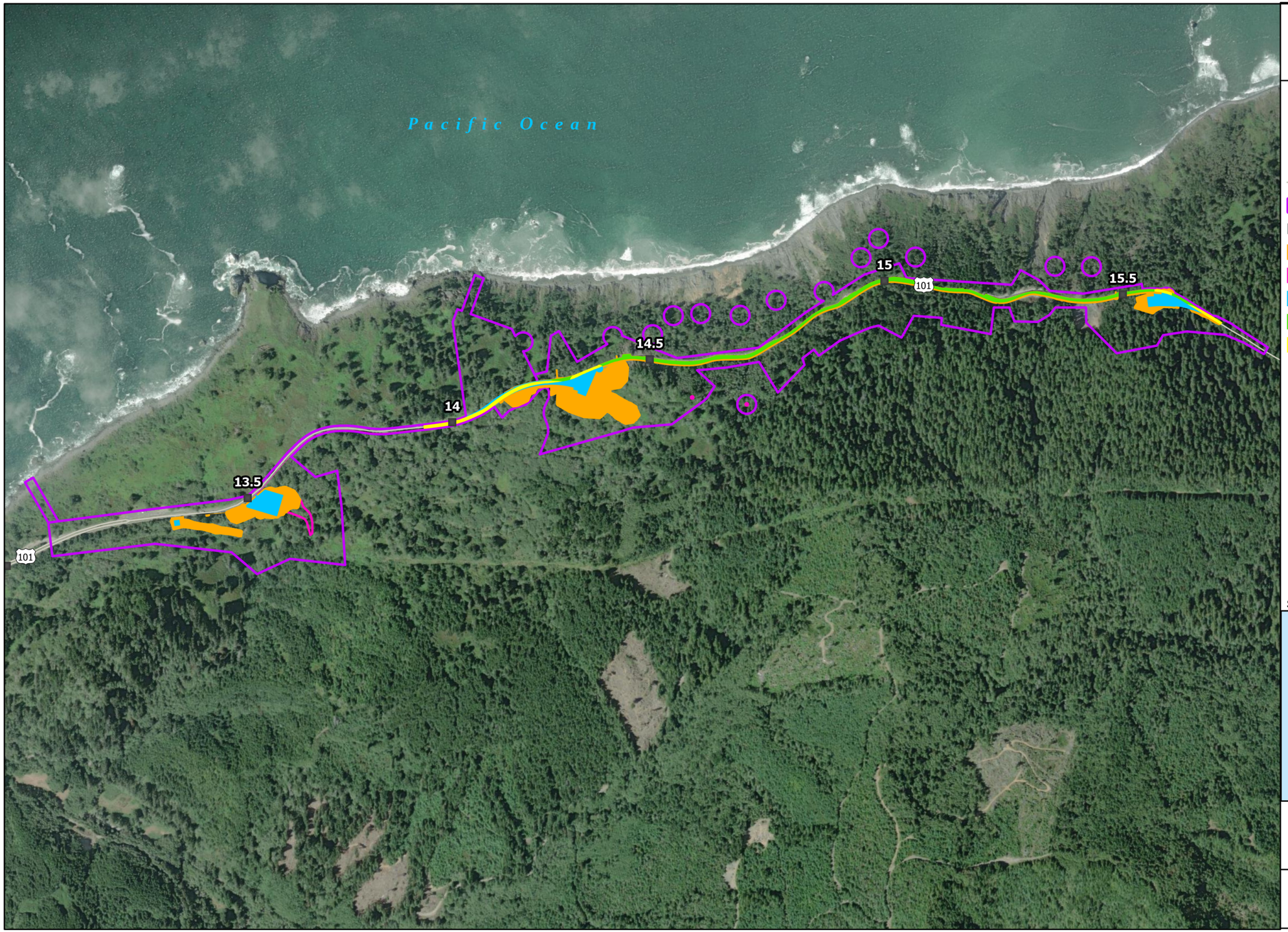
Miles

Date created: 5/19/2023

Caltrans

Exhibit
Alternative X Disturbed Soil Areas



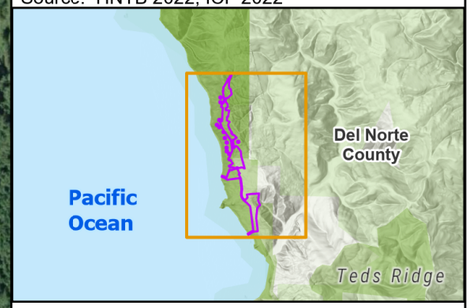
Last Chance Grade
Permanent Restoration Project
SR-101 Post Mile 12.7 to 16.5

- Post Miles
- Highway
- Environmental Study Limit

Disturbed Soil Area (DSA)

- New Disturbed Pervious
- Existing Pervious
- New Impervious
- Removed Impervious
- Replaced Impervious

Source: HNTB 2022, ICF 2022



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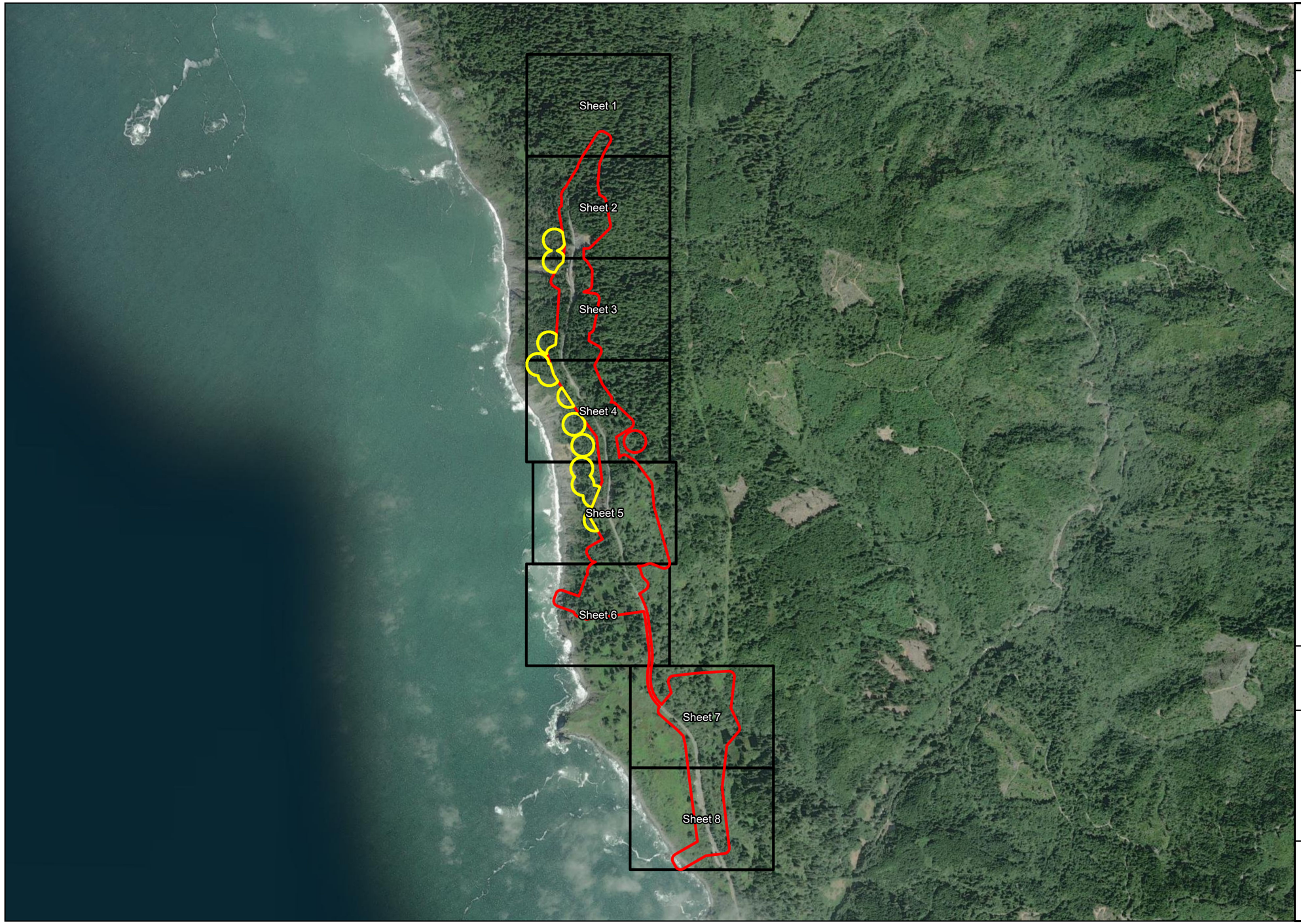
Miles

Date created: 5/19/2023

Caltrans

Exhibit
Alternative F Disturbed Soil Areas



Last Chance Grade
Permanent Restoration Project
March 2023

100-foot ESL Buffer

- Study Area Surveyed (233.902 ac.)
- Study Area Not Accessible (26.540 ac.)
- Sheet Layout

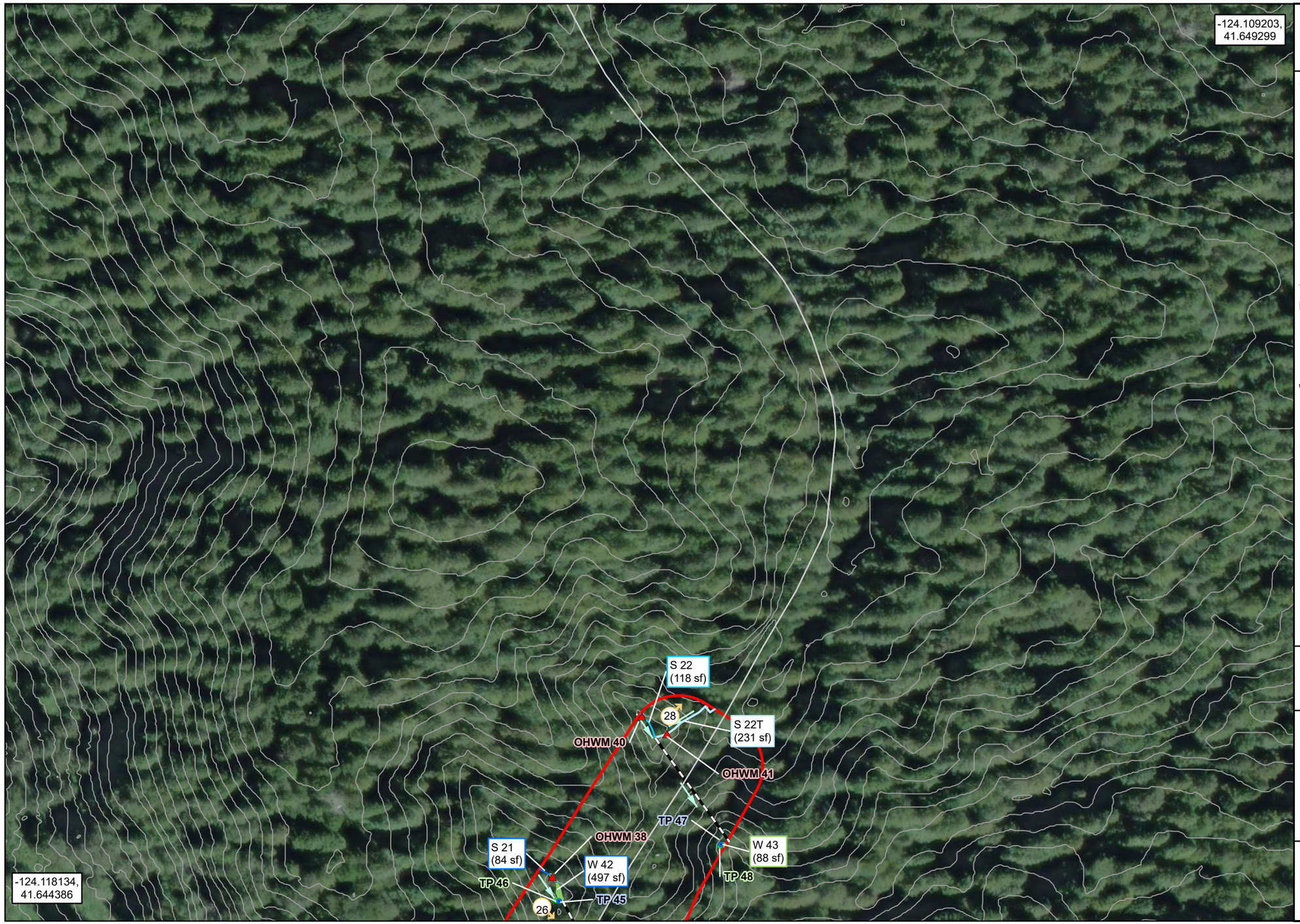
0 450 900 1,800
Feet

1:21,600

Notes:
Base Map Source: ICF, 2022
Imagery Source: ESRI 2021
USGS Topo Quad: Requa and Childs Hill
PLSS: S31 T15N R01E, S6 T14N R01E,
S7 T14N R01E, and S18 T14N R01E
Datum/Projection: NAD 1983 State Plane CA Zone I
Vertical Datum: NAVD 88
Contours: USGS 2022

Prepared By: ICF 916.737.3000
Delineated By: J. Saler (SHN) & M. Warburton (ICF)
Delineation Dates: May 17-June 4, 2021,
January 13, 2022, and June 13-July 11, 2022
Drawn By: A.Angier (ICF)

Appendix A - Cover Sheet
Aquatic Resources Delineation Map



Last Chance Grade
Permanent Restoration Project
March 2023

100-foot ESL Buffer

- Study Area Surveyed (233.902 ac.)
- Study Area Not Accessible (26.540 ac.)
- Ordinary High Water Mark Data Point
- Direction of Flow
- Photo Location
- Culvert
- Upland Data Point
- Wetland Data Point
- Contour (15' Interval)

Non-wetland Waters (1.132 ac.)

- Ephemeral Stream (0.009 ac.)
- Intermittent Stream (0.023 ac.)
- Perennial Stream (0.339 ac.)

Wetlands (1.241 ac.)

- Palustrine Forested Wetland (0.981 ac.)

0 50 100 200
Feet

1:2,400

Notes:
Base Map Source: ICF, 2022
Imagery Source: ESRI 2021
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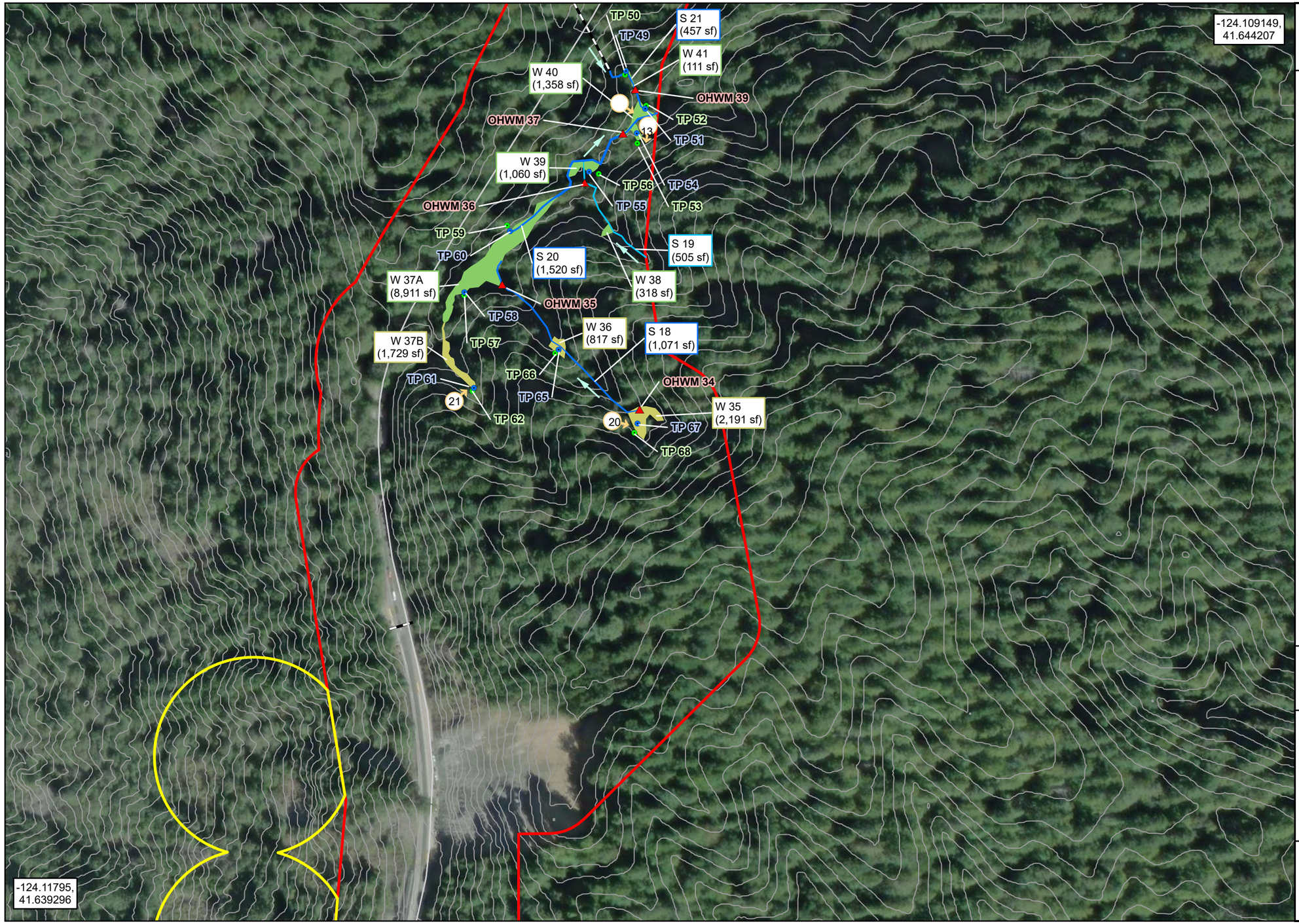
Appendix A
Aquatic Resources Delineation Map
Sheet 1 of 8



Last Chance Grade
Permanent Restoration Project
March 2023

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- Wetland Data Point
- Contour (15' Interval)

Non-wetland Waters (1.132 ac.)

- Intermittent Stream (0.023 ac.)
- Perennial Stream (0.339 ac.)

Wetlands (1.241 ac.)

- Palustrine Scrub-shrub Wetland (0.216 ac.)
- Palustrine Forested Wetland (0.981 ac.)

0 50 100 200
Feet

1:2,400

Notes:
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Imagery Source: ESRI 2021
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Appendix A
Aquatic Resources Delineation Map
Sheet 2 of 8

Last Chance Grade
Permanent Restoration Project
March 2023

100-foot ESL Buffer

- Study Area Surveyed (233.902 ac.)
- Study Area Not Accessible (26.540 ac.)
- Ordinary High Water Mark Data Point
- Direction of Flow
- Upland Data Point
- Contour (15' Interval)

0 50 100 200
Feet

1:2,400

N

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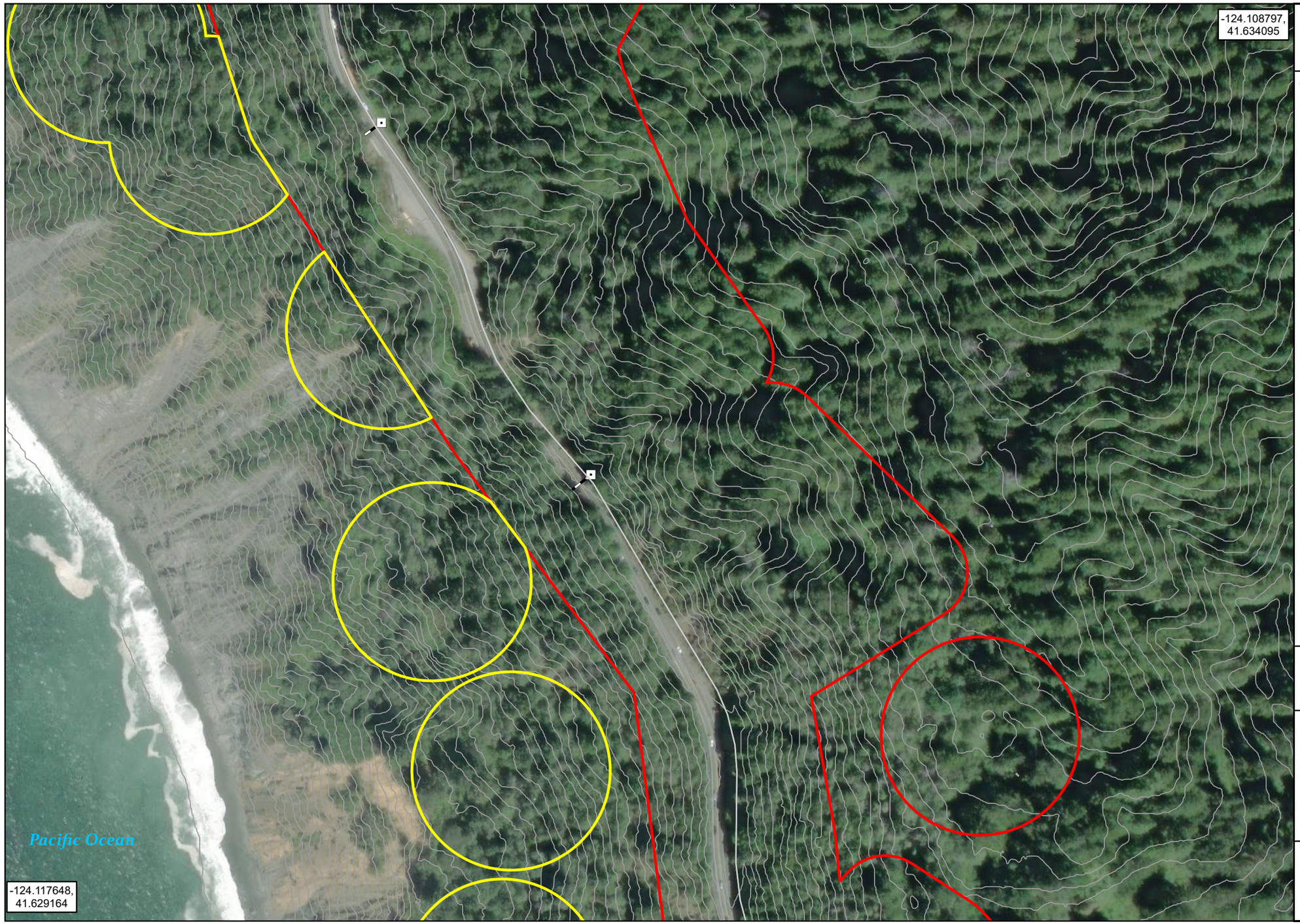
Sheet 3 of 8



Last Chance Grade
Permanent Restoration Project
March 2023

100-foot ESL Buffer

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- Direction of Flow
- Culvert
- Drain Inlet
- Contour (15' Interval)

0 50 100 200
Feet

1:2,400

N

Notes:
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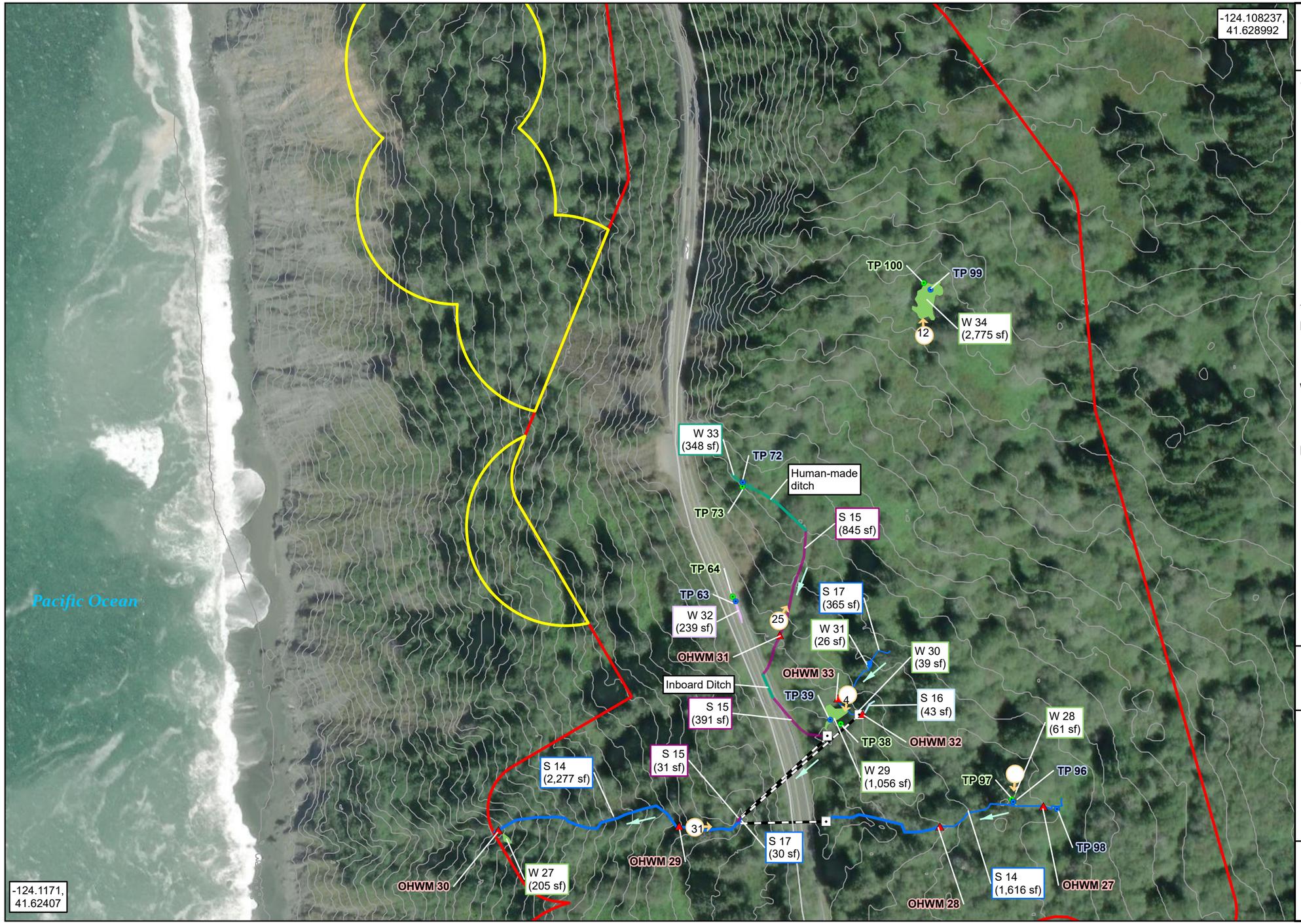
Sheet 4 of 8



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Permanent Restoration Project
March 2023

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- Upland Data Point
- Wetland Data Point
- Contour (15' Interval)

Non-wetland Waters (1.132 ac.)
- Ephemeral Stream (0.009 ac.)
- Perennial Stream (0.339 ac.)

Wetlands (1.241 ac.)
- Palustrine Emergent Wetland (0.044 ac.)
- Palustrine Forested Wetland (0.981 ac.)

Non-Jurisdictional Feature
- Human-induced Wetland
- Human-induced Stream
- Human-made Feature

0 50 100 200
Feet
1:2,400

Notes:
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January 13, 2022, and June 13-July 11, 2022
Drawn By: A.Angier (ICF)

Appendix A
Aquatic Resources Delineation Map
Sheet 5 of 8

Last Chance Grade
Permanent Restoration Project
March 2023

100-foot ESL Buffer

- Study Area Surveyed (233.902 ac.)
- Study Area Not Accessible (26.540 ac.)
- Ordinary High Water Mark Data Point
- Direction of Flow
- Photo Location
- Culvert
- Drain Inlet
- Upland Data Point
- Wetland Data Point
- Mean Higher High Water (6.87 ft elevation)
- Contour (15' Interval)

Non-wetland Waters (1.132 ac.)

- Intermittent Stream (0.023 ac.)
- Perennial Stream (0.339 ac.)
- Marine Intertidal (0.732 ac.)

Wetlands (1.241 ac.)

- Palustrine Scrub-shrub Wetland (0.216 ac.)
- Palustrine Forested Wetland (0.981 ac.)

Non-Jurisdictional Feature

- Human-made Feature

0 50 100 200
Feet
1:2,400

Notes:
Base Map Source: ICF, 2022
Imagery Source: ESRI 2021
USGS Topo Quad: Requa and Childs Hill
PLSS: S31 T15N R01E, S6 T14N R01E,
S7 T14N R01E, and S18 T14N R01E
Datum/Projection: NAD 1983 State Plane CA Zone I
Vertical Datum: NAVD 88
Contours: USGS 2022

Prepared By: ICF 916.737.3000
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Drawn By: A.Angier (ICF)

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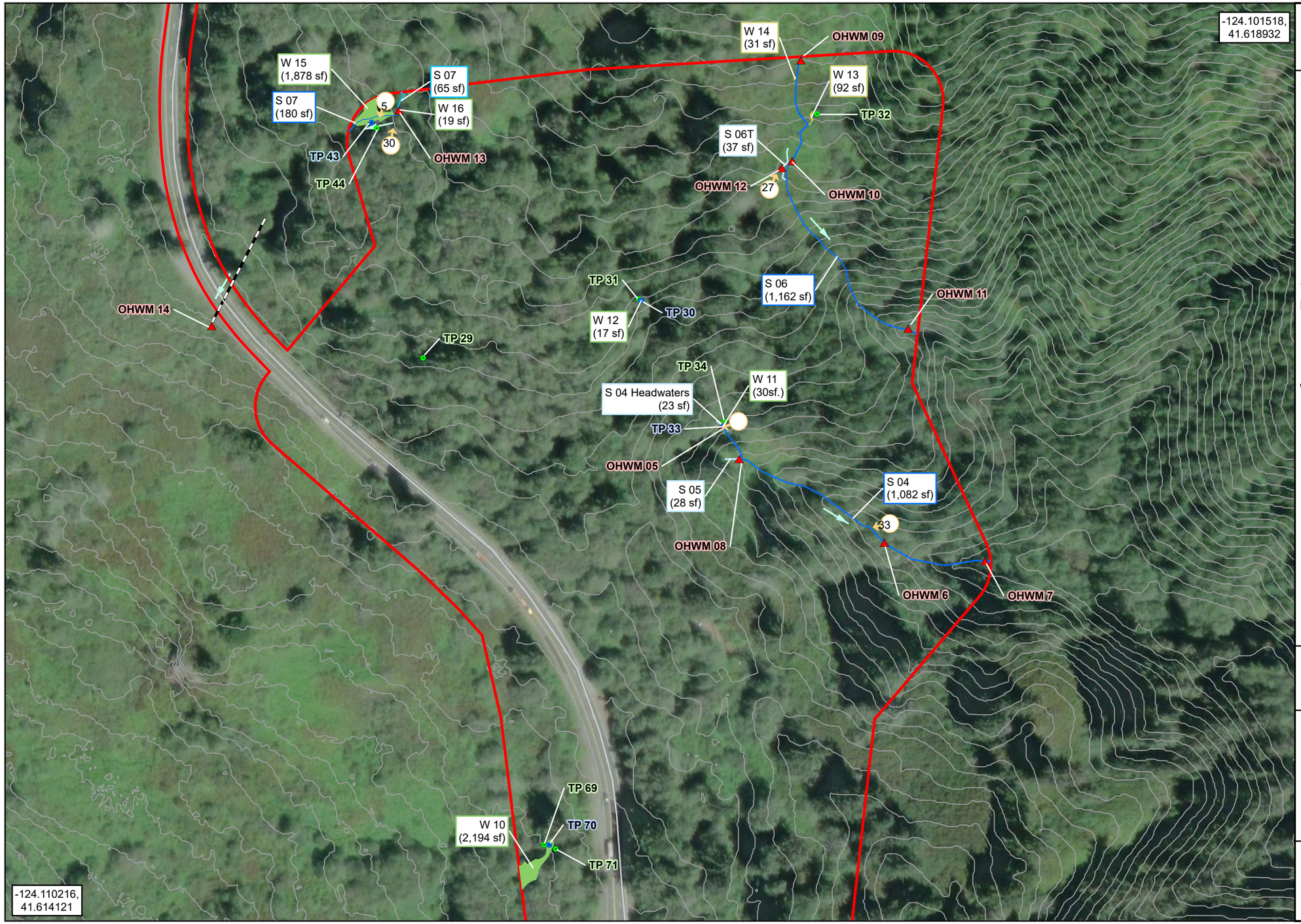

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Permanent Restoration Project
March 2023

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0 50 100 200
Feet

1:2,400

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0 50 100 200
Feet

1:2,400

Notes:

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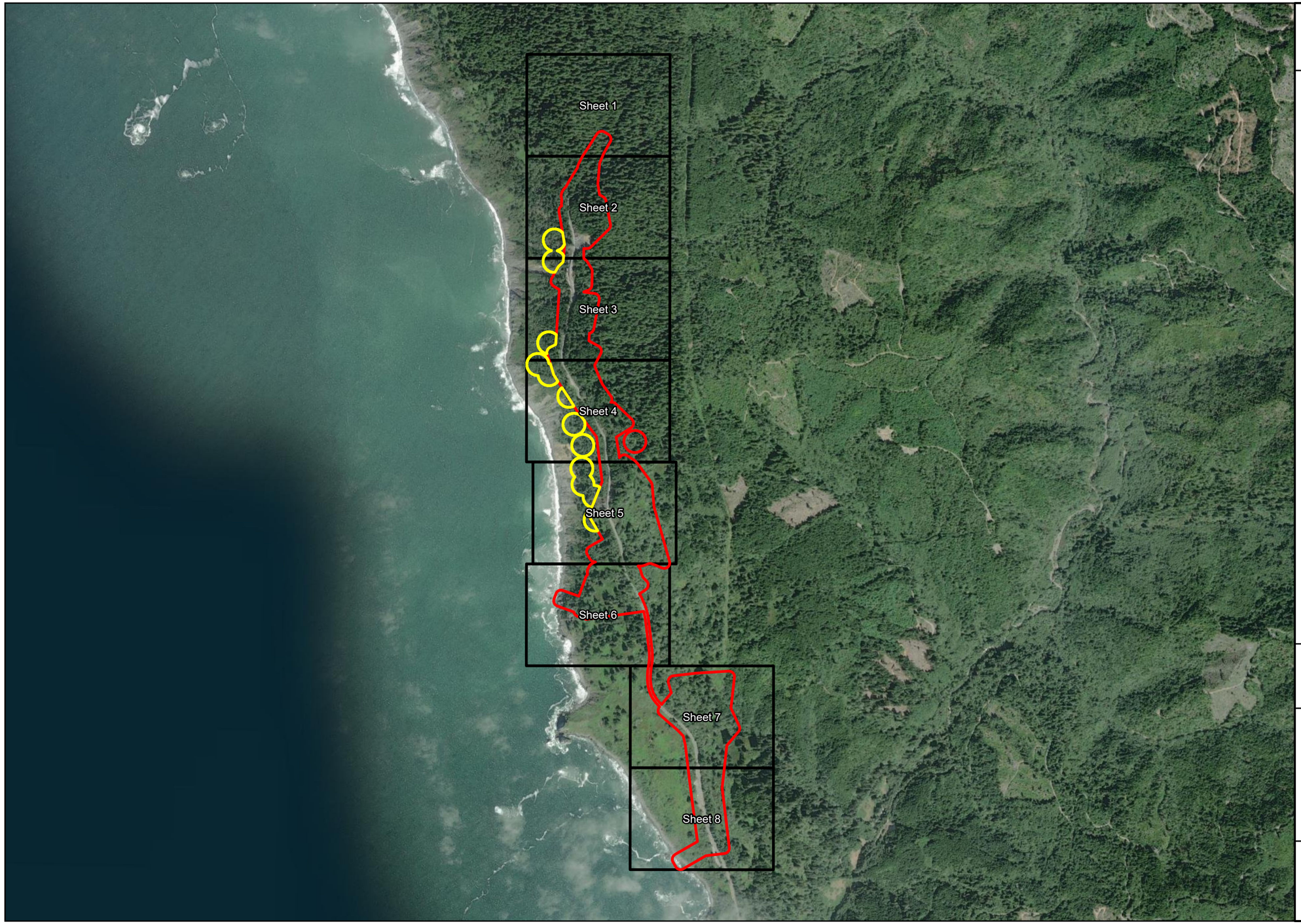
Aquatic Resources Delineation Map
Sheet 8 of 8



Last Chance Grade
Permanent Restoration Project
March 2023

100-Foot ESL Buffer

- Study Area Surveyed (233.902 ac.)
- Study Area Not Accessible (26.540 ac.)
- Sheet Layout

0 450 900 1,800
Feet

1:21,600

N

Notes:

Base Map Source: ICF, 2022
Imagery Source: ESRI 2021
USGS Topo Quad: Requa and Childs Hill
PLSS: S31 T15N R01E, S6 T14N R01E,
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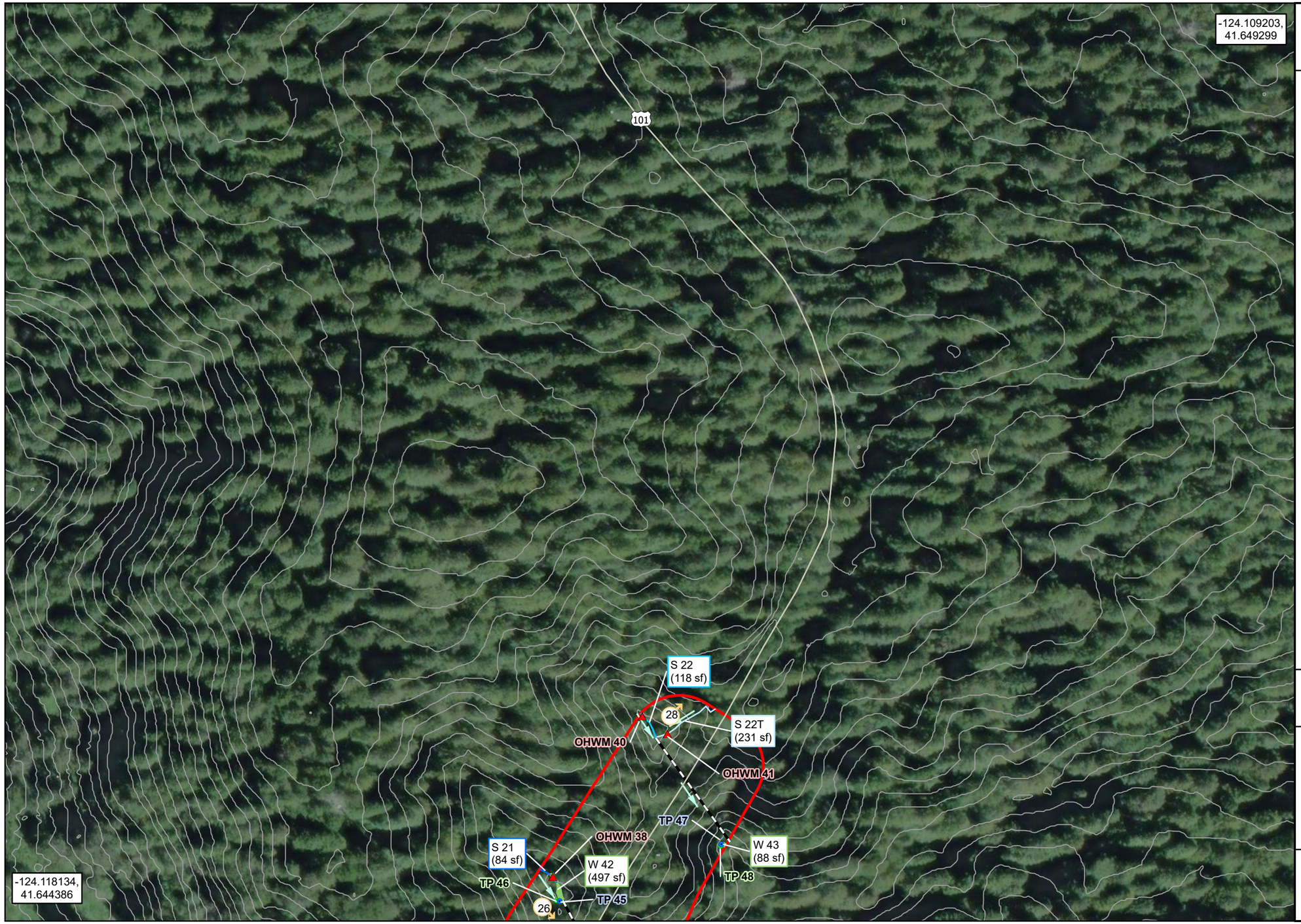
Appendix A - Cover Sheet
Aquatic Resources Delineation Map - Clean Water Act Section 401



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Permanent Restoration Project
March 2023

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- Perennial Stream (0.339 ac.)

Wetlands (1.253 ac.)

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0 50 100 200
Feet

1:2,400

N

Notes:

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S7 T14N R01E, and S18 T14N R01E
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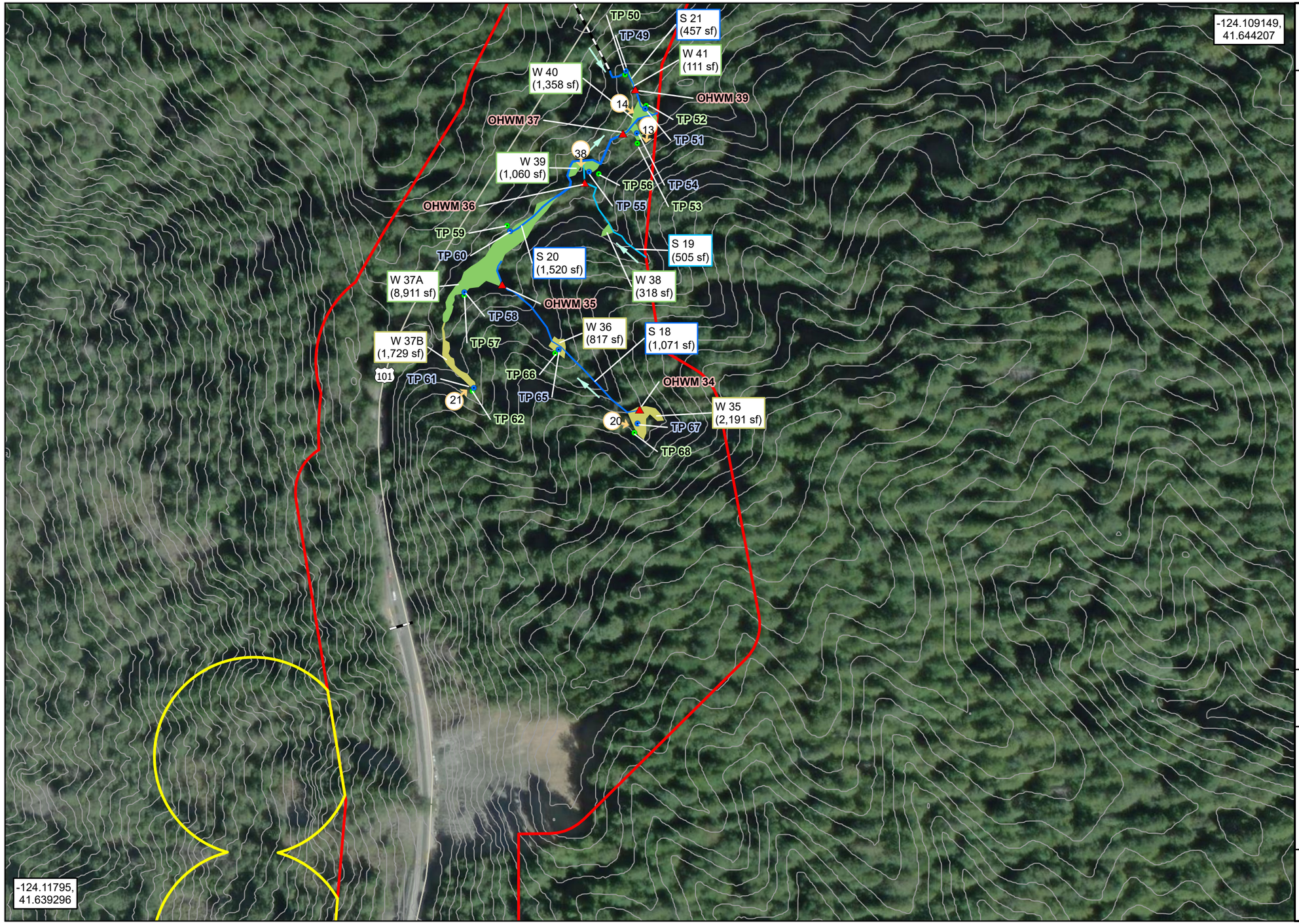
Appendix A
Aquatic Resources Delineation Map - Clean Water Act Section 401
Sheet 1 of 8



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Permanent Restoration Project
March 2023

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0 50 100 200
Feet

1:2,400

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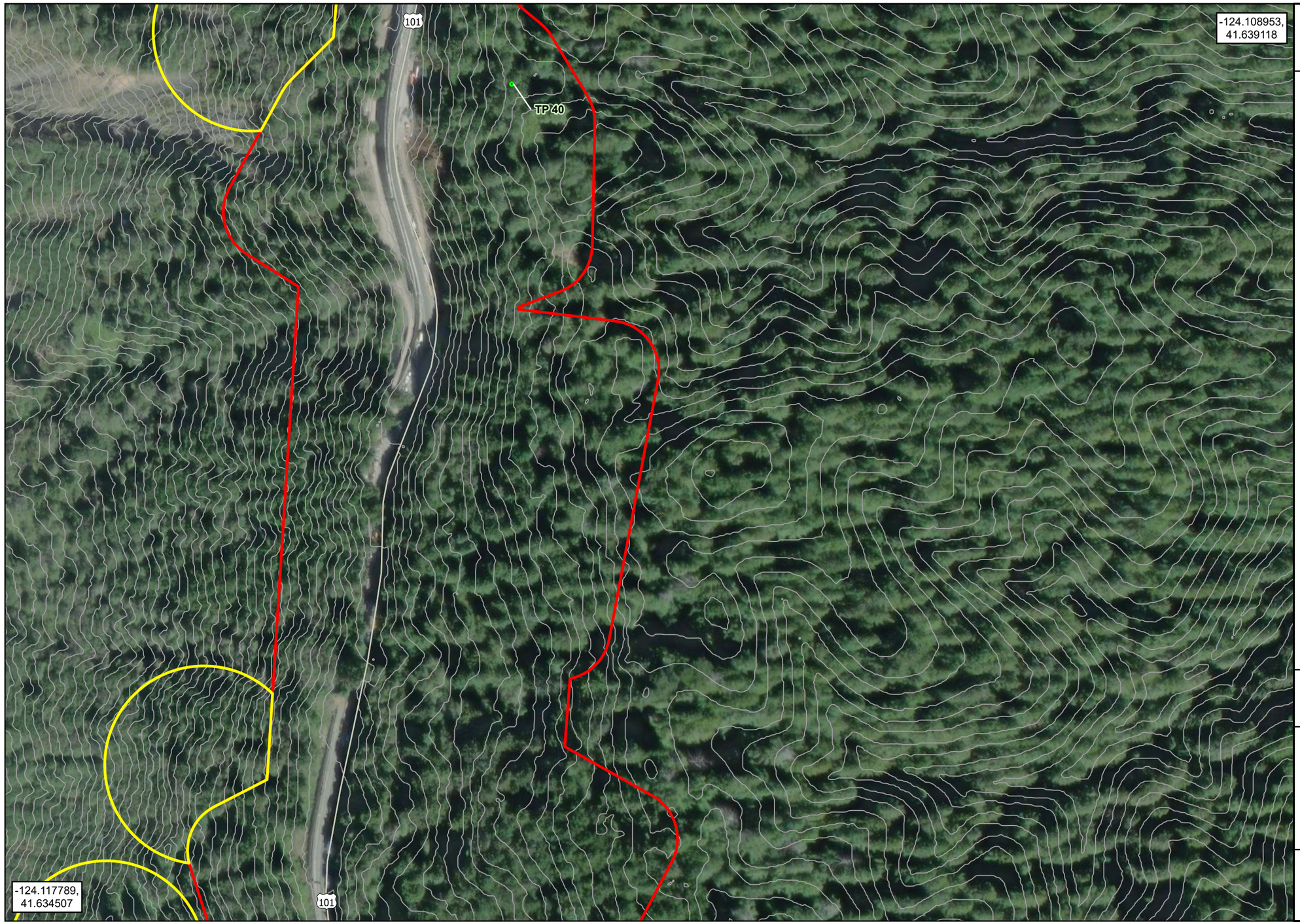
Aquatic Resources Delineation Map - Clean Water Act Section 401
Sheet 2 of 8



Last Chance Grade
Permanent Restoration Project
March 2023

100-foot ESL Buffer

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- Upland Data Point
- Contour (15' Interval)

0 50 100 200
Feet

1:2,400

N

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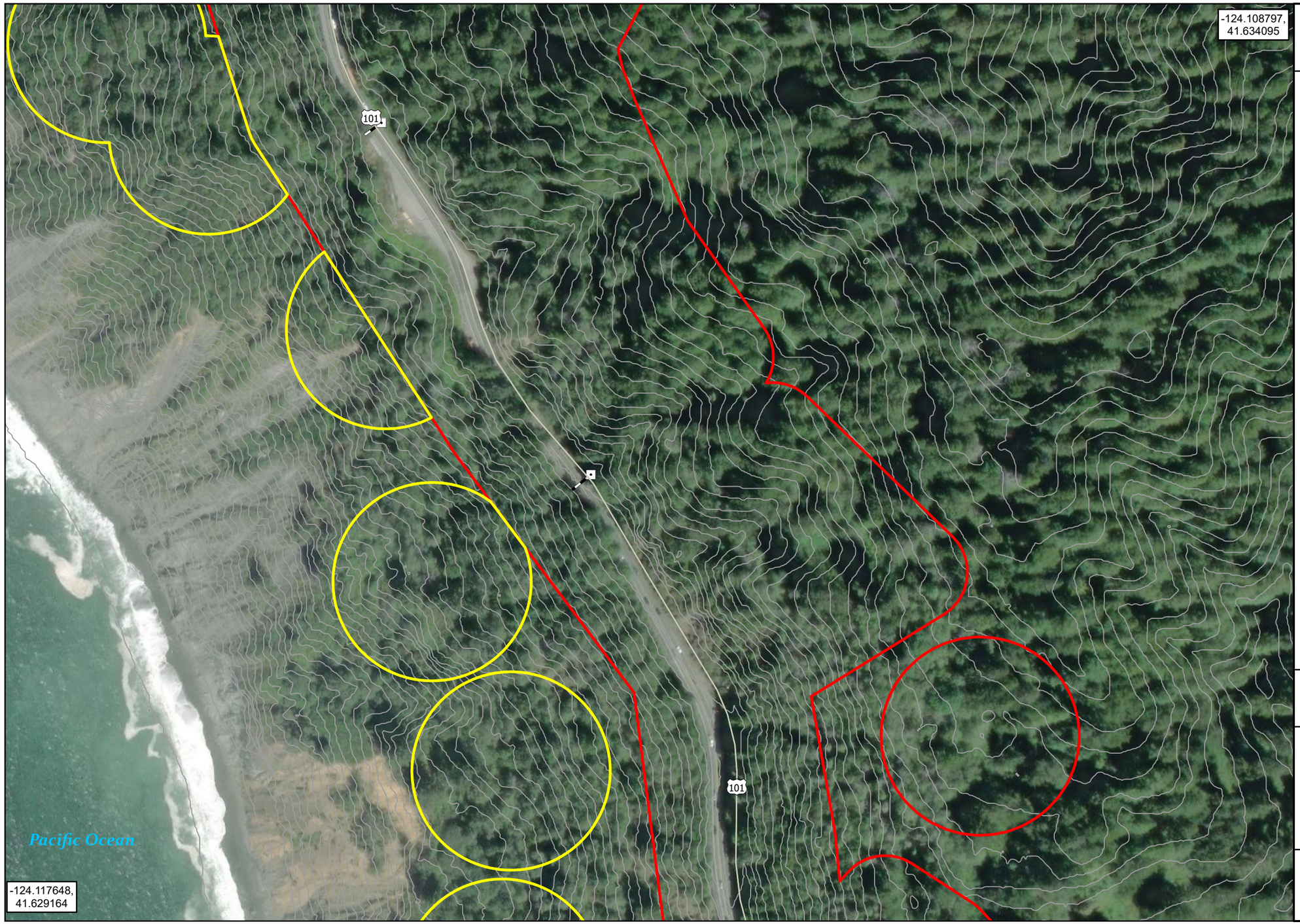
Sheet 3 of 8



Last Chance Grade
Permanent Restoration Project
March 2023

100-foot ESL Buffer

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- Drain Inlet
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0 50 100 200
Feet

1:2,400

Notes:

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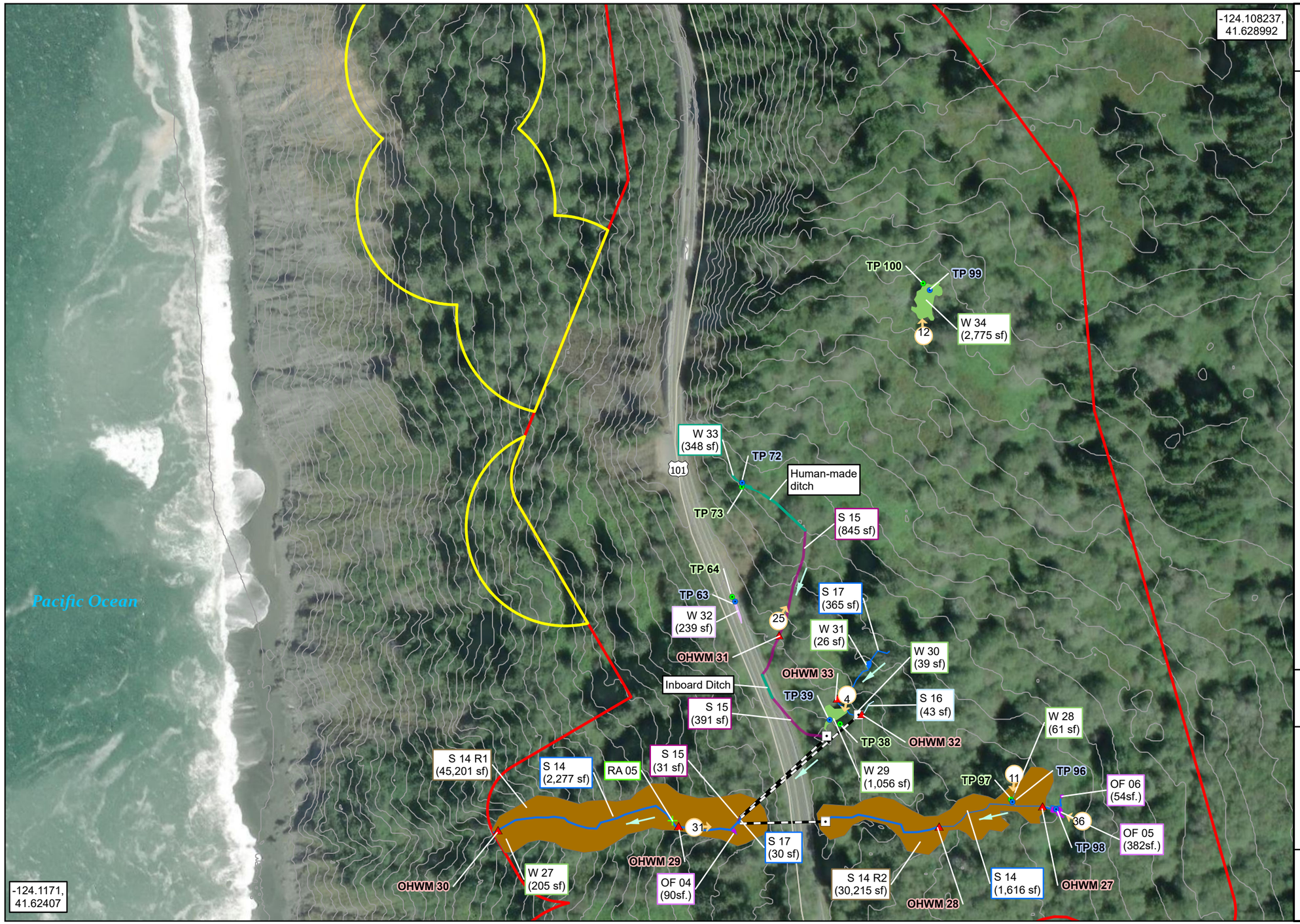

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- Wetland Data Point
- Rapid Assessment Data Point
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Potential CWA Section 401 Aquatic Resources (6.784 ac.)

Non-Wetland Waters (1.102 ac.)
- Ephemeral Stream (0.009 ac.)
- Perennial Stream (0.339 ac.)

Wetlands (1.253 ac.)
- Palustrine Emergent Wetland (0.044 ac.)
- Palustrine Forested Wetland (0.981 ac.)
- Human-induced Palustrine Forested Wetland (0.012 ac.)

Other State Waters (0.021 ac.)
- Other State Waters (0.021 ac.)

Riparian Habitat (4.407 ac.)
- Riparian (4.407 ac.)

Non-Jurisdictional Feature
- Human-induced Stream
- Human-made Feature

0 50 100 200
Feet
1:2,400

N

Notes:
Base Map Source: ICF, 2022
Imagery Source: ESRI 2021
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- Mean Higher High Water (6.87 ft elevation)
- Contour (15' Interval)

Potential CWA Section 401 Aquatic Resources (6.784 ac.)

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- Perennial Stream (0.339 ac.)
- Marine Intertidal (0.732ac.)

Wetlands (1.253 ac.)

- Palustrine Scrub-shrub Wetland (0.216 ac.)
- Palustrine Forested Wetland (0.981 ac.)

Other State Waters (0.021 ac.)

- Other State Waters (0.021 ac.)

Riparian Habitat (4.407 ac.)

- Riparian (4.407 ac.)

Non-Jurisdictional Feature

- Human-made Feature

0 50 100 200
Feet
1:2,400

Notes:

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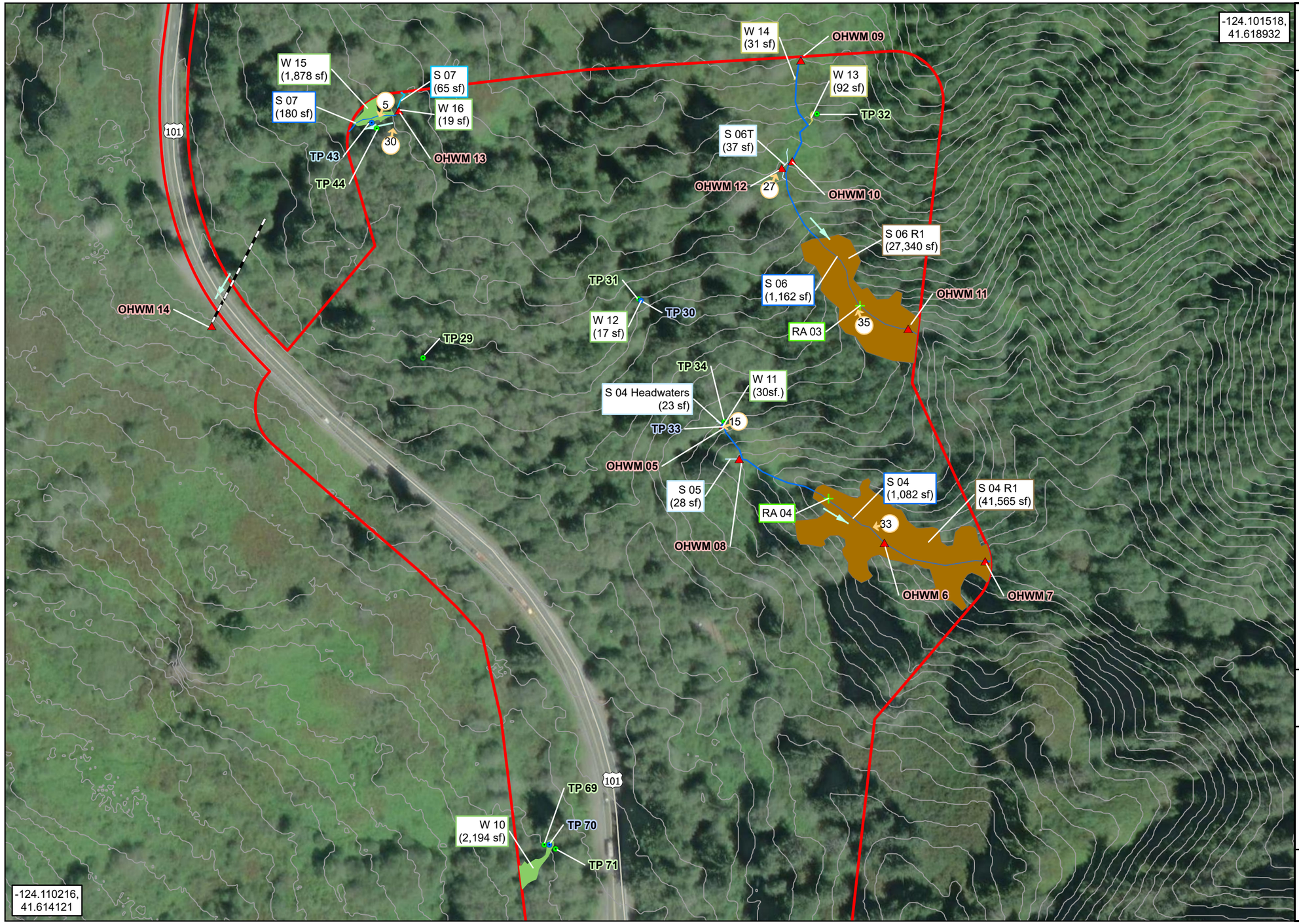

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0 50 100 200
Feet

1:2,400

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0 50 100 200
Feet
1:2,400

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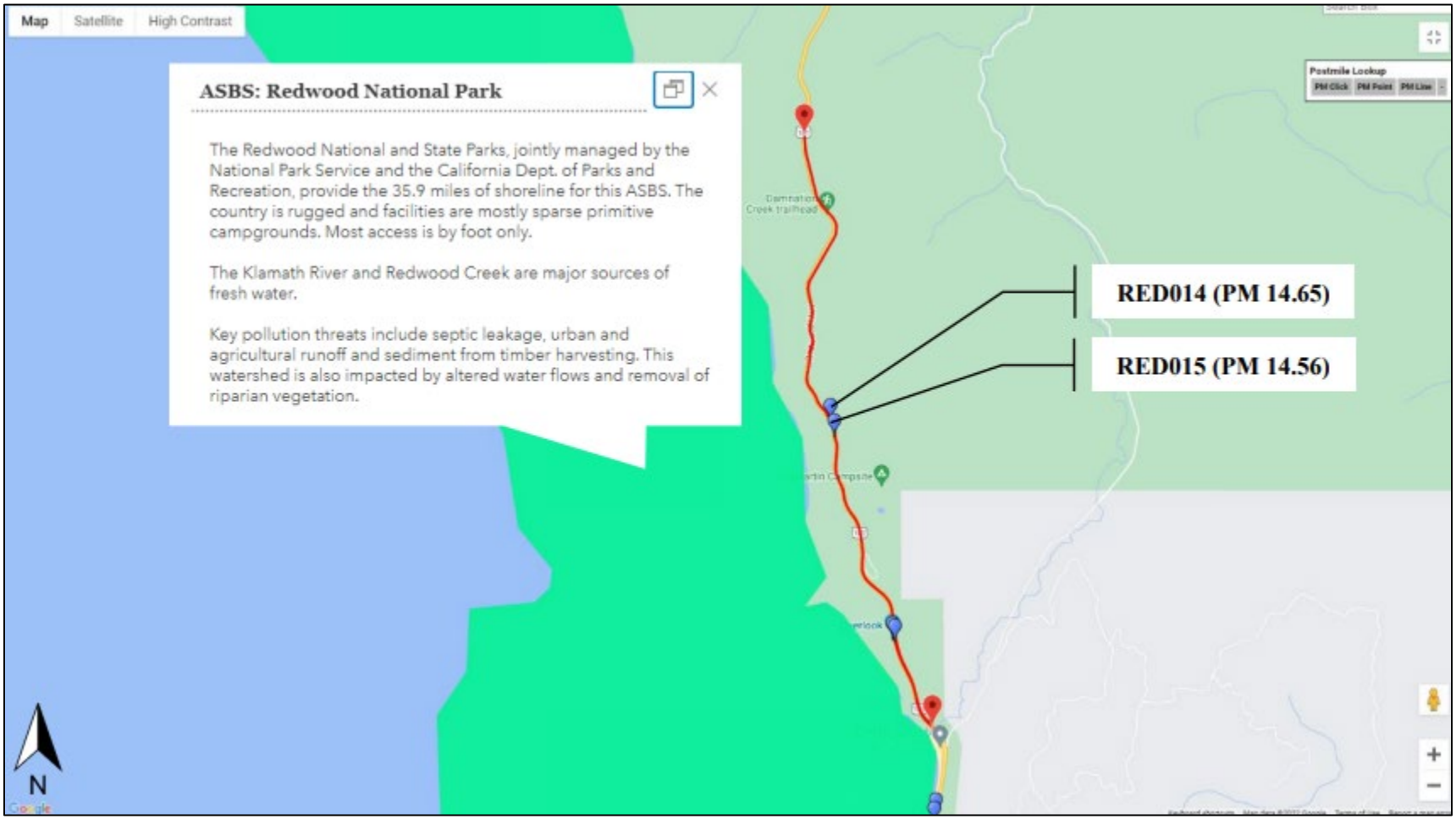
Aquatic Resources Delineation Map - Clean Water Act Section 401
Sheet 8 of 8

ASBS MAP



Source: Caltrans, 2016a and 2022a

DATE: December 2023_____

Project ID (EA): 0115000099 (EA 01-0F280)

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to Areas of Special Biological Significance (ASBS), or b. discharge to a TMDL watershed where Caltrans is named stakeholder, or c. have other pollution control requirements for surface waters within the project limits?	✓ ✓	 ✓ 	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
5.	Are any existing Treatment BMPs partially or completely removed? (ATA Condition 1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of 0.23 acres (10,000 square feet) or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____ *(Dist./Reg. Design SW Coord. Initials)* _____ *(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

RECEIVING WATER RISK

The Wilson Creek Hydrologic Area (HSA #103.50) has the combined COLD, SPAWN, AND MIGR beneficial uses:

TABLE 2-1: BENEFICIAL USES OF WATERS OF THE NORTH COAST REGION

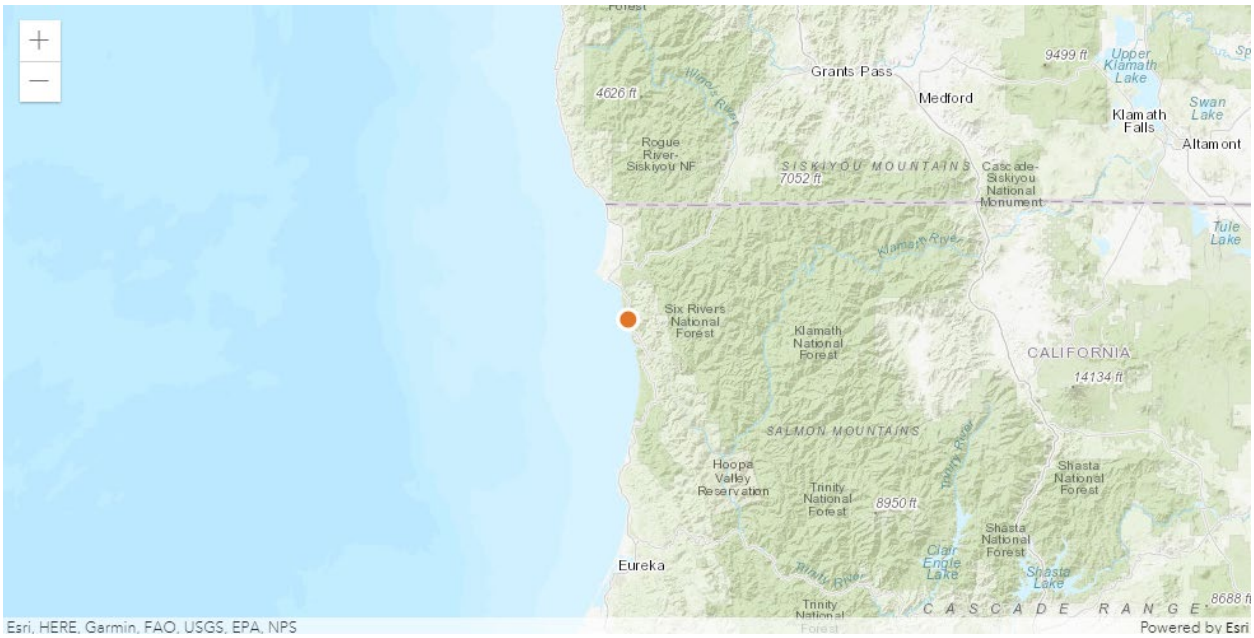
HU/HA/ HSA	HYDROLOGIC UNIT/AREA/ SUBUNIT/DRAINAGE FEATURE	BENEFICIAL USES																											
		MUN	AGR	IND	PRO	GWR	FRSH	NAV	POW	REC1	REC2	COMM	WARM	COLD	ASBS	SAL	WILD	RARE	MAR	MIGR	SPWN	SHELL	EST	AQUA	CUL	FLD	WET	WQE
101.00	Winchuck River Hydrologic Unit																											
	Winchuck River	E	E	E	P		E	E	P	E	E	E		E			E	E		E	E			P				
102.00	Rogue River Hydrologic Unit																											
102.20	Illinois River Hydrologic Area	E	E	E	P		E	E	E	E	E	E		E			E	E		E	E			E				
102.30	Applegate River Hydrologic Area	E	E	E	E		E	E	P	E	E	E		E			E	E		E	E			P				
103.00	Smith River Hydrologic Unit																											
103.10	Lower Smith River Hydrologic Area																											
103.11	Smith River Plain Hydrologic Subarea	E	E	E	P		E	E		E	E	E		E			E	E	E	E	E		E	P	E			
	Lake Talawa	P					E	E		E	E	E	E	E			E	E		E				P	E			
	Lake Earl	E	E	E			E	E		E	E	E	E	E			E	E		E				P	E			
	Crescent City Harbor						E	E		E	E	E	P	E			E	E	E	E		E		E				
103.12	Rowdy Creek Hydrologic Subarea	E	E	E	P		E	E	P	E	E	E		E			E	E		E	E			P				
103.13	Mill Creek Hydrologic Subarea	E	E	E	P		E	E	P	E	E	E		E			E	E		E	E			P				
103.20	South Fork Smith River Hydrologic Area	E	E	E	P		E	E	E	E	E	E		E			E	E		E	E			P	E			
103.30	Middle Fork Smith River Hydrologic Area	E	E	E	P		E	E	E	E	E	E		E			E	E		E	E			E	P			
103.40	North Fork Smith River Hydrologic Area	E	E	E	P		E	E	E	E	E	E		E			E	E		E	E			P				
103.50	Wilson Creek Hydrologic Area	E	E	E	P		E	E	E	E	E	E		E			E	E		E	E			P	E			
105.00	Klamath River Hydrologic Unit																											
105.10	Lower Klamath River Hydrologic Area																											
105.11	Klamath Glen Hydrologic Subarea	E	E	P	P	E	E	E	P	E	E	E	E	E			E	E	E	E	E	E	E	P	E			
105.12	Orleans Hydrologic Subarea	E	E	E	P	E	E	E	P	E	E	E	E	E			E	E		E	E	P		P	E			
105.20	Salmon River Hydrologic Area																											
105.21	Lower Salmon Hydrologic Subarea	E	E	E	P		E	E	P	E	E	E		E			E	E		E	E	P		P	E			
105.22	Wooley Creek Hydrologic Subarea	E	P	E	P	E	E	E	P	E	E	E		E			E	E		E	E	P		P	E			
105.23	Sawyers Bar Hydrologic Subarea	E	E	E	P		E	E	P	E	E	E		E			E	E		E	E	P		P				
105.24	Cecilville Hydrologic Subarea	E	E	E	P		E	E	P	E	E	E		E			E	E		E	E	P		P				

Source: North Coast RWQCB, 2018

SEDIMENT RISK

Alternative X

R Factor: 203 + 203 + 203 + 203 + 203 = 1015



Facility Information

Start Date: 01/01/2031	**Latitude:** 41.6277
End Date: 12/31/2031	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Source: U.S. EPA, 2022

Alternative X

R-Factor (continued)

Facility Information

Start Date: 01/01/2032	**Latitude:** 41.6277
End Date: 12/31/2032	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 01/01/2033	**Latitude:** 41.6277
End Date: 12/31/2033	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Source: U.S. EPA, 2022

Alternative X

R-Factor (continued)

Facility Information

Start Date: 01/01/2034	**Latitude:** 41.6277
End Date: 12/31/2034	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 01/01/2035	**Latitude:** 41.6277
End Date: 12/31/2035	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

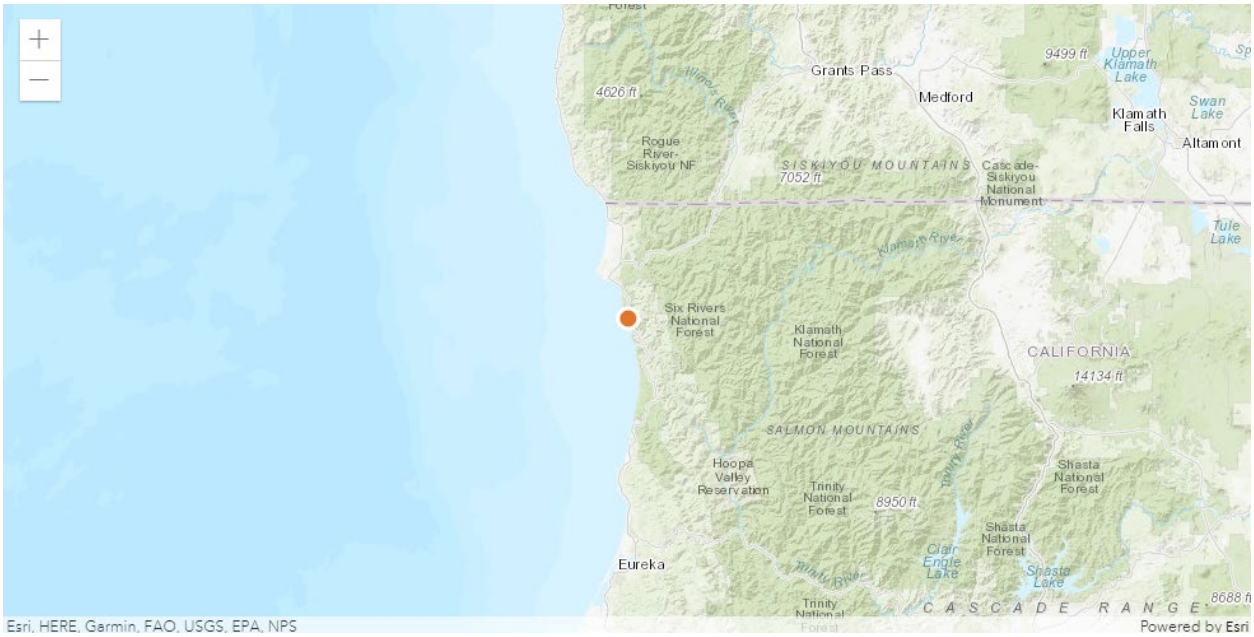
A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Source: U.S. EPA, 2022

Alternative F

R Factor: 203 + 203 + 203 + 203 + 203 + 203 + 203 + 203 = 1624



Facility Information

Start Date: 01/01/2031	**Latitude:** 41.6277
End Date: 12/31/2031	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Source: U.S. EPA, 2022

Alternative F

R-Factor (continued)

Facility Information

Start Date: 01/01/2032	**Latitude:** 41.6277
End Date: 12/31/2032	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 01/01/2033	**Latitude:** 41.6277
End Date: 12/31/2033	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 01/01/2034	**Latitude:** 41.6277
End Date: 12/31/2034	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Source: U.S. EPA, 2022

Alternative F

R-Factor (continued)

Facility Information

Start Date: 01/01/2035	**Latitude:** 41.6277
End Date: 12/31/2035	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 01/01/2036	**Latitude:** 41.6277
End Date: 12/31/2036	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 01/01/2037	**Latitude:** 41.6277
End Date: 12/31/2037	**Longitude:** -124.1116

Calculation Results

Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Source: U.S. EPA, 2022

Alternative F

R-Factor (continued)

Facility Information

Start Date: 01/01/2038	**Latitude:** 41.6277
End Date: 12/31/2038	**Longitude:** -124.1116

Calculation Results

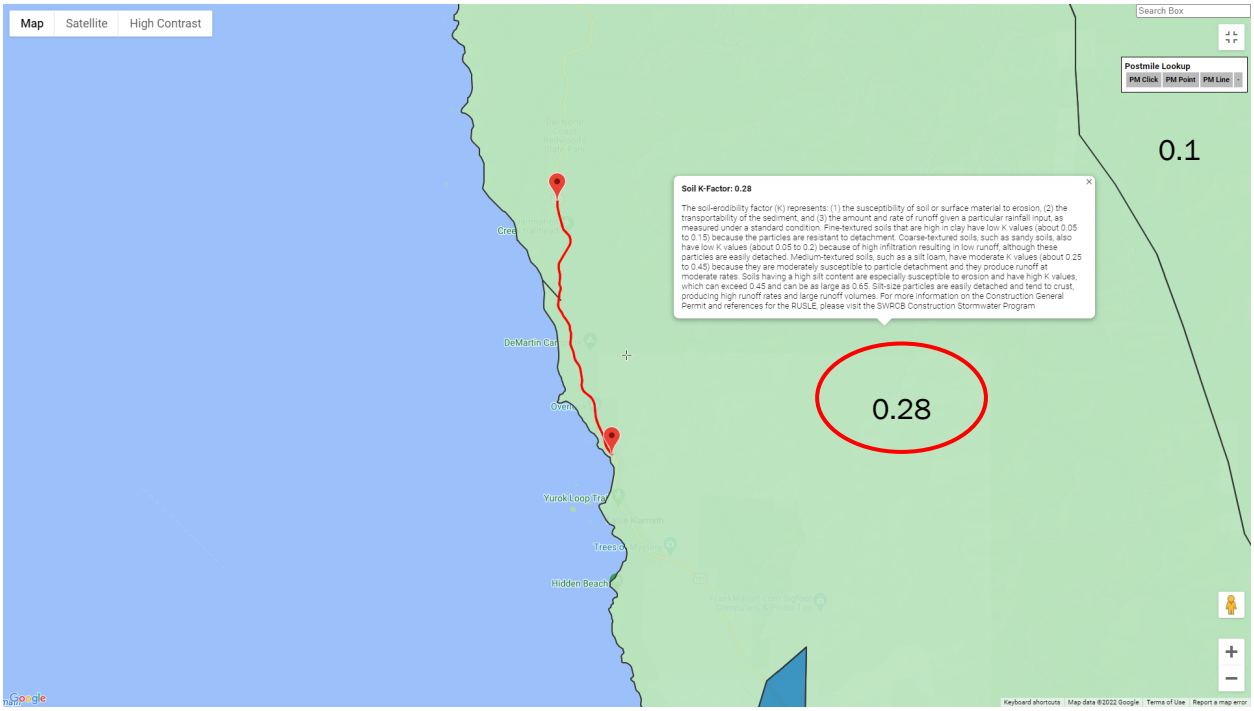
Rainfall erosivity factor (R Factor) = **203**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

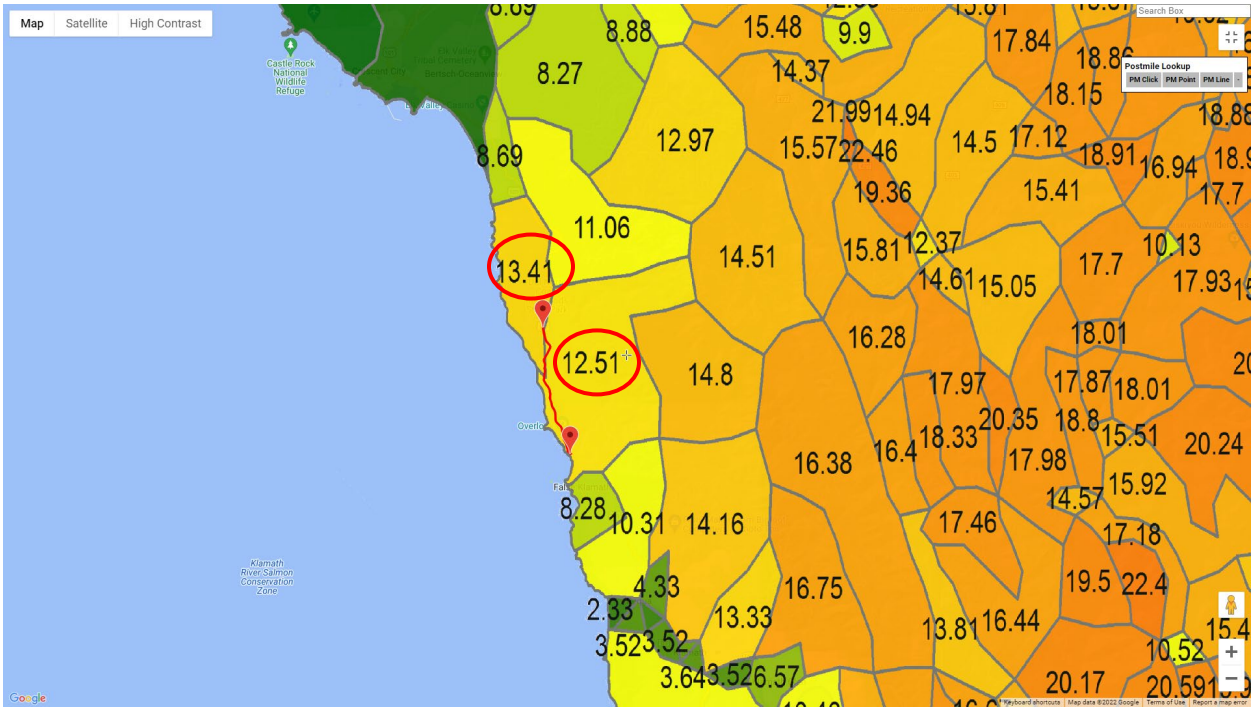
Source: U.S. EPA, 2022

K Factor = 0.28



Source: Caltrans, 2022a

LS Factor = (13.41 + 12.51) / 2 = 12.96



Source: Caltrans, 2022a

RISK LEVEL CALCULATIONS

Sediment Risk Factor Worksheet	Entry
A) R Factor	
Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site. http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm	
R Factor Value	1624
B) K Factor (weighted average, by area, for all site soils)	
The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted. Site-specific K factor guidance	
K Factor Value	0.28
C) LS Factor (weighted average, by area, for all slopes)	
The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction. LS Table	
LS Factor Value	12.96
Watershed Erosion Estimate (=RxKxLS) in tons/acre	5893.17
Site Sediment Risk Factor Low Sediment Risk: < 15 tons/acre Medium Sediment Risk: >=15 and <75 tons/acre High Sediment Risk: >= 75 tons/acre	**High**

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment** (For help with impaired waterbodies please visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml	**Yes**	**High**
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) http://www.waterboards.ca.gov/waterboards_map.shtml		

Combined Risk Level Matrix

Receiving Water Risk	Sediment Risk: Low	Sediment Risk: Medium	Sediment Risk: High
Low	Level 1	Level 2	
High	Level 2		Level 3

Project Sediment Risk:	**High**
Project RW Risk:	**High**
Project Combined Risk:	**Level 3**

Checklist SW-1, Site Data Sources

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect available project reports and any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 6.4.3.2. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Water Quality	
• California Department of Transportation. *Hydromodification Requirements Guidance.*	2015
• California Department of Transportation. *Final Compliance Plan for Areas of Special Biological Significance*. CTSW-RT-16-316.06.01.	2016a
• California Department of Transportation. *Monitoring Results Report: Fiscal Year 2015–2016*. CTSW-RT-16-312.01.02.	2016b
• California Department of Transportation. *Statewide Trash Implementation Plan. CTSW-RT-17-379.09.2.*	2019a
• California Department of Transportation. *Project Planning and Design Guide*.	2019b
• California Department of Transportation. *District 1 Work Plan. CTSW-RT-21-379.06.8.*	2021a
• California Department of Transportation. Water Quality Planning Tool. <http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx>.	2022a Last Accessed: August 10, 2022
• California Department of Transportation. *Federal Aquatic Resources Delineation*.	2023c
• California Department of Transportation. *State Aquatic Resources Delineation*.	2023d
• California Department of Transportation. *Water Quality Assessment Report*.	2023e
• North Coast Regional Water Quality Control Board. *Waste Discharge Requirements for Discharges of Highly Treated Groundwater to Surface Waters Following Extraction and Treatment of Groundwater Polluted with Petroleum Hydrocarbons and Volatile Organic Compounds*. NPDES No. CAG911001, Order No. R1-2016-0034.	2016
• North Coast Regional Water Quality Control Board. *Water Quality Control Plan for the North Coast Region*.	2018

• State Water Resources Control Board. *National Pollutant Discharge Elimination System Statewide Storm Water Permit Waste Discharge Requirements for State of California Department of Transportation*. NPDES No. CAS000003, Order No. 2012-0011-DWQ, as amended by Order No. 2014-0006-EXEC, Order No. 2014-0077-DWQ, Order No. 2015-0036-EXEC, and Order No. 2017-0026-EXEC.	2012
• State Water Resources Control Board. *Water Quality Control Plan Ocean Waters of California*.	2019
• State Water Resources Control Board. *2018 California Integrated Report (Clean Water Act Section 303[d] List and 305[b] Report)*.	2021
• State Water Resources Control Board. *National Pollutant Discharge Elimination System Statewide Storm Water Permit Waste Discharge Requirements for State of California Department of Transportation*. NPDES No. CAS000003, Order No. 2022-0033-DWQ.	2022a
• State Water Resources Control Board. National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit) NPDES No. CAS000002, Order No. 2022-0057	2022b
• United States Environmental Protection Agency. Rainfall Erosivity Factor Calculator for Small Construction Sites. <https://lew.epa.gov/.>	2022 Last Accessed: August 8, 2022
Geotechnical	
• California Department of Toxic Substances Control. *Soil Management Agreement for ADL-Contaminated Soils*.	2016c
• California Department of Transportation. *Geotechnical Data Report – Final.* Last Chance Grade Permanent Restoration Project #0115000099, Del Norte County, U.S. 101, PM 12.0/15.5, May 2022.	2022b
Topographic	
• California Department of Transportation. *0121327e0501.dgn* through *0121327e0548.dgn.* [Topographic surveys conducted on March 17, 2021].	2021b
Climatic	
• Western Regional Climate Center. Crescent City, California (042147). <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2147.> (Last Accessed: August 25, 2022).	2022 Last Accessed: August 2, 2022
Other Data Categories	
• California Department of Transportation. *Field Guide to Construction Site Dewatering*. CTSW-OT-14-314.08.1.	2014
• California Department of Transportation. *Standard Specifications*.	2022c
• California Department of Transportation. *Project Figures.*	2023a

• California Department of Transportation. *Summary_DSA_Impacts.xlsx*.	2023b
• California Department of Transportation. *Geology Summary Memorandum.*	2023f
• California Department of Transportation. *Initial Site Assessment*.	2023g
• California Department of Transportation. *Hydrology and Hydraulics Report.*	2023h
• Del Norte County. Del Norte County Web GIS. <https://dnco.maps.arcgis.com/apps/MapTools/index.html?appid=b47cd7d681a34383951e7cfaf8cb8a34#!.>	2022 Last Accessed: July 27, 2022
• Natural Resources Conservation Service (NRCS). Web Soil Survey (WSS). Web Site for Official Soil Series Descriptions and Series Classification. <https://soilseries.sc.egov.usda.gov>	2022

Treatment BMPs
Checklist T-1, Part 1

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

Consideration of Treatment BMPs

This checklist is used for projects that require the consideration of Approved Treatment BMPs, as determined from the process described in Section 4 (Treatment Consideration) and the Evaluation Documentation Form (EDF). This checklist will be used to determine which Treatment BMPs should be considered for each BMP contributing drainage area within the project. Supplemental data will be needed to verify siting and design applicability for final incorporation into a project.

Complete this checklist for each phase of the project. This will help to determine if any changes to the BMP strategy are necessary, based on site specific information gathered during later phases. Use the responses to the questions as the basis of developing the narrative in Section 6 of the Stormwater Data Report to document that Treatment BMPs have been appropriately considered and/or incorporated.

Before evaluating an area for treatment capabilities or to incorporate a Treatment BMP, calculate the numeric sizing requirement for each contributing drainage area (WQV from the 85th percentile 24-hour storm event or WQF rate). Soil and geometric information for the project area will be necessary to use this Checklist.

Identify the overall project PCTA

Refer to Section 4.4 Treatment Areas for more information on defining these areas.

PCTA = NNI + RIS + ATA (1 Impervious) + ATA (2)

NNI = Net New Impervious Area

RIS = Replaced Impervious Surface

ATA (1 Impervious) = Additional Treatment Area required for existing Treatment BMPs that were removed or modified as part of the project

ATA (2) = Additional Treatment Area required when NNI is 50 percent or greater than total project impervious

What is the PCTA for the project? 4.85 (Alternative X), 1.18 (Alternative F) **Acres** (Table 1)

The PCTA is the impervious area required to be treated by the project. The PE is to incorporate BMPs until the summation of the treated impervious area of all the BMPs is equivalent to the PCTA for the Project.

Once this area and any ATA 1 (Pervious) has been treated, the project is in compliance with the post construction treatment requirement.

Total Maximum Daily Load (TMDL) Retrofit Projects

If the project is installing Treatment BMPs to only address TMDL requirements, then there is no required PCTA. The Treatment BMPs for a TMDL retrofit project should be designed to treat the impervious and pervious contributing drainage areas, as they are both eligible for compliance unit (CU) credits.

Overall Project Evaluation

Answer all questions, unless otherwise directed.

A. Overall Project Consideration

1. Is the project in a watershed with prescriptive Treatment BMP requirements in an adopted TMDL implementation plan or are there any other requirements for project area (e.g., District, Regional Board, Lawsuit)? ☐ Yes ☐ No

   If Yes, consult the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to determine if there are written agreements related to specific Treatment BMPs. In this case, determine if the rest of this checklist needs to be followed to address other post construction requirements. If not, document BMP(s) in the Individual Treatment BMP Summary Table, provide information on the basis of the BMP requirement and any regulatory coordination in the SWDR narrative, and complete Table E-2. Otherwise, continue.

   If No, continue.

2. Does the receiving water have a TMDL for litter/trash, or is there a region specific requirement related to trash? ☐ Yes ☐ No

   If Yes, first evaluate BMPs that can treat other pollutants and are considered to be full capture devices (GSRDs or other) for litter/trash. If other BMPs cannot be sited, consult with the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to determine if standalone full capture devices (GSRDs or other) are required to be incorporated. If standalone devices are required and no other Treatment BMPs are being considered, go to question 6 of “Individual BMP Evaluation”.

   If No, continue.

3. Is the project located in an area that uses traction sand more than twice a year? ☐ Yes ☐ No

   If Yes, first consider BMPs that can treat other pollutants and can capture traction sand. If other BMPs cannot be sited, consult the District/Regional Design Stormwater Coordinator to determine if standalone traction sand trap devices should be incorporated.

   If standalone devices are required and no other Treatment BMPs are being considered, go to question 6 of “Individual BMP Evaluation”. Otherwise, continue with this checklist to identify Treatment BMPs that provide traction sand and other pollutant removal, or to design Treatment BMPs in series.

   If No, continue.

B. Dual Purpose Facilities

Does the project have (or propose to include) any dual purpose facilities that could meet treatment requirements (e.g., Dry Weather Flow Diversion, flood control basins, etc.)? ☐ Yes ☒ No

If Yes and 100 percent of the PCTA and ATA 1 (Pervious) will be treated by the dual purpose facility, go to question 6 of "Individual BMP Evaluation".

If Yes, but 100 percent of the PCTA and ATA 1 (Pervious) has not been addressed, continue.

If No, continue.

C. Evaluate overall project area for infiltration opportunities using existing and proposed roadside surfaces (DPP Infiltration Areas). Assure the DPP Infiltration Area is stabilized to handle highway drainage design flows, for both sheet and concentrated flows (See HDM Section 800).

Document DPP Infiltration Areas on the "Individual Treatment BMP Summary Table" located at the end of this checklist.

1. Based on site conditions, do the DPP Infiltration Areas infiltrate 100 percent of the WQV generated by the PCTA and ATA 1 (Pervious) for the project? ☐ Yes ☒ No

   Yes, go to question 6 of "Individual BMP Evaluation".

   If No, account for area infiltrated and continue.

2. Can infiltration for these areas be increased by using soil amendments or other means? ☐ Yes ☒ No

   If Yes, and 100 percent of the WQV generated by the PCTA and ATA 1 (Pervious) is infiltrated, go to question 6 of "Individual BMP Evaluation".

   If Yes, but 100 percent of the WQV generated by the PCTA and ATA 1 (Pervious) is not infiltrated, continue with this checklist to identify Treatment BMPs that will treat the remaining PCTA and ATA 1 (Pervious).

   If No, continue.

Individual BMP Evaluation

Answer the following questions for each Treatment BMP location being considered. The following process must be followed until the PCTA and ATA 1 (Pervious) or desired treatment area (Alternative Compliance or TMDL CUs) has been achieved; for TMDL CUs, consider both impervious and pervious contributing drainage areas. Use the Individual Treatment BMP Summary Table at the end of the checklist to summarize the selected BMP(s) based on the findings of the following questions for each BMP contributing drainage area.

1. Infiltration Devices (Infiltration Basin, Trench, or other device)

   a. Can 100 percent of the BMP contributing drainage area WQV (or remaining WQV, if in series with a DPP Infiltration Area or other BMP) be infiltrated? ☐ Yes ☒ No

      If Yes, go to question 6.

      If No, continue.

2. Biofiltration Devices (Biofiltration Strips and Swales)

   a. Is this a TMDL retrofit project or is the project within a TMDL watershed or 303(d) impaired receiving water body area? ☒ Yes ☐ No

      If Yes, when designing the biofiltration device, determine the percent WQV infiltrated from both the impervious and pervious BMP contributing drainage areas. Consider using existing or amended soils:

      i. If infiltration is >50 percent, continue to b.

      ii. If infiltration is ≤50 percent, go to question 3.

      If No, continue to b.

   b. Can biofiltration devices be designed to: ☒ Yes ☐ No

      i. Treat 100 percent of the WQF/WQV (or remainder, if in series with a DPP Infiltration Area or other BMP) from the BMP contributing drainage area, and

      ii. Meet the siting and design criteria of the Caltrans biofiltration device design guidance.

      If Yes, continue to c.

      If No, go to question 3.

   c. Biofiltration devices are considered to be an effective method of treatment, go to question 6.

3. Earthen type BMPs (Detention Devices, Media Filters, or other devices)

   a. Is this a TMDL retrofit project or is the project within a TMDL watershed or 303(d) impaired receiving water body area? ☐ Yes ☐ No

   If Yes, when designing the earthen type BMP, determine the percent WQV infiltrated from both the impervious and pervious BMP contributing drainage area. Consider using existing or amended soils:

   i. If infiltration is >50 percent, continue to b.

   ii. If infiltration is ≤50 percent, go to question 4.

   If No, continue to b.

   b. Can earthen type BMPs (standalone or in series with other approved Treatment BMPs) be designed to: ☐ Yes ☐ No

   iii. Treat 100 percent of the WQV (or remainder, if in series with a DPP Infiltration Area or other BMP) from the BMP contributing drainage area, and

   iv. Meet the criteria of the Caltrans design guidance for the treatment device being considered.

   If Yes, continue to c.

   If No, go to question 4.

   c. Earthen type BMPs are considered to be an effective method of treatment, go to question 6.

4. Targeted Design Constituent (TDC)

   This approach will compare the effectiveness of individual BMPs and allow the PE to use judgment when evaluating BMP feasibility (site constraints, safety, maintenance requirements, life-cycle costs, etc.).

   a. Does the project discharge to a 303(d) impaired receiving water or a receiving water in a TMDL watershed where Caltrans is a named stakeholder? ☐ Yes ☒ No

      If Yes, is the identified pollutant(s) considered to be a TDC (check all that apply below)? Continue to b. ☐ Yes ☐ No

      ☐ sediments
      ☐ phosphorus
      ☐ nitrogen
      ☐ copper (dissolved or total)
      ☐ lead (dissolved or total)
      ☐ zinc (dissolved or total)
      ☐ general metals (dissolved or total)[1]

      If No or if no TDC is identified, use Matrix A to select BMPs and go to question 5.

   b. Treating Only Sediment. Is sediment a TDC? ☐ Yes ☐ No

      If Yes, use Matrix A to select BMPs and go to question 5.

      If No, continue to c.

   c. Treating Only Metals. Are copper, lead, zinc, or general metals listed TDCs? ☐ Yes ☐ No

      If Yes, use Matrix B to select BMPs, and go to question 5.

      If No, continue to d.

   d. Treating Only Nutrients. Are nitrogen and/or phosphorus listed TDCs? ☐ Yes ☐ No

      If Yes, use Matrix C to select BMPs, and go to question 5.

      If No, continue e.

   e. Treating both Metals and Nutrients. Is copper, lead, zinc, or general metals AND nitrogen or phosphorous a TDC? ☐ Yes ☐ No

      If yes, use Matrix D to select BMPs, and go to question 5.

      If No, continue.

[1] General metals is a designation used by Regional Water Boards when specific metals have not yet been identified as causing the impairment.

BMP Selection Matrix A: General Purpose Pollutant Removal			
Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Strip: HRT > 5 Austin filter (concrete) Austin filter (earthen) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Swale	Austin filter (concrete) Delaware filter
HRT = hydraulic residence time (min) All BMPs shown are considered to be effective, but some more than others. The PE should use professional judgment when selecting BMPs based on overall feasibility. All BMPs are shown to demonstrate equivalent effectiveness.			

BMP Selection Matrix B: Any metal is the TDC, but not nitrogen or phosphorous			
Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT > 5 Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
HRT = hydraulic residence time (min) All BMPs shown are considered to be effective, but some more than others. The PE should use professional judgment when selecting BMPs based on overall feasibility. All BMPs are shown to demonstrate equivalent effectiveness.			

BMP Selection Matrix C: Phosphorous and / or nitrogen is the TDC, but no metals are the TDC			
Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter*	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
All BMPs shown are considered to be effective, but some more than others. The PE should use professional judgment when selecting BMPs based on overall feasibility. All BMPs are shown to demonstrate equivalent effectiveness.			
*Delaware filters would be ranked in Tier 2 if the TDC is nitrogen only, as opposed to phosphorous only or both nitrogen and phosphorous.			

BMP Selection Matrix D: Any metal, plus phosphorous and / or nitrogen are the TDCs			
Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter*	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
All BMPs shown are considered to be effective, but some more than others. The PE should use professional judgment when selecting BMPs based on overall feasibility. All BMPs are shown to demonstrate equivalent effectiveness.			
*In cases where earthen BMPs also infiltrate, Delaware filters are ranked in Tier 2 if the TDC is nitrogen only, but they are Tier 1 for phosphorous only or both nitrogen and phosphorous.			

5. Does the project discharge to a 303(d) receiving water that is listed for mercury or low dissolved oxygen? ☒ Yes ☐ No

   If Yes, contact the District/Regional NPDES Coordinator to determine if standing water in a Delaware Media Filter or Wet Basin would be a risk to downstream water quality. Continue to question 6.

   If No, continue to question 6.

6. Identify the Treatment BMPs being considered and complete the Individual Treatment BMP Summary Table and Overall Project Treatment Summary Table on the following pages. Refer to Appendix B of the PPDG and review the checklists identified below for every Treatment BMP under consideration. ☒ Complete

   Document the basis of design in the SWDR narrative and complete Table E-2.

   ____ DPP Infiltration Areas: Checklist T-1, Part 11

   ___ Infiltration Devices: Checklist T-1, Part 2

   _X_ Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 3

   ____ Detention Devices: Checklist T-1, Part 4

   ____ Traction Sand Traps: Checklist T-1, Part 5

   ____ Dry Weather Diversion: Checklist T-1, Part 6

   ____ GSRDs: Checklist T-1, Part 7

   ____ Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8

   Note:

   Multi-Chamber Treatment Train (MCTT) is not listed here because Caltrans has found that other approved BMPs are equally effective and more sustainable due to lower life cycle costs.

   Wet Basins are not listed here due to feasibility issues due to site feasibility and issues with long term operation and maintenance.

   MCTT and Wet Basins may be considered or implemented upon the recommendation of the District/Regional Design Stormwater Coordinator.

7. Prepare cost estimate, including right-of-way, and identify any pertinent site specific determination of feasibility for selected Treatment BMPs and include in the SWDR for approval. ☐ Complete
   TBD in PS&E

Individual Treatment BMP Summary Table

☐ Complete

List the selected BMPs based on the findings of this checklist and the treated areas associated with each BMP in Table E-2. For projects with multiple BMPs, add rows (if needed), or attach a separate sheet displaying the following information.

Each BMP must be tracked in Table E-2. Districts may use a modified table based upon their needs. See Section 6.6 for additional information.

Table E-2. Individual Treatment BMP Summary Table[1]

BMP Identifier-Number	BMP Type	Treated Impervious Area (CT RW) (ac)	Treated Impervious Area (Outside CT RW) (ac)	Treated Pervious Area (CT RW) (ac)	Treated Pervious Area (Outside CT RW) (ac)	Treated WQV/WQF (%)
Total Area to be Treated (acre)		(B in Table E-1)	(C in Table E-1)			

[1] The treated areas identified in this table are a product of the BMP CDA and Treated WQV/WQF (%).

TO BE COMPLETED AT PS&E

Checklist SW-2, Stormwater Quality Issues Summary

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Consult other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Design Stormwater Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR; do not discuss items identified as not applicable.

1.	Determine the receiving waters for the project	☒Complete	☐NA
2.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	☒Complete	☐NA
3.	Determine if there are any municipal or domestic water supply reservoirs or groundwater percolation facilities within the project limits, as shown by DWP.	☒Complete	☐NA
4.	Determine the RWQCB special requirements, including TMDLs, effluent limits, etc.	☒Complete	☐NA
5.	Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies.	☒Complete	☐NA
6.	Determine if a 401 certification will be required.	☒Complete	☐NA
7.	Identify rainy season.	☒Complete	☐NA
8.	If applicable, determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	☒Complete	☐NA
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility and depth to groundwater.	☒Complete	☐NA
10.	Determine contaminated soils within the project area.	☒Complete	☐NA
11.	Determine the total disturbed soil area of the project.	☒Complete	☐NA
12.	Describe the topography of the project site.	☒Complete	☐NA
13.	List any areas outside of the Caltrans right-of-way that will be included in the project (e.g., contractor's staging yard, work from barges, easements for staging).	☒Complete	☐NA
14.	Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction and maintenance of BMPs. If so, how much?	☒Complete	☐NA
15.	Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches.	☐Complete	☒NA
16.	Determine if project area has any slope stabilization concerns.	☒Complete	☐NA
17.	Describe the local land use within the project area and adjacent areas.	☒Complete	☐NA
18.	Evaluate the presence of dry weather flow.	☐Complete	☒NA

Checklist SW-3, Measures for Avoiding or Reducing Potential Stormwater Impacts

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

The PE should confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR; do not discuss items identified as not applicable.

Options for avoiding or reducing potential impacts during project planning include the following:

1.	Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?	☐Yes	☐No	☒NA
2.	Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?	☒Yes	☐No	☐NA
3.	Can any of the following methods be utilized to minimize erosion from slopes:			
	a. Disturbing existing slopes only when necessary?	☒Yes	☐No	☐NA
	b. Minimizing cut and fill areas to reduce slope lengths?	☒Yes	☐No	☐NA
	c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	☒Yes	☐No	☐NA
	d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes?	☒Yes	☐No	☐NA
	e. Avoiding soils or formations that will be particularly difficult to re-stabilize?	☒Yes	☐No	☐NA
	f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates?	☒Yes	☐No	☐NA
	g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	☒Yes	☐No	☐NA
	h. Rounding and shaping slopes to reduce concentrated flow?	☒Yes	☐No	☐NA
	i. Collecting concentrated flows in stabilized drains and channels?	☒Yes	☐No	☐NA
4.	Does the project design allow for the ease of maintaining all BMPs?	☒Yes	☐No	
5.	Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season?	☒Yes	☐No	
6.	Can permanent stormwater pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction stormwater impacts?	☒Yes	☐No	☐NA

Design Pollution Prevention BMPs
Checklist DPP-1, Part 1

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

Consideration of Design Pollution Prevention BMPs

Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]

Will the project increase velocity or volume of downstream flow?	☒Yes	☐No	☐NA
Will the project discharge to unlined channels?	☒Yes	☐No	☐NA
Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?	☒Yes	☐No	☐NA

If Yes was answered to any of the above questions, consider ***Downstream Effects Related to Potentially Increased Flow***, complete the Checklist DPP-1, Part 2.

Slope/Surface Protection Systems

Will the project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA

If Yes was answered to the above question, consider ***Slope/Surface Protection Systems***, complete the Checklist DPP-1, Part 3.

Concentrated Flow Conveyance Systems

Will the project create or modify ditches, dikes, berms, or swales?	☒Yes	☐No	☐NA
Will project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA
Will it be necessary to direct or intercept surface runoff?	☒Yes	☐No	☐NA
Will cross drains be modified?	☐Yes	☒No	☐NA

If Yes was answered to any of the above questions, consider ***Concentrated Flow Conveyance Systems***; complete the Checklist DPP-1, Part 4.

Preservation of Existing Vegetation, Soils, and Stream Buffer Areas

It is the goal of the Stormwater Program to maximize the protection of desirable existing vegetation, soils, and stream buffer areas to provide erosion and sediment control benefits on all projects. ☒Complete

Consider ***Preservation of Existing Vegetation, soils, and stream buffer areas***, complete the Checklist DPP-1, Part 5.

Design Pollution Prevention BMPs
Checklist DPP-1, Part 2

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

TO BE COMPLETED AT PS&E

Downstream Effects Related to Potentially Increased Flow

1.	Review total paved area and reduce to the maximum extent practicable.	☒ Complete
2.	Review channel lining materials and design for stream bank erosion control.	☐ Complete
	(a) See Chapters 860 and 870 of the HDM.	☐ Complete
	(b) Consider channel erosion control measures within the construction limits as well as downstream. Consider scour velocity. If erosion control measures are required downstream of construction limits obtain the appropriate permits and right of way documents to include work within the construction limits.	☐ Complete
3.	Include, where appropriate, energy dissipation devices at culvert outlets.	☐ Complete
4.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	☐ Complete
5.	Include, if appropriate, peak flow attenuation basins or devices to reduce peak discharges.	☐ Complete
6.	Calculate the water quality volume infiltrated within the project limits. These calculations will be used in the Checklist T-1, Part 1.	☐ Complete

Design Pollution Prevention BMPs
Checklist DPP-1, Part 3

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

TO BE COMPLETED AT PS&E

Slope / Surface Protection Systems

1.	What are the proposed areas of cut and fill? (attach plan or map)	☐Complete
2.	Were benches or terraces provided on high cut and fill slopes to shorten slope length?	☒Yes ☐No
3.	Were concentrated flows collected in stabilized drains or channels?	☒Yes ☐No
4.	Are new or disturbed slopes > 4:1 horizontal:vertical (h:v)? If Yes, District Landscape Architect is responsible for an erosion control strategy and may prepare an erosion control plan.	☒Yes ☐No
5.	Are new or disturbed slopes > 2:1 (h:v)? If Yes, DES Geotechnical Design unit must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Stormwater Coordinator for slopes steeper than 2:1 (h:v).	☒Yes ☐No

VEGETATED SURFACES

1.	Identify existing vegetation.	☐Complete
2.	Evaluate site to determine soil types, appropriate vegetation and planting strategies.	☐Complete
3.	How long will it take for permanent vegetation to establish?	☐Complete
4.	Plan transition BMPs from construction to permanent establishment.	☐Complete
5.	Have vegetated areas and supporting permanent irrigation systems been designed to comply with the Model Water Efficient Landscape Ordinance (MWELO)?	☐Yes ☐No
6.	Minimize overland and concentrated flow depths and velocities.	☐Complete

HARD SURFACES

1.	Are hard surfaces minimized?	☒Yes ☐No
	Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems.	☐Complete

Design Pollution Prevention BMPs
Checklist DPP-1, Part 4

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

TO BE COMPLETED AT PS&E

Concentrated Flow Conveyance Systems

Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Topics 813, 834.3, 835, and Chapter 860 of the HDM. ☒Complete
2. Review existing and proposed conditions to remove any dike not required for slope stability, erosion control, and water conveyance. ☐Complete
3. Evaluate risks due to erosion, overtopping, flow backups or washout. ☒Complete
4. Consider outlet protection where localized scour is anticipated. ☐Complete
5. Examine the site for run-on from off-site sources. ☒Complete
6. Consider permissible shear and velocity when selecting lining material (See Table 865.2 in the HDM). ☐Complete

Overside Drains

1. Consider downdrains, as per Index 834.4 of the HDM. ☐Complete
2. Consider paved spillways for side slopes flatter than 4:1 h:v. ☐Complete

Flared Culvert End Sections

1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM. ☐Complete

Outlet Protection/Velocity Dissipation Devices

1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM. ☐Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems. ☐Complete

Design Pollution Prevention BMPs
Checklist DPP-1, Part 5

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

TO BE COMPLETED AT PS&E

Preservation of Existing Vegetation, Soils, and Stream Buffer Areas

1. Review Preservation of Property, (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation, soils, and stream buffer areas. ☒Complete
2. Has all vegetation, soils, and stream buffer areas to be retained been coordinated with Environmental, and identified and defined in the contract plans? ☐Yes ☐No
3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling? ☐Complete
4. Have impacts to preserved vegetation, soils, and stream buffer areas been considered while work is occurring in disturbed areas? ☐Yes ☐No
5. Are all areas to be preserved delineated on the plans? ☐Yes ☐No

Treatment BMPs

Checklist T-1, Part 3

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

To be completed in PS&E Phase

Biofiltration Swales / Biofiltration Strips

Feasibility

1. Do the climate and site conditions allow vegetation to be established? ☒Yes ☐No
   If "No", evaluate other BMPs.
2. Can biofiltration swale be designed with a slope between 0.25 and 6 percent (with 1 to 2 percent preferred)? ☒Yes ☐No
   If "No", Biofiltration Swales are not feasible.
3. Can biofiltration strips be designed with a maximum slope of 2H:1V (with 4H:1V or flatter preferred)? ☒Yes ☐No
   If "No", Biofiltration Strips are not feasible.
4. Are Biofiltration device(s) proposed at sites where known contaminated soils exist? ☐Yes ☒No
   If "Yes", consult with District/Regional NPDES Coordinator about how to proceed.
5. Does adequate area exist within the RW to place Biofiltration device(s)? ☒Yes ☐No
   If "Yes", continue to Design Elements section. If "No", continue to Question 6.
6. If adequate area does not exist within RW, can suitable, additional RW be acquired to site Biofiltration devices and how much RW would be needed to treat WQF? ☐Yes ☐No
   N/A acres
   If "Yes", continue to Design Elements section. If "No", continue to Question 7.
7. If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of these Treatment BMPs into the project. N/A ☐Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Has the District Landscape Architect provided vegetation mixes appropriate for climate and location? *	☐Yes	☐No
2.	Can the biofiltration swale be designed as a conveyance system under any expected flows > the WQF event, as per HDM Chapter 800? * (e.g., freeboard, minimum slope)	☒Yes	☐No
3.	Can the biofiltration swale be designed as a water quality treatment device under the WQF while meeting the required HRT, depth, and velocity criteria? (Reference Appendix B, Section B.4.3)*	☒Yes	☐No
4.	Is the maximum length of a biofiltration strip ≤ 100 ft? Strips > 100 ft. may still be considered as long as potential erosion issues have been addressed. **	☐Yes	☐No
5.	Has the minimum width (perpendicular to flow) of the invert of the biofiltration swale received the concurrence of District Maintenance? *	☐Yes	☐No
6.	Can biofiltration swales be located in natural or low cut sections to reduce maintenance problems caused by animals burrowing through the berm of the swale? *	☒Yes	☐No
7.	Has the infiltration rate of the bio-filtration device been calculated and maximized through amendments where appropriate?**	☐Yes	☐No
8.	Have Biofiltration Systems been considered for locations upstream of other Treatment BMPs, as part of a treatment train or pretreatment? **	☒Yes	☐No
	If "Yes", document the amount of runoff treated (WQV/WQF).		
9.	Has the lining material been selected based on the permissible shear and velocity (refer to HDM Chapter 860 and Table 865.2)?*	☐Yes	☐No

DATE: December 2023

Project ID (EA): 0115000099 (EA 01-0F280)

Project Evaluation Process for the Consideration of Construction Site BMPs

No.	Criteria	Yes ✓	No ✓	Supplemental Information
1.	Will construction of the project result in areas of disturbed soil as defined by the Project Planning and Design Guide (PPDG)?	✓		If Yes, Construction Site BMPs for Soil Stabilization (SS) will be required. Review CS-1, Part 1. Continue to 2. If No, Continue to 3.
2.	Is there a potential for disturbed soil areas within the project to discharge to storm drain inlets, drainage ditches, areas outside the RW, etc.?	✓		If Yes, Construction Site BMPs for Sediment Control (SC) will be required. Review CS-1, Part 2. Continue to 3.
3.	Is there a potential for sediment or construction related materials and wastes to be tracked offsite and deposited on private or public paved roads by construction vehicles and equipment?	✓		If Yes, Construction Site BMPs for Tracking Control (TC) will be required. Review CS-1, Part 3. Continue to 4.
4.	Is there a potential for wind to transport soil and dust offsite during the period of construction?	✓		If Yes, Construction Site BMPs for Wind Erosion Control (WE) will be required. Review CS-1, Part 4. Continue to 5.
5.	Is dewatering anticipated or will construction activities occur within or adjacent to a live channel or stream?	✓		If Yes, Construction Site BMPs for Non-Stormwater Management (NS) will be required. Review CS-1, Part 5. Continue to 6.
6.	Will construction include saw-cutting, grinding, drilling, concrete or mortar mixing, hydro-demolition, blasting, sandblasting, painting, paving, or other activities that produce residues?	✓		If Yes, Construction Site BMPs for Non-Stormwater Management (NS) will be required. Review CS-1, Parts 5 & 6. Continue to 7.
7.	Are stockpiles of soil, construction related materials, and/or wastes anticipated?	✓		If Yes, Construction Site BMPs for Waste Management and Materials Pollution Control (WM) will be required. Review CS-1, Part 6. Continue to 8.
8.	Is there a potential for construction related materials and wastes to have direct contact with stormwater; be dispersed by wind; be dumped and/or spilled into storm drain systems?	✓		If Yes, Construction Site BMPs for Waste Management and Materials Pollution Control (WM) will be required. Review CS-1, Part 6.

Construction Site BMPs

Checklist CS-1, Part 1

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

To be completed in PS&E Phase

Temporary Soil Stabilization

General Parameters

1. How many rainy seasons are anticipated between begin and end of construction? 5 - 7

2. What is the total disturbed soil area for the project? (ac) 20.85 (Alt X) – 29.57 (Alt F)

3. Consult your District/Regional Design Stormwater Coordinator for the minimum required combination of temporary soil stabilization and temporary sediment controls and barriers for area, slope inclinations, rainy and non-rainy season, and active and non-active disturbed soil areas. ☒Complete

Scheduling

4. Does the project have a duration of more than one rainy season and have disturbed soil area in excess of 25 acres? ☐Yes ☒No

   (a) Include multiple mobilizations (Move-in/Move-out) as a separate contract bid line item to implement permanent erosion control or revegetation work on slopes that are substantially complete. (Estimate at least 6 mobilizations for each additional rainy season. Designated Construction Representative may suggest an alternate number of mobilizations.) ☐Complete

   (b) Edit specifications for permanent erosion control or revegetation work to be implemented on slopes that are substantially complete. ☐Complete

   (c) Edit permanent erosion control or revegetation specifications to require seeding and planting work to be performed when optimal. ☐Complete

Preservation of Existing Vegetation

5. Do Environmentally Sensitive Areas (ESAs) exist within or adjacent to the construction limits? (Verify the completion of DPP-1, Part 5) ☒Yes ☐No

   (a) Verify the protection of ESAs through delineation on all project plans. ☐Complete

   (b) Protect from clearing and grubbing and other construction disturbance by enclosing the ESA perimeter with high visibility plastic fence or other BMP. ☐Complete

6. Are there areas of existing vegetation (mature trees, native vegetation, landscape planting, etc.) that need not be disturbed by project construction? Will areas designated for proposed or existing Treatment BMPs need protection (infiltration characteristics, vegetative cover, etc.)? (Coordinate with District Environmental and Construction to determine limits of work necessary to preserve existing vegetation to the maximum extent practicable.) ☒Yes ☐No

   (a) Designate as outside of limits of work (or designate as ESAs) and show on all project plans. ☐Complete

   (b) Protect with high visibility plastic fence or other BMP. ☐Complete

7. If yes for 5, 6, or both, then designate ESA fencing as a separate contract bid line item, *if not already incorporated as part of design pollution prevention work (See DPP-1, Part 5).* ☐Complete

Slope Protection

8. Provide a temporary soil stabilization BMP(s) appropriate for the DSA, slope steepness, slope length, and soil erodibility. (Consult with District Landscape Architect.)

   (a) Select Hydraulic Mulch, Hydroseeding, Soil Binders, Straw Mulch, Geotextiles, Mats, Plastic Covers, and Erosion Control Blankets, Wood Mulching, other BMPs or a combination to cover the DSA throughout the project's rainy season. ☒Complete

   (b) Increase the quantities by 25 percent for each additional rainy season. (Designated Construction Representative may suggest an alternate increase.) ☐Complete

   (c) Designate as a separate contract bid line item. ☐Complete

Slope Interrupter Devices

9. For projects with temporary erosion control requirements, provide slope interrupter devices for all slopes with slope lengths equal to or greater than of 20 ft in length, in accordance with CGP requirements.

   (a) Select Fiber Rolls or other BMPs to protect slopes throughout the project's rainy season. ☒Complete

   (b) For slope inclination of 4:1 (h:v) and flatter, Fiber Rolls or other BMPs shall be placed along the contour and spaced 20 ft on center. ☒Complete

   (c) For slope inclination between 4:1 (h:v) and 2:1 (h:v), Fiber Rolls or other BMPs shall be placed along the contour and spaced 15 ft on center. ☒Complete

   (d) For slope inclination of 2:1 (h:v) and greater, Fiber Rolls or other BMPs shall be placed along the contour and spaced 10 ft on center. ☐Complete

(e) Increase the quantities by 25 percent for each additional rainy season. (Designated Construction Representative may suggest alternate increase.) ☐Complete

(f) Designate as a separate contract bid line item. ☐Complete

Channelized Flow

10. Identify locations within the project site where concentrated flow from stormwater runoff can erode areas of soil disturbance. Identify locations of concentrated flow that enters the site from outside of the RW (off-site run-on). ☒Complete

(a) Utilize Geotextiles, Mats, Plastic Covers, and Erosion Control Blankets, Earth Dikes/Swales, Ditches, Outlet Protection/Velocity Dissipation, Slope Drains, Check Dams, or other BMPs to convey concentrated flows in a non-erosive manner. ☒Complete

(b) Designate as a separate contract bid line item, as appropriate. ☐Complete

Construction Site BMPs
Checklist CS-1, Part 2

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

To be completed in PS&E Phase

Sediment Control

Perimeter Controls - Run-off Control

1. Is there a potential for sediment laden sheet and concentrated flows to discharge offsite from runoff cleared and grubbed areas, below cut slopes, embankment slopes, etc.? ☒Yes ☐No

   (a) Select linear sediment barrier such as Silt Fence, Fiber Rolls, Gravel Bag Berm, Sand Bag Barrier, Straw Bale Barrier, or a combination to protect wetlands, water courses, roads (paved and unpaved), construction activities, and adjacent properties. (Coordinate with District Construction for selection and preference of linear sediment barrier BMPs.) ☒Complete

   (b) Increase the quantities by 25 percent for each additional rainy season. (Designated Construction Representative may suggest an alternate increase.) ☐Complete

   (c) Designate as a separate contract bid line item. ☐Complete

Perimeter Controls - Run-on Control

2. Do locations exist where sheet flow upslope of the project site and where concentrated flow upstream of the project site may contact DSA and construction activities? ☒Yes ☐No

   (a) Utilize linear sediment barriers such as Earth Dike/Drainage Swales and Lined Ditches, Fiber Rolls, Gravel Bag Berm, Sand Bag Barrier, Straw Bale Barrier, or other BMPs to convey flows through and/or around the project site. (Coordinate with District Construction for selection and preference of perimeter control BMPs.) ☒Complete

   (b) Designate as a separate contract bid line item, as appropriate. ☐Complete

Storm Drain Inlets

3. Do existing or proposed drainage inlets exist within the construction limits? ☒Yes ☐No

   (a) Select Drainage Inlet Protection to protect municipal storm drain systems or receiving waters wetlands at each drainage inlet. (Coordinate with District Construction for selection and preference of inlet protection BMPs.) ☒Complete

   (b) Designate as a separate contract bid line item. ☐Complete

4. Can existing or proposed drainage inlets utilize an excavated sediment trap as described in Drainage Inlet Protection - Type 2? ☐Yes ☐No

   (a) Include with other types of Drainage Inlet Protection. ☐Complete

Sediment/Desilting Basin

5. Does the project lie within a Rainfall Area where the required combination of temporary soil stabilization and sediment control BMPs includes desilting basins? ☐Yes ☒No

   (a) Consider feasibility for desilting basin allowing for available right-of-way within the construction limits, topography, soil type, disturbed soil area within the watershed, and climate conditions. Document if the inclusion of sediment/desilting basins is infeasible. ☐Complete

   (b) If feasible, design desilting basin(s) per the guidance in the *CASQA Construction BMP Guidance Handbook* to maximize capture of sediment-laden runoff. ☐Complete

   (c) Designate as a separate contract bid item ☐Complete

6. Is ATS to be used for controlling sediment? ☐Yes ☒No

   (a) If yes, then will desilting basin or other means of natural storage be used? ☐Yes ☐No

   (b) If no, then plan for storage tanks sufficient to hold treatment volume. ☐Complete

7. Will the project benefit from the early implementation of proposed permanent Treatment BMPs? (Coordinate with District Construction.) ☐Yes ☐No

   (a) Edit specifications for permanent Treatment BMP work to be implemented in a manner that will allow its use as a Construction Site BMP. ☐Complete

Sediment Trap

8. Can sediment traps be located to collect channelized runoff from disturbed soil areas prior to discharge? ☐Yes ☐No

   (a) Design sediment traps in accordance with the *CASQA Construction BMP Guidance Handbook*. ☐Complete

   (b) Designate as a separate contract bid line item. ☐Complete

Construction Site BMPs

Checklist CS-1, Part 3

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

To be completed in PS&E Phase

Tracking Controls

Stabilized Construction Entrance/Exit

1. Are there points of entrance and exit from the project site to paved roads where mud and dirt could be transported offsite by construction equipment? (Coordinate with District Construction for selection and preference of tracking control BMPs.) ☒Yes ☐No

   (a) Identify and designate these entrance/exit points as stabilized construction entrances. ☐Complete

   (b) Designate as a separate contract bid line item. ☐Complete

Tire/Wheel Wash

2. Are site conditions anticipated that would require additional or modified tracking controls such as entrance/outlet tire wash? (Coordinate with District Construction.) ☐Yes ☐No

   (a) Designate as a separate contract bid line item. ☐Complete

Stabilized Construction Roadway

3. Are temporary access roads necessary to access remote construction activity locations or to transport materials and equipment? (In addition to controlling dust and sediment tracking, access roads limit impact to sensitive areas by limiting ingress, and provide enhanced bearing capacity.) (Coordinate with District Construction.) ☐Yes ☐No

   (a) Designate these temporary access roads as stabilized construction roadways. ☐Complete

   (b) Designate as a separate contract bid line item. ☐Complete

Street Sweeping and Vacuuming

1. Is there a potential for tracked sediment or construction related residues to be transported offsite and deposited on public or private roads? (Coordinate with District Construction for preference of including street sweeping and vacuuming with tracking control BMPs.) ☒Yes ☐No

   (a) Designate as a separate contract bid line item. ☐Complete

Construction Site BMPs
Checklist CS-1, Part 4

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

To be completed in PS&E Phase

Wind Erosion Controls

Wind Erosion Control

1. Is the project located in an area where standard dust control practices in accordance with *Standard Specifications*, Section 14-903: Dust Control, are anticipated to be inadequate during construction to prevent the transport of dust offsite by wind? *(Note: Dust control by water truck application is paid for for through the various items of work. Dust palliative, if it is included, is paid for as a separate item.)* ☒Yes ☐No

   (a) Select Hydraulic Mulch, Hydroseeding, Soil Binders, Geotextiles, Mats, Plastic Covers, and Erosion Control Blankets, Wood Mulching or a combination to cover the DSA subject to wind erosion year-round, especially when significant wind and dry conditions are anticipated during project construction. (Coordinate with District Construction for selection and preference of wind erosion control BMPs.) ☒Complete

   (b) Designate as a separate contract bid line item. ☐Complete

Construction Site BMPs

Checklist CS-1, Part 5

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

To be completed in PS&E Phase

Non-Stormwater Management

Temporary Stream Crossing & Clear Water Diversion

1. Will construction activities occur within a water body or watercourse such as a lake, wetland, or stream? (Coordinate with District Construction for selection and preference for stream crossing and clear water diversion BMPs.) ☒Yes ☐No

   (a) Select from types offered in Temporary Stream Crossing to provide access through watercourses consistent with permits and agreements.[1] ☐Complete

   (b) Select from types offered in Clear Water Diversion to divert watercourse consistent with permits and agreements.[1] ☒Complete

   (c) Designate as a separate contract bid line item(s). ☐Complete

Other Non-Stormwater Management BMPs

2. Are construction activities anticipated that will generate wastes or residues with the potential to discharge pollutants? ☒Yes ☐No

   (a) Identify potential pollutants associated with the anticipated construction activity and select the corresponding BMP such as Water Conservation Practices, Dewatering Operations, Paving and Grinding Operations, Potable Water/Irrigation, Vehicle and Equipment Cleaning, Vehicle and Equipment Fueling, Vehicle and Equipment Maintenance, Pile Driving Operations, Concrete Curing, Material and Equipment Use Over Water, Concrete Finishing, and Structure Demolition/Removal Over or Adjacent to Water.[1] ☒Complete

   (b) Verify that costs for non-stormwater management BMPs are identified in the contract documents. Designate BMP as a separate contract bid line item if the requirements in Job Site Management *Standard Specifications* Section 13 are anticipated to be inadequate or if requested by Construction. ☐Complete

[1] *Coordinate with District Environmental for consistency with US Army Corps of Engineers 404 and 401 permits and Dept. of Fish and Game 1601 Streambed alteration Agreements.*

Construction Site BMPs
Checklist CS-1, Part 6

Prepared by: A. Ochoa Date: December 2023 District-Co-Route: 01-DN-101

PM: 12.7/16.5 Project ID (or EA): EA 01-0F280 RWQCB: North Coast (1)

To be completed in PS&E Phase

Waste Management & Materials Pollution Control

Concrete Waste Management

1. Does the project include concrete placement or mortar mixing? ☒Yes ☐No

   (a) Select from types offered in Concrete Waste Management to provide concrete washout facilities. In addition, consider portable concrete washouts and vendor supplied concrete waste management services. (Coordinate with District Construction for selection and preference of waste management and materials pollution control BMPs.) ☒Complete

   (b) Designate as a separate contract bid line item if the quantity of concrete waste and washout are anticipated to exceed 5.2 yd^3 or if requested by Construction. ☐Complete

Other Waste Management and Materials Pollution Controls

2. Are construction activities anticipated that will generate wastes or residues with the potential to discharge pollutants? ☒Yes ☐No

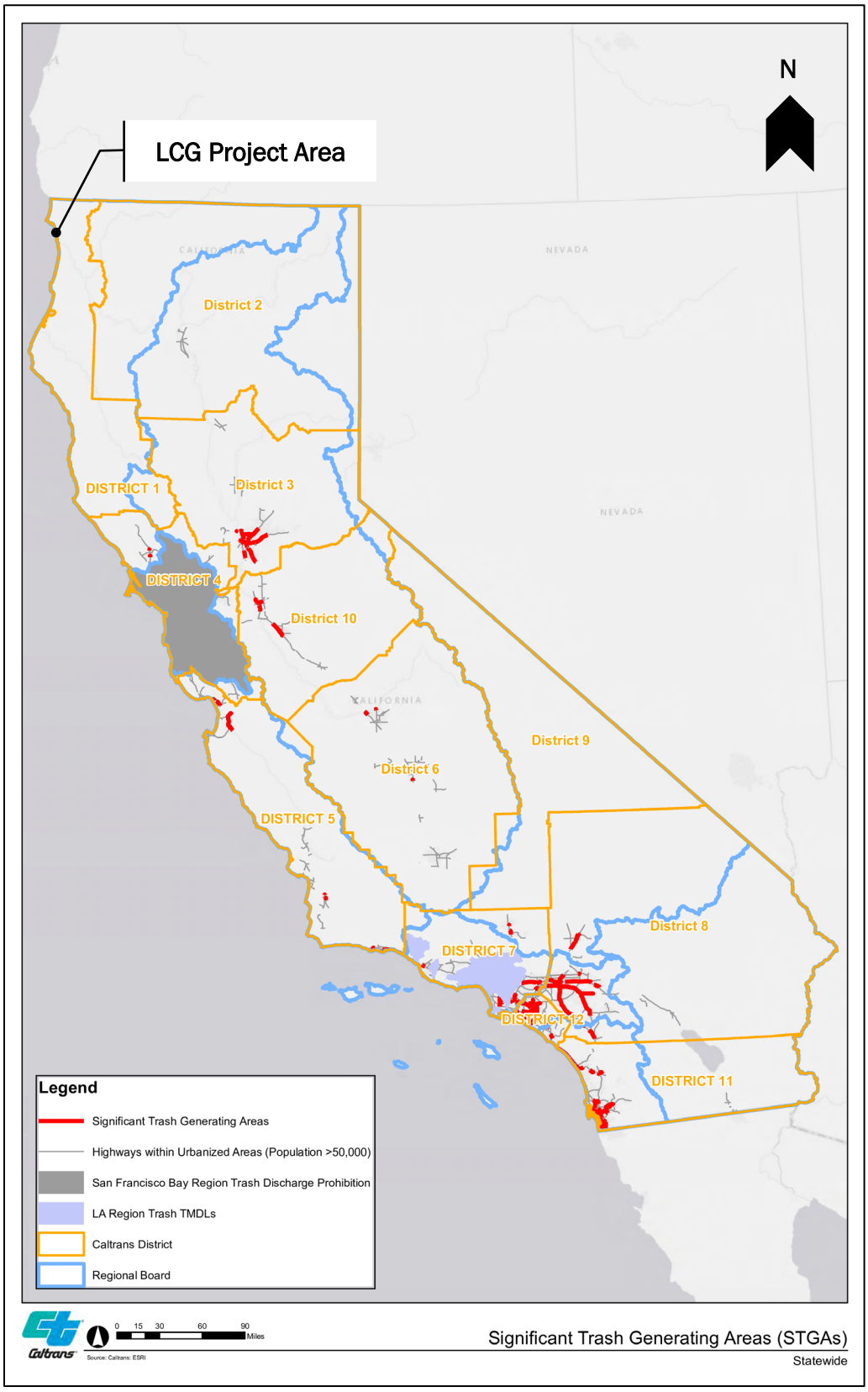
   (a) Identify potential pollutants associated with the anticipated construction activity and select the corresponding BMP such as Material Delivery and Storage, Material Use, Spill Prevention and Control, Solid Waste Management, Hazardous Waste Management, Contaminated Soil Management, Sanitary/Septic Waste Management, and Liquid Waste Management ☒Complete

   (b) Verify that costs for waste management and materials pollution control BMPs are identified in the contract documents. Designate BMP as a separate contract bid line item if the requirements in Job Site Management *Standard Specifications* Section 13 are anticipated to be inadequate or if requested by Construction. ☐Complete

Temporary Stockpiles (Soil, Materials, and Wastes)

3. Are stockpiles of soil, etc. anticipated during construction? ☒Yes ☐No

   (a) Verify that costs for stockpile management and associated sediment control and temporary soil stabilization BMPs for temporary stockpiles are identified in the contract documents. Designate as a separate contract bid line item if the requirements in Job Site Management *Standard Specifications* Section 13 are anticipated to be inadequate or if requested by Construction. ☐Complete



Source: Caltrans, 2019a