HUM-101 DRAINAGE NORTH PROJECT

INITIAL STUDY

with Negative Declaration



HUMBOLDT COUNTY, CALIFORNIA

DISTRICT 1 – HUM – 101 (Post Miles 56.60 to 137.10)

EA 01-0H650 / EFIS 0117000246

Prepared by the
State of California Department of Transportation

June 2023



General Information About This Document

What is in this document?

The California Department of Transportation (Caltrans) has prepared this Initial Study with Negative Declaration (IS/ND) which examines the potential environmental effects of the proposed project on U.S. Highway 101 in Humboldt County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document tells you why the project is being proposed, how the existing environment could be affected by the project, the potential impacts of the project, and proposed avoidance and minimization measures. This IS/ND was circulated to the public for 30 days between April 2, 2023 and May 1, 2023. A virtual public meeting was held on April 17, 2023 to solicit additional comments and answer questions about the project. Comments received during this period are discussed in Chapter 3. Elsewhere throughout this document, a vertical line in the margin indicates a change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated. Additional copies of this document and the related technical studies are available for review at the District 1 Office at 1656 Union Street, Eureka Ca 95501. This document may also be downloaded at the following website: https://dot.ca.gov/caltrans-near-me/district-3/d3-projects

Alternative Formats:

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please write to or call Caltrans, Attention: Myles Cochrane, Public Information Officer – District 1, 1656 Union Street, Eureka, CA, 95501; phone number 707-498-4272 (Voice), or use the California Relay Service 1-800-735-2929 (TTY), 1-800-735-2929 (Voice), or 711.



HUM-101 DRAINAGE NORTH PROJECT

Rehabilitate drainage systems at 51 locations
on U.S. Highway 101 in Humboldt County,
from Post Mile 56.60 to Post Mile 137.10

INITIAL STUDY

with Negative Declaration

Submitted Pursuant to: Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

6/16/2023
Date of Approval

Jason Meyer, Acting Office Chief
North Region Environmental–District 1
California Department of Transportation
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NEGATIVE DECLARATION

Pursuant to: Division 13, California Public Resources Code

SCH Number: 2023030761

Project Description

The California Department of Transportation (Caltrans) proposes to rehabilitate approximately 51 drainage systems at various locations on U.S. Highway 101 in Humboldt County between Post Miles 56.60 and 137.10. The purpose of this project is to preserve the roadway and prevent damage from storm events by repairing failing drainage systems. Additionally, some lighting and Transportation Management System (TMS) elements need repair or upgrade to maintain adequate roadway conditions.

Determination

Caltrans has prepared an Initial study for this project and, following public review, has determined that the project would have a less than significant impact on the environment based on the following reasons:

The project would have ***No Impact*** on:

- Aesthetics
- Agriculture and Forest Resources
- Air Quality
- Cultural Resources
- Energy
- Geology and Soils
- Hazards and Hazardous Materials
- Land Use and Planning
- Noise
- Population and Housing
- Public Services
- Noise
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities

The project would have ***Less than Significant Impacts*** on:

- Biological Resources
- Greenhouse Gas Emissions
- Hydrology and Water Quality



6/16/2023

Jason Meyer, Acting Office Chief
North Region Environmental–District 1
California Department of Transportation

Date



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List of Acronyms and Abbreviations

Acronym/Abbreviation	Description
AB	Assembly Bill
APC	Alternative Pipe Culvert
ARZ	Absorber Root Zone
ABMPs	Additional Best Management Practices
APC	Alternative Pipe Culvert
BMPs	Best Management Practices
BO	Biological Opinion
BSA	Biological Study Area
ºC	degrees Celsius
CAA	Clean Air Act
CAFE	Corporate Average Fuel Economy
CAL-CET	Caltrans Construction Emissions Tool
CAL EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAPTI	Climate Action Plan for Transportation Infrastructure
CC Chinook	Chinook salmon–California Coastal Evolutionarily Significant Unit
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCC	Central California Coast (coho salmon ESU)
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CGP	Construction General Permit
CGS	California Geological Survey
CH_4	methane
CIA	Cumulative Impact Analysis
CCTV	Closed Circuit Television
CMS	Changeable Message Sign
CNPS	California Native Plant Society
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRPR	California Rare Plant Rank

Acronym/Abbreviation	Description
CSP	Corrugated Steel Pipe
CTP	California Transportation Plan
CWA	Clean Water Act
dB	decibels
DBH	Diameter-at-Breast-Height
DD	Downdrain
Department	Caltrans
DI	Drainage Inlet
DOT	Department of Transportation
DP	Director's Policy
DPS	Distinct Population Segment
DSA	Disturbed Soil Area
DSMP	District System Management Plan
ECL	Environmental Construction Liaison
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act
EMS	Emergency Management System
EO(s)	Executive Order(s)
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESA(s)	Environmentally Sensitive Area(s)
ESHA	Environmentally Sensitive Habitat Area
ESL	Environmental Study Limits
ESU	Evolutionarily Significant Unit
ºF	degrees Fahrenheit
FCAA	Federal Clean Air Act
FED	Final Environmental Document
FES	Flared End Section
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FR	Federal Register
FYLF	Foothill yellow-legged frog
G	Global: ranking for Natural Communities of Special Concern
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GWP	Global Warming Potential
H&SC	Health & Safety Code
HA	Hydrologic Area
HAR	Highway Advisory Radio

Acronym/Abbreviation	Description
HCAOG	Humboldt County Association of Governments
HDPE	High Density Polyethylene
HFCs	hydrofluorocarbons
HGM	Hydrogeomorphic
HMA	Hot Mix Asphalt
HSA	Hydrologic Sub-Area
HU	Hydrologic Unit
HVF	High-Visibility Fencing
IS	Initial Study
IS/ND	Initial Study / Negative Declaration
LCFS	Low Carbon Fuel Standard
LRAs	Local Responsibility Areas
LSAA	Lake or Streambed Alteration Agreement
MAMU	Marbled murrelet
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MMT	million metric tons
MMTC0_2e	million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MSA	Magnuson-Stevens Fishery Conservation and Management Act
N_2O	nitrous oxide
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NAHC	Native American Heritage Commission
NB	Northbound
NC	North Coast
NC	Northern California
NCRWQCB	North Coast Regional Water Quality Control Board
NCSC	Natural Communities of Special Concern
ND	Negative Declaration
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NHTSA	National Highway Traffic and Safety Administration
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRLF	Northern red-legged frog
NSO	Northern spotted owl
OHWM	Ordinary High Water Mark
OPC	Ocean Protection Council
OPR	Governor's Office of Planning and Research

Acronym/Abbreviation	Description
PCE	Primary Constituent Elements
PDT	Project Development Team
PEM	Palustrine Emergent (wetland)
PIR	Project Initiation Report
PM(s)	Post Mile(s)
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PRC	Public Resources Code (California)
PS&E	Plans, Specifications and Estimate (phase of project)
PSS	Palustrine Scrub-Shrub
RCB	Reinforced Concrete Box (culvert)
RCP	Reinforced Concrete Pipe (culvert)
RCP	Representative Concentration Pathways (Emissions Scenario)
RSP	Rock Slope Protection
RTA	Regional Transportation Agency
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
S	State: ranking for Natural Communities of Special Concern
SB	Senate Bill
SB	Southbound
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SHS	State Highway System
SLR	Sea Level Rise
SNC(s)	Sensitive Natural Community(ies)
SR	State Route
SRAs	State Responsibility Areas
SS	Standard Specification
SSC	Species of Special Concern
SWMP	Storm Water Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCE	Temporary Construction Easement
TCR	Transportation Concept Report
THVF	Temporary High Visibility Fencing
TMDL	Total Maximum Daily Load
TMP	Transportation Management Plan
TMS	Transportation Management System
U.S. or US	United States
U.S. 101	U.S. (United States) Highway 101
USACE	United States Army Corps of Engineers

Acronym/Abbreviation	Description
USC	United States Code
U.S. DOT	U.S. Department of Transportation
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VIA	Visual Impact Assessment
VMT	Vehicle Miles Traveled
VROOM	Variety in Rural Options of Mobility
WPCP	Water Pollution Control Program
WQAR	Water Quality Assessment Report
WQOs	Water Quality Objectives
WSP	Welded Steel Pipe
YBCU	Yellow-billed cuckoo



Chapter 1. Proposed Project

1.1 Project History

District 1 Maintenance Engineering initiated project 01-0H650 ("project") after identifying drainage systems along U.S. 101 as having deficiencies that included perforated inverts, damaged inlets, and separated culvert segments. As these conditions were compromising the integrity of the roadway, the Project Initiation Report (PIR) proposed rehabilitating drainage systems at approximately 51 locations on U.S. 101 between Post Miles (PMs) 56.60 and 137.10 (Table 1). Transportation Management System elements and lighting work identified in the PIR include 11 locations across the extent of the project (Table 2).

The culverts in this project were identified as needing repair/maintenance through the District's Culvert Inventory Database and field verification. Multiple field reviews were completed to confirm the health status of the culverts.

The California Department of Transportation (Caltrans) is the lead agency under the California Environmental Quality Act (CEQA).

1.2 Project Description

Project Objective

Purpose

The purpose of this project is to preserve the roadway and prevent damage from storm events by repairing failing drainage systems. Additionally, some lighting and Transportation Management System (TMS) elements need repair or upgrade to maintain adequate roadway conditions.

Need

The Culvert Inspection Program identified locations with drainage systems that have exceeded their design life, need repair, and/or do not meet capacity standards. The project is needed to repair failed and deteriorated drainage systems to prevent potential roadway damage resulting from drainage system failures. Culvert capacity will be upsized for drainage systems not yet meeting Caltrans design standards of twenty-four inches. Lighting and TMS assets in poor condition will also require upgrades or repairs.

Existing Conditions

The proposed project is located on U.S. 101 between PMs 56.60 and 137.10 in Humboldt County (Figure 1). The project limits consist of rolling to flat terrain on an alignment adjacent to the Eel River, Humboldt Bay, Pacific Ocean, Humboldt Lagoons, and into the Klamath River watershed. Within the project limits, the existing facility varies between a 4-lane freeway transitioning to a 6-lane conventional couplet, a 4-lane expressway, and a 2-lane conventional highway. Some segments also include a passing lane. Lane widths are predominantly 12 feet. Along the 4-lane freeway, shoulder widths are primarily 8 feet, median widths 22 feet, and the posted speed limit is 65 miles per hour (mph). Right of way widths extend from 22 to 675 feet from the center line.

Approximately ten Temporary Construction Easements and one drainage easement will be necessary. Easements are needed for staging (i.e., parking and storing of material). All the drainage systems are within the existing Caltrans right of way and will not conflict with or displace surrounding land uses.

Surrounding land uses in the project area contain agricultural, urban, forest and timber production, national wildlife refuges, and both National and State parks. In all locations, work will be conducted within the developed highway corridor which is characterized by ruderal and frequently mowed vegetation, on- and off-ramps, vegetated highway embankments, and urban development within adjacent communities, particularly the city of Eureka.

Drainage Systems 1 to 8 (Table 1) are between PMs 56.75 and 65.91. These are located adjacent to industrial gravel processing, agricultural grazing and row crops, municipal development at the city of Fortuna and the community of Fernbridge, and open space uses.

Drainage Systems 9 to 16 (Table 1) are between PMs 70.86 and 72.39. These are located adjacent to open space at the Humboldt National Wildlife Refuge and urban and residential uses in the community of Fields Landing.

Drainage Systems 17 to 21(b) (Table 1) are located between PMs 75.90 and 77.49 within the city of Eureka on Broadway (U.S. 101) between McCullen Avenue and 14th Street. This is on the west side of Eureka and land use is largely developed commercial.

Drainage Systems 22 to 24 (Table 1) are between PMs 86.10 and 87.73 within the bypass area of the city of Arcata, an area surrounded by vegetated embankments stretching up to residential and institutional development at Cal Poly Humboldt.

Drainage Systems 25 to 29 (Table 1) are between PMs R93.06 and 97.95, located north of the community of McKinleyville from the Murray Road Overpass to the south side of the community of Westhaven. Surrounding land uses are mostly open space at Clam Beach with some large lot residential and agriculture.

Drainage Systems 30 to 33 (Table 1) are between PMs 100.71 and 106.92, located north of the city of Trinidad just east of Sue-Meg State Park. Surrounding land uses are largely forested large lot residential, the Sue-Meg State Park, and commercial forest lands.

Drainage Systems 34 to 36 (Table 1) are located between PMs 110.63 and 111.07, adjacent to the Harry A. Merlo State Recreation Area. Surrounding land uses are forested recreation.

Drainage Systems 37 to 39 (Table 1) are between PMs R113.88 and 115.66 adjacent to the Humboldt Lagoons State Park, with surrounding land uses consisting of open space and forested recreation lands.

Drainage Systems 40 to 46 (Table 1) all occur within one mile—from PMs 117.23 to 117.89 where U.S. 101 descends towards Freshwater Lagoon just south of the community of Orick.

Drainage Systems 47 and 48 (Table 1) are located just north of Orick at PMs 122.05 and 122.21 respectively, between the developed portion of Orick and Bald Hills Road. Surrounding land uses are rural residential and forested open space.

Drainage System 49 (Table 1) stands alone at PM R131.75, with the Prairie Creek Redwoods State Park to the west and industrial forest land to the east. Land uses are open space and forestry, with no urban development at this location.

Finally, Drainage Systems 50 and 51 (Table 1) are located at PMs R136.23 and R136.39 respectively, south of the Klamath River. Like Drainage System 50, Prairie Creek Redwoods State Park is on the west side and industrial forest land to the east. Surrounding land uses are undeveloped forestry recreation areas or industrial forestry land.

Drainage system locations are shown in Attachment A.

Table 1. Description of Proposed Drainage Work

Drainage System No.	Post Mile	Proposed Work (acronyms provided at end of table)
1	56.75	Remove inlet, 18″-diameter x 39′-long concrete culvert, 18″-diameter x 11′-long concrete culvert, culvert marker, and headwall. Abandon 18″-diameter x 79′-long concrete culvert. Install 24″-diameter x 119′-long APC, 2 x culvert marker, Type G1 DI, 2 x sand backfill in removed culvert pipe trench, RSP and gravel filter. (Method: “cut and cover”).
2	57.68	Remove 36″-diameter x 11′-long CSP and 12″-diameter x 11′-long HDPE overside drain. Grade to drain (17.5 cubic feet). Install 24″-diameter x 11′-long APC and 12″-diameter x 11′-long HDPE overside drain. (Method: “cut and cover”)
3	60.68	Remove 12″-diameter x 38′-long CSP and inlet. Install RSP and gravel filter (Class 8), 24″-diameter x 12′-long CSP DD, and Type G1 DI. (Method: “cut and cover”)
4	61.71	Remove headwall, 18″-diameter x 61′-long concrete culvert, Flared End Section (FES), and 2 x headwall. Contour grading. Install 3 x structural concrete headwall, 24″-diameter x 61′-long APC, and FES. (Method: “cut and cover”)
5	65.23	Remove 18″-diameter x 57′-long CSP DD and inlet. Install 24″-diameter x 47′-long CSP DD. Install RSP and gravel filter, anchor assembly, and Type G1 DI. (Method: “cut and cover”)
6	65.53	Remove headwall, 24″-diameter x 16′-long concrete culvert, junction box, and 24″-diameter x 24′-long concrete culvert. Abandon 24″-diameter x 244′-long concrete culvert. Excavate and install jacking pit, shoring, structural concrete headwall, 36″-diameter x 224′-long WSP. Install RSP or gravel filter. (Method: “trenchless jack and bore”)
7	65.68	Remove 24″-diameter x 17′-long concrete culvert, headwall, culvert marker, 12″-diameter x 11′-long HDPE culvert, headwall, and 24″-diameter x 13′-long concrete culvert. Abandon 24″-diameter x 379′-long concrete culvert. Install shoring, structural concrete headwall, 36″-diameter x 310′-long WSP, culvert marker, RSP and gravel filter. (Method: “trenchless jack and bore”)
8	65.91	Replace headwalls at both inlet and outlet. Abandon 36″-diameter x 410′-long concrete culvert. Install 48″-diameter x 415′-long WSP. (Method: “trenchless jack and bore)

Drainage System No.	Post Mile	Proposed Work (acronyms provided at end of table)
9	70.86	Remove 18″-diameter x 70′-long CSP DD, FES, and inlet. Install anchor assembly, FES, 24″-diameter x 71′-long CSP DD, structural concrete headwall, and Type G1 DI. (Method: “cut and cover”)
10	71.15	Remove inlet, 2 x culvert marker, 18″-diameter x 9′-long CSP, and 18″-diameter x 110′-long concrete culvert. Install Type G1 DI, 2 x marker, 24″-diameter x 112′-long APC. Install RSP or gravel filter. (Method: “cut and cover”)
11	71.16	Remove 18″-diameter x 66′-long concrete culvert, culvert marker, and 18″-diameter x 3′-long CSP DD. Modify inlet. Install 24″-diameter x 66′-long APC, culvert marker. Install RSP gravel filter. (Method: “cut and cover”)
12	71.22	Remove headwall and 36″-diameter x 85′-long concrete culvert. Modify inlet. Install 36″-diameter x 84′-long APC, structural concrete headwall. Install RSP gravel filter. (Method: “cut and cover”)
13	71.34	Remove inlet, marker, and 24″-diameter x 155′-long HDPE culvert. Install Type G1 DI, culvert marker, and 24″-diameter x 154′-long APC. (Method: “cut and cover”)
14	71.64	Remove FES, marker, 24″-diameter x 129′-long HDPE culvert and culvert marker. Install FES, marker, 24″-diameter x 132′-long APC, and marker. (Method: “cut and cover”)
15	72.05	Remove 24″-high x 48″-wide x 175′-long elliptical CSP, inlet, 24″-high x 48″-wide x 102′-long elliptical CSP, 12″-diameter x 8′-long CSP, inlet, 18″-diameter x 23′-long concrete culvert, inlet, and 12″-diameter x 9′-long CSP DD. Contour grading. Install 24″-high x 48”-wide x 175′-long elliptical CSP, Type G1 DI, 24″-high x 48″-wide x 102′-long elliptical CSP, reset sign, FES, 18″-diameter x 8′-long CSP DD, Type G1 DI, Type G1 DI, 24″-diameter x 23′-long APC, Type G1 DI, 18″-diameter x 8′-long CSP DD, and FES. (Method: “cut and cover”)
16	72.39	Remove 18″-diameter x 10′-long CSP DD, 18″-diameter x 57′-long CSP DD, 18″-diameter x 11′-long CSP DD, marker, and inlet. Install 24″ FES, 24″-diameter x 13′-long CSP DD, 24″-diameter x 65′-long CSP DD, anchor assembly, marker, and Type G1 DI. (Method: “cut and cover”)
17	75.90	Remove 18″-diameter x 93′-long concrete culvert, 3 x inlet, and 18″-diameter x 56′-long concrete culvert. Install 24″-diameter x 93′-long APC, 3 x Type G1 DI, and 24″-diameter x 56′-long APC. (Method: “cut and cover”)

Drainage System No.	Post Mile	Proposed Work (acronyms provided at end of table)
18	76.01	Remove 2 x inlet and 18″-diameter x 78′-long concrete culvert. Install 24″-diameter x 79′-long APC and 2 x Type G1 DI. (Method: “cut and cover”)
19	76.24	Remove 2 x inlet and 18″-diameter x 76′-long concrete culvert. Install 24″-diameter x 76′-long APC and 2 x Type G1 DI. (Method: “cut and cover”)
20	76.96	Remove 18″-diameter x 108′-long concrete culvert and inlet. Grade to drain. Install FES, 24″-diameter x 99′-long APC, and Type G1 DI. (Method: “cut and cover”)
21(a)	77.49	Remove 2 x inlet, 24″-diameter x 117′-long concrete culvert, and slotted drain. Install 24″-diameter x 117′-long APC and slotted drain. (Method: “cut and cover”)
21(b)	77.49	Remove 2 x inlet and 18″-diameter x 21′-long concrete culvert. Install 24″-diameter x 21′-long APC and 2 x Type G1 DI. (Method: “cut and cover”)
22(a)	86.10	Remove 18″-diameter x 65′-long concrete culvert and inlet. Modify junction box. Install 24″-diameter x 65′-long APC and Type G1 DI. (Method: “cut and cover”)
22(b)	86.10	Remove 18″-diameter x 81′-long concrete culvert and inlet. Modify junction box. Install 24″-diameter x 81′-long APC and Type G1 DI. (Method: “cut and cover”)
23(a)	87.55	Remove 18″-diameter x 66′-long concrete culvert and 2 x inlet. Install 24″-diameter x 66′-long APC and 2 x Type G1 DI. (Method: “cut and cover”)
23(b)	87.55	Remove 18″-diameter x 45′-long CSP. Install 24″ FES and 24″-diameter x 45′-long APC. (Method: “cut and cover”)
24	87.73	Remove FES, inlet, and 18″-diameter x 110′-long concrete culvert. Install Type G1 DI, RSP gravel filter, 24″ FES, and 24″-diameter x 110′-long APC. (Method: “cut and cover”)
25	R93.06	Remove 18″-diameter x 106′-long concrete culvert, 3 x inlet, and 18″-diameter x 93′-long concrete culvert. Replace 2 x apron. Install 24″-diameter x 106′-long APC, 3 x Type G1 DI, and 24″-diameter x 93′-long concrete culvert. (Method: “cut and cover”)

Drainage System No.	Post Mile	Proposed Work (acronyms provided at end of table)
26	R96.90	Remove inlet, 24″-diameter x 50′-long RCP, headwall, marker, inlet, 24″-diameter x 163′-long RCP, and marker. Install 2 x Type G1 DI, 24″-diameter x 50′-long APC, structural concrete headwall, marker, 23″-diameter x 163′-long APC, and marker. (Method: “cut and cover”)
27	R97.13	Remove 24″-diameter x 77′-long RCP, 3 x inlet, 4 x culvert marker, and 24″-diameter x 124′-long RCP. Install 3 x Type G1 DI, 4 x marker, 24″-diameter x 77′-long APC, and 24″-diameter x 124′-long APC. (Method: “cut and cover”)
28	97.92	Remove inlet, 24″-diameter x 94′-long concrete culvert, and 18″-diameter x 43′-long CSP DD. Contour grading. Install Type G1 DI, 24″-diameter x 95′-long APC, anchor assembly, 24″-diameter x 35′-long CSP DD, tee, 24″ FES, RSP and gravel filter. (Method: “cut and cover”)
29	97.95	Remove inlet, marker, 24″-diameter x 102′-long concrete culvert, and 24″-diameter x 84′-long CSP DD. Install Type G1 DI, marker, 24″-diameter x 105′-long APC, 2 x CSP elbow, anchor assembly, 24″-diameter x 72′-long CSP DD, and tee. (Method: “cut and cover”)
30	100.71	Remove headwall, inlet, and 18″-diameter x 75′-long concrete culvert. Install RSP and or gravel filter, structural concrete headwall, 24″-diameter x 75′-long APC, Type G1 DI. (Method: “cut and cover”)
31	R105.05	Remove 30″-diameter x 105′-long APC, FES, and 30″-diameter x 14′ CSP. Abandon 30″-diameter x 177′-long CSP. Install Type G1 DI, 30″-diameter x 105′-long APC, 30″ FES, 30″-diameter x 177′-long APC, 30″ FES, RSP and gravel filter. (Method: “cut and cover”)
32	R106.08	Remove 2 x culvert marker, 2 x inlet, and 18″-diameter x 615′-long CSP. Replace 2 x apron. Install Type G1 DI, marker, 24″-diameter x 615′-long APC, culvert marker, Type G1 DI, and 3 x reset sign. (Method: “cut and cover”)
33	106.92	Remove headwall, 30″-diameter x 11′-long concrete culvert, 30″-diameter x 4′-long CSP DD, junction box, and 30″-diameter x 10′-long concrete DD. Abandon 30″-diameter x 183′-long concrete culvert. Install structural concrete headwall, 30″-diameter x 106′-long APC, 30″-diameter x 96′-long CSP DD, anchor assembly, and RSP with gravel filter. (Method: “cut and cover”)

Drainage System No.	Post Mile	Proposed Work (acronyms provided at end of table)
34	110.63	Remove 18″-diameter x 68′-long CSP and DI. Install 24″-diameter x 68′-long APC, Type G1 DI, and RSP with gravel filter. (Method: “cut and cover”)
35	111.05	Remove 2 x marker, 18″-diameter x 43′-long concrete culvert, and headwall. Install 24″ FES, 2 x marker, 24″-diameter x 44′-long APC, and RSP with RSP fabric or gravel filter. (Method: “cut and cover”)
36	111.07	Remove 18″-diameter x 47′-long CSP, 2 x marker, 18″-diameter x 14′-long CSP DD, and headwall. Install 24″-diameter x 58′-long APC, 24″ FES, 2 x marker, and RSP with gravel filter. (Method: “cut and cover”)
37	R113.88	Remove 2 x inlet and 18″-diameter x 82′-long CSP DD. Install 2 x Type G1 DI and 24″-diameter x 82′-long CSP. Replace CMP riser and lid. Stabilize embankment at outlet by State Park Road. (Method: “cut and cover”)
38	115.25	Remove marker, 24″-diameter x 141′-long concrete culvert, and marker. Install structural concrete headwall, 2 x marker, 24″-diameter x 141′-long APC, FES, and RSP with gravel filter. (Method: “cut and cover”)
39	115.66	Remove inlet, 24″-diameter x 52′-long CSP, and 2 x marker. Install Type G1 DI, 24″-diameter x 51′-long APC, anchor assembly, 24″-diameter x 10′ CSP DD, with RSP with gravel filter, and 2 x culvert marker. (Method: “cut and cover”)
40	117.23	Remove 2 x marker, 18″-diameter x 61′-long CSP, and inlet. Install RSP with gravel filter, anchor assembly, 24″-diameter x 11′-long CSP DD, 2 x culvert marker, 24″-diameter x 52′-long APC, and Type G1 DI. (Method: “cut and cover”)
41	117.30	Remove marker, 12″-diameter x 13′-long CSP overside drain, inlet, and 18″-diameter x 26′-long CSP. Abandon 18″-diameter x 33′-long CSP. Repair dike. Install 24″-diameter x 59′-long APC, culvert marker, reset sign, 12″-diameter x 18′-long CSP overside drain, and Type G1 DI. (Method: “cut and cover”)
42	117.31	Remove marker, 18″-diameter x 59′-long CSP, and inlet. Install marker, 24″-diameter x 59′-long APC, and Type G1 DI. (Method: “cut and cover”)
43	117.38	Remove 12″-diameter x 81′-long CSP overside drain. Repair dike. Install anchor assembly and 12″-diameter x 85′-long CSP overside drain. (Method: “cut and cover”)

Drainage System No.	Post Mile	Proposed Work (acronyms provided at end of table)
44	117.43	Remove 12″-diameter x 25′-long CSP overside drain. Replace dike. Install anchor assembly and 24″-diameter x 25′-long CSP overside drain. (Method: “cut and cover”)
45	117.55	Remove 2 x marker, 18″-diameter x 21′-long CSP, 18″-diameter x 78′-long CSP, and inlet. Install RSP with RSP fabric or gravel filter, 24″-diameter x 19′-long CSP DD, anchor assembly, 24″-diameter x 80′-long APC, Type G1 DI, and marker. (Method: “cut and cover”)
46	117.89	Abandon 18″-diameter x 131′-long CSP. Remove 2 x marker and headwall. Reset sign. Install anchor assembly, RSP with gravel filter, 24″-diameter x 50′-long CSP DD, 24″-diameter x 86′-long APC, 2 x marker, and structural concrete headwall. (Method: “cut and cover”)
47	122.05	Remove 18″-diameter x 75′-long CSP and inlet. Contour grading. Install 24″-diameter x 76′-long APC and Type G1 DI. (Method: “cut and cover”)
48	122.21	Remove 2′ high x 2′ wide x 15′-long RCB, 2 x culvert marker, and inlet. Abandon 2′ high x 2′ wide x 71.3’ long RCB. Install 30″-diameter x 87′-long APC, 2 x culvert marker, Type G1 DI, and RSP with gravel filter. (Method: “cut and cover”)
49	R131.75	Remove 24″-diameter x 115′-long CSP, marker, 24″-diameter x 17′-long CSP DD, and 36″-diameter x 131′-long HDPE DD. Modify inlet. Install 24″-diameter x 113′-long APC, marker, and 24″-diameter x 147′-long CSP DD. (Method: “cut and cover”)
50	R136.23	Remove 24″-diameter x 149′-long CSP DD, 24″-diameter x 133′-long CSP DD, 24″-diameter x 21′-long CSP DD, and 24″-diameter x 20′-long CSP DD. Install HMA dike, anchor assembly, 24″-diameter x 323′-long CSP DD, and RSP with gravel filter. (Method: “cut and cover”)
51	R136.39	Remove 12″-diameter x 10′-long CSP DD, silt fence, 12″-diameter x 253′-long CSP DD, and marker. Adjust overside drain. Install anchorage assembly, 24″-diameter x 253′-long CSP DD, and marker. (Method: “cut and cover”)

APC – Alternative Pipe Culvert HDPE – High Density Polyethylene CMP – Corrugated Metal Pipe MA – Hot Mix Asphalt	CSP – Corrugated Steel Pipe RCP – Reinforced Concrete Pipe DD – Downdrain RSP – Rock Slope Protection	DI – Drainage Inlet WSP – Welded Steel Pipe FES – Flared End Section RCB – Reinforced Concrete Box Culvert

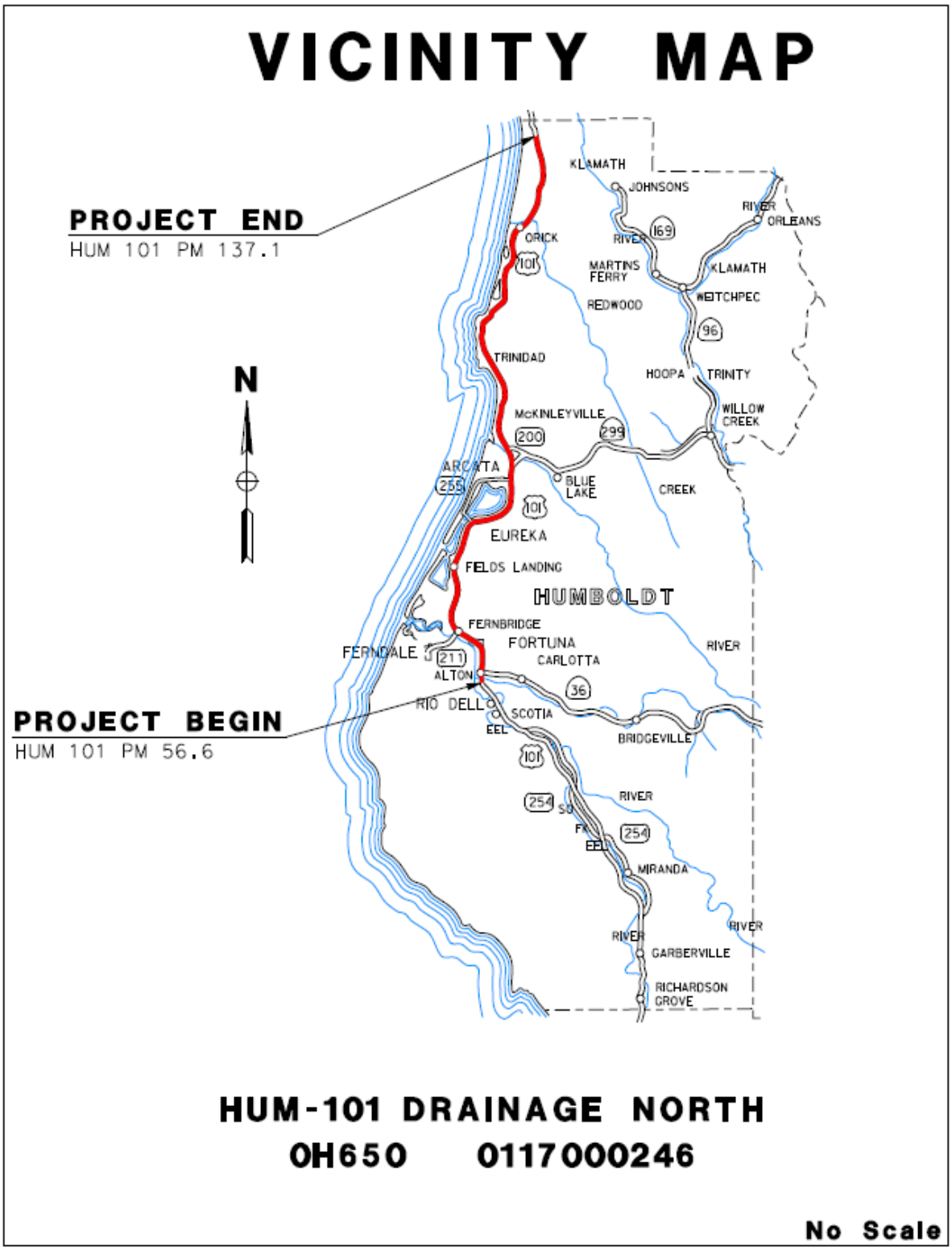


Figure 1. Project Vicinity

Proposed Project

The project proposes to rehabilitate drainage systems at 51 locations on U.S. 101 in Humboldt County from PMs 56.60 to 137.10 (Table 1). Most drainage systems will be rehabilitated by replacing culverts using the cut and cover method at depths of up to 20 feet. Select locations may utilize jack and bore trenchless construction methods. Proposed work includes replacement of culverts, downdrains (DD), drainage inlets (DI), headwalls, end walls, and installation of rock slope protection (RSP) and rock-lined ditch. Existing culverts will be replaced in-kind or upsized based on hydraulic recommendations. Refer to Table 1 for proposed work at each location.

Work will include joint sealing, invert paving, culvert or drainage inlet repair using a Portland cement concrete material, regrading of drainage channels, repair of hot mix asphalt ditches or paved aprons, and stabilizing embankment including fill or RSP placement. Existing headwalls and end walls will be replaced with new headwalls and end walls (based on Caltrans' 2020 Standard Plans), which are larger than existing. Several existing culverts under 24" diameter will be upsized to 24" diameter to meet district minimum size standards and to enhance maintainability. Eureka locations with slotted corrugated steel pipe drains will be replaced in-kind.

There are no project locations associated with fish-bearing streams; therefore, none are obstacles to fish passage. Dewatering and water diversion may be necessary at select locations if water is present during construction. Vegetation clearing and grubbing, branch trimming, and/or removal of trees will be required for construction access and culvert replacement activities at some locations. Revegetation will be conducted within disturbed soil areas to replace vegetation removed and for soil stabilization and erosion control. Temporary erosion control will be provided to meet water quality requirements. The project will be constructed in conformance with a Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP) depending on the amount of Disturbed Soil Area (DSA) calculated for the final design.

At multiple locations within the project limits, ramp closures will be necessary to complete work, including ramps located at or near PMs 57.70, 61.71, 73.66, 86.1, 93.06, 96.90, 97.95, 100.71, and 106.08. Additional TMS and highway lighting elements will be replaced or upgraded at 11 locations. Of those 11 sites, highway lighting standards will be replaced at 7 locations and their foundations will require approximately 6 feet of excavation (Table 2). The lighting standards will be replaced with a similar height light standard.

Table 2. Description of Proposed Transportation Management Systems and Lighting Asset Work at Each Location

Route	Post Mile	Proposed Work
U.S. 101	55.96	The existing Changeable Message Sign (CMS) board will be replaced with a new model (e.g., 700 CMS) on the existing signpost. The camera will be replaced on an existing pole. Existing conduit will be used to install required conductors.
U.S. 101	58.70	The existing CMS board will be replaced with a new model (e.g.,700 CMS) on the existing signpost. The camera will be replaced on an existing pole. Existing conduit will be used to install required conductors.
U.S. 101	74.70	The existing Highway Advisory Radio (HAR) flashing beacons will be removed. A CMS will be placed on wood posts for northbound (NB) and southbound (SB) traffic. A camera pole and foundation will be installed with a 334LX controller cabinet and foundation.
U.S. 101	74.70	An existing service pedestal will be replaced with a new pedestal. A 334LX cabinet and foundation will be installed. A Closed Caption Television (CCTV) Pole 35 and foundation will be installed. A CMS will be placed on wood posts for NB and SB traffic. New conduit and conductors will be required.
U.S. 101	74.70	The existing service pedestal and cabinet will be replaced, using existing foundations. Two new CCTV Pole 35s with foundations will be installed. A CMS will be placed on wood posts for NB and SB traffic. New conduit and conductors will be required.
U.S. 101	87.49	Existing Extinguishable Message Signs (EMS) and foundation will be removed.
U.S. 101	87.70	The existing CMS sign board will be replaced with a new model (700 CMS), using the existing foundation. The 334-controller cabinet will be replaced with a new controller cabinet. The camera on the existing CCTV Pole 35 will be replaced. The existing service pedestal will be replaced with a new service pedestal. Existing conduit will be used.
U.S. 101	88.8	Remove highway advisory radio antenna and foundation. Remove 334 controller cabinet foundation.
U.S. 101	89.40	The existing 334 controller cabinet and its foundation will be replaced. The existing CMS sign board will be replaced with a new model (700 CMS), using the existing foundation. The existing service pedestal will be replaced, as will the camera on the CCTV Pole 35. The existing Highway Advisory Radio (HAR) flashing beacon sign and wood post will be removed.
U.S. 101	133.50	A sensor in the pavement for a roadway weather information system will be installed. New conduit and conductors will be required.

Route	Post Mile	Proposed Work
SR 299	R1.66	The existing Emergency Management System (EMS) and foundation will be removed. The existing service pedestal will be replaced with a new service pedestal using the same foundation. A new CMS and foundation will be constructed. A new 334 controller cabinet and foundation will be installed. A new CCTV Pole 35 and foundation will also be installed. A maintenance pullout will be established for routine use.

The proposed work presented here is based on preliminary designs and will continue to be refined until project plans are completed at the "Ready to List" phase scheduled for spring of 2024. Refer to the project layouts in Appendix A for the scope and limits of proposed work at each location.

Construction Scenarios

Prior to construction, site preparation will include delineating construction work areas, installing temporary high visibility fencing (THVF) around sensitive habitats and known cultural resource areas, implementing Best Management Practices (BMPs) in accordance with the project's Stormwater Plan, and removing vegetation. Section 1.4 provides a list of Standard Measures and BMPs, which are incorporated into construction as project measures.

All work, regardless of method, will begin with the following six steps:

1. Set up temporary traffic control using portable delineators and traffic signs for single lane, pullout, and/or ramp closure, as required.
2. Set up staging areas in designated pullouts, as well as within the existing closed portion of the roadbed.
3. Set up project erosion control BMPs, as needed.
4. Conduct nesting bird surveys, as needed for vegetation clearing.
5. Remove vegetation to the minimal extent necessary using hand tools and potentially small equipment.
6. Set up clear water diversion and/or perform dewatering, as needed.

Cut and Cover Installation

The maximum depth of excavation for culvert replacement is approximately 20 feet without an engineered shoring plan, 35 feet with an engineered shoring plan, and the width will be the diameter of the pipe with roughly 24 inches on each side of the pipe.

Following the initial steps 1-6 above, replacement of culverts via cut and cover method generally includes the following steps:

- Sawcut or grind existing roadway one traffic lane at a time (half width construction).
- Conduct culvert improvements one half at a time (half width construction).
- Excavate trench using an excavator.
- Remove or abandon existing culvert, inlets, and associated drainage structures per plan using a crane, excavator, dump truck, or bobcat.
- Install new culverts using a crane, backhoe, loader, bobcat, or compactor.
- Construct inlets, headwalls, wingwalls, downdrains, and outfalls per plan using a crane, excavator, bobcat, and compactors as needed. Concrete truck will operate from closed traffic lane with potential use of concrete pump.
- Remove clear water diversion, as needed.
- Replace or install RSP as needed or fill under the downdrain using excavator, bobcat, skip loader, or boom truck.
- At locations where culverts will be realigned, backfill existing culvert location with structural backfill (i.e., soil or fill from excavated area for new culvert location).
- Restore asphalt using a paver and pavement striper.
- Restore site, including placing erosion control measures.

Jack and Bore Trenchless Installation

Following the initial steps 1-6 above, replacement of culverts via the Jack and Bore trenchless method will generally include the following steps:

- Dig a sending and a receiving pit to the required depth for boring equipment.
- Place a jack and bore machine into the sending pit.
- Use the machine to cut a hole through the ground and push the new pipe in place.
- Remove the jack and bore machine.
- Connect the new welded steel pipe to drain inlet or downdrain.
- Install additional system components (drainage inlets, downdrains, pipe reducers, and anchorage systems).

- Excavate and remove 10 to 30 feet of existing pipe at inlet and outlet. Pump cement/sand mixture (slurry) into remaining existing pipe (abandon culvert) using cement trucks and cement pump truck as needed on adjacent roadway or staging area. Slurry fill will require multiple lifts to fill entire abandoned culvert.
- Cover abandoned culvert using native material or imported fill designated by the landscape architect.
- Back fill equipment pit, if necessary.
- Conduct quality control inspections.
- Remove clear water diversion, as needed.
- Replace or install RSP as needed or fill under the downdrain using excavator, bobcat, skip loader, or boom truck.
- Restore site, including placing erosion control measures.

Construction Schedule

It is anticipated 290 working days will be needed to complete the project. The working days are divided among the 51 locations with 5 to 20 working days per location. Construction will be conducted over two seasons, beginning in 2025 through 2026. Upon completion of the project, all excess materials will be removed from the site. The site will then be restored to a natural setting by regrading and revegetating with native plants as required by the revegetation and erosion control plans. Work windows to avoid impacts to sensitive biological resources are provided in Section 1.4. Work within drainage systems where water may be present will be scheduled later in the season, as feasible, to minimize the number of locations where dewatering and/or water diversion will be required.

Lighting

Artificial night lighting may be required. To reduce potential disturbance to sensitive resources, lighting will be temporary and directed specifically on the portion of the work area actively under construction. Use of artificial lighting will be limited to California Occupational Safety and Health Administration (Cal/OSHA) work area lighting requirements. Any equipment used for night work will be subject to the county noise limitation of 86 decibels (dB) at 49 feet (15 meters).

Work Windows

The following seasonal restrictions are anticipated:

- All work within the jurisdictional waters within the project area will be restricted to June 15 to October 15 of the construction season. Work within drainage systems where water may be present will be scheduled later in the season, as feasible, to minimize the number of locations where dewatering and/or water diversion will be required.
- Tree and vegetation removal will occur outside of the bird breeding season—between September 15 and February 1. If vegetation removal cannot be done in this window, then surveys by a qualified biologist will be required prior to the removal of any vegetation.
- Tree removal from PMs R106.08 to 117.31 (MAMU critical habitat) will occur between September 15 to January 31, outside of the marbled murrelet and NSO nesting season.
- To protect nesting marbled murrelet, no potential marbled murrelet nest trees will be removed. No construction activities generating sound levels 20 or more decibels (dB) above ambient sound levels or with maximum sound levels (ambient sound levels plus activity-generated sound levels) above 90 dB (with the exception of backup alarms) will occur between March 24 and August 5. Between August 6 and September 15, work that generates sound levels equal to or greater than 10 dB above ambient sound levels or above 90 dB max will observe a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset. Further, no construction activities will occur within a visual line-of-sight of 328 feet or less from any known nest locations for marbled murrelet (subject to technical assistance with the United States Fish and Wildlife Service [USFWS]).
- Seasonal noise restrictions for marbled murrelet and northern spotted owl will apply to work conducted between February 1 and September 15.
- Tree removal from PM 88.28 to 136.63 will occur between September 15 to January 31, outside of the Pacific (Humboldt) marten denning season.
- No potential Pacific fisher den trees will be removed during the critical denning period (March 1 through July 31).

No-Build Alternative

The No-Build Alternative will maintain the facility in its current condition and will not meet the purpose and need of the project. For each potential impact area discussed in Chapter 2, the No-Build Alternative has been determined to have no impact. Under the No-Build Alternative, no alterations to the existing conditions will occur and the proposed improvements will not be implemented.

Alternatives Considered but Eliminated from Further Consideration

The only alternatives considered were the Proposed Project and the No-Build Alternative. Various drainage system designs and construction strategies were considered throughout the development of the project; however, these design considerations will not have changed the scope and purpose of the project, which is to rehabilitate the drainage systems. Rather, the rehabilitation strategies at each location were refined based on hydraulic conditions, consideration for environmental resources, and to avoid obstacles such as retaining walls and trees.

General Plan Description, Zoning, and Surrounding Land Uses

The project area and surrounding lands are within Humboldt County, spanning approximately 80 miles of the U.S. 101 corridor from just south of the city of Fortuna to the Del Norte County line. The project is largely bounded by open space, agriculture, rural residential, residential, urban commercial, and industrial lands including timber production, State Parks such as Humboldt Lagoons State Park, Prairie Creek Redwoods State Park, Redwoods National and State Parks, among others, and undeveloped forested lands. Lands within the project corridor are predominantly zoned for timber, agriculture, open space, public lands, commercial, and residential uses. The majority of adjacent lands are either in the Unclassified zone, resource production land or open space, or public and tribal lands. Table 3 provides a list of the land use designations that correspond to drainage system locations. The project includes locations within the Coastal Zone. Coastal jurisdiction is documented in Section 1.3.

Table 3. Land Use at Project Locations

Land Use Designations	Drainage System
Commercial	30, 33, 40, 41
Resource Production Land Use	1, 2, 6, 7, 8, 9, 11, 12, 13, 14, 28, 29, 30, 33, 34, 36, 37, 38, 39, 40, 41, 42
Industrial	1
Industrial, Resource Related	47, 48
Open Space, Public Lands, and Tribal Land	1, 5, 10, 11, 15, 16, 27, 28, 29, 35, 36, 37, 38, 39, 49
Resort/Recreation	43, 44
Public Recreation	45, 46
Public Facilities	47, 48
Residential Land Use	1, 2, 3, 16, 17, 27, 31, 42
Timber	50, 51
Airport Land Use Compatibility Zone	2, 3
N/A	4, 18, 19, 20, 21, 22, 23, 24, 25, 26, 32

1.3 Permits and Approvals Needed

The following table indicates the permitting agency, permits/approvals, and status of permits required for the project.

Table 4. Environmental Permit Requirements

Agency	Permit/Approval	Status
California Department of Fish and Wildlife (CDFW)	Lake or Streambed Alteration Agreement (1600)	Application to be submitted after project approval
North Coast Regional Water Quality Control Board (NCRWQCB)	401 Water Quality Certification, Notice of Intent for coverage under the Construction General Permit	Application to be submitted after project approval
U.S. Army Corps of Engineers (USACE)	404 Certification	Application to be submitted after project approval
U.S. Fish and Wildlife Service (USFWS)	Programmatic Letter of Concurrence	March 2023
National Marine Fisheries Service (NMFS)	Programmatic Biological Opinion	March 2023

Agency	Permit/Approval	Status
California Department of State Parks	Right of Entry Permit	Request to be submitted after project approval
California Coastal Commission (CCC)	Coastal Development Permit	Application to be submitted after project approval
County of Humboldt	Coastal Development Permit	Application or request to consolidate to be submitted after project approval
City of Eureka	Coastal Development Permit	Application or request to consolidate to be submitted after project approval

The majority of the sites within the project limits are in the Coastal Zone and will likely require a Coastal Permit, as shown in Table 4. The 12 Drainage System sites outside of the Coastal Zone are DS 1, DS 3, DS 4, DS 22(a) & (b), DS 23(a) & (b), and DSs 47-51 (Table 1). Of the TMS elements proposed for the project, the following sites are outside of the Coastal Zone—U.S. 101 PM 55.96, PM 87.49, PM 87.70, PM 88.8, and PM 133.5, and SR 299 PM 1.6. All other sites are within the Coastal Zone.

1.4 Standard Measures and Best Management Practices Included in All Alternatives

Under CEQA, "mitigation" is defined as avoiding, minimizing, rectifying, reducing/ eliminating, and compensating for an impact. In contrast, Standard Measures and BMPs are prescriptive and sufficiently standardized to be generally applicable and do not require special tailoring to a project situation. These are generally measures that result from laws, permits, guidelines, resource management plans, and resource agency directives and policies. They predate the project's proposal and apply to all similar projects. For this reason, these measures and practices do not qualify as project mitigation, and the effects of the project are analyzed with these measures in place. The following section provides a list of project features, standard practices (measures), and BMPs that are included as part of the project description

In addition to the standard measures and BMPs listed below, Additional Best Management Practices (ABMPs) associated with project-specific actions outlined in the *Programmatic Biological Opinion for Caltrans' Routine Maintenance and Repair Activities in Districts 1, 2, and 4* (PBO) (NMFS 2013) will be implemented as applicable.

Standard measures relevant to the protection of natural resources deemed applicable to the proposed project include:

Aesthetics Resources

AR-1: Temporary access roads, construction easements, and staging areas that were previously vegetated would be restored to a natural contour and revegetated with regionally appropriate native vegetation.

AR-2: Where feasible, construction lighting would be limited to within the area of work. Construction lighting should be directed specifically on the portion of the work area actively under construction.

AR-3: Where feasible, the removal of established trees and vegetation would be minimized. Environmentally sensitive areas would have Temporary High Visibility Fencing (THVF) installed before start of construction to demarcate areas where vegetation would be preserved, and root systems of trees protected.

Biological Resources

BR-1: General

Before start of work, as required by permit or consultation conditions, a Caltrans biologist or Environmental Construction Liaison (ECL) would meet with the contractor to brief them on environmental permit conditions and requirements relative to each stage of the proposed project, including, but not limited to, work windows, drilling site management, and how to identify and report regulated species within the project areas.

BR-2: Animal Species

A. To protect migratory and nongame birds (occupied nests and eggs), if possible, vegetation removal would be limited to the period outside of the bird breeding season (removal would occur between September 16 and January 31). If vegetation removal is required during the breeding season, a nesting bird survey would be conducted by a qualified biologist within 5 days prior to vegetation removal. If an active nest is located, the biologist would coordinate with CDFW to establish appropriate species-specific buffer(s) and any monitoring requirements.

The buffer would be delineated around each active nest and construction activities would be excluded from these areas until birds have fledged, or the nest is determined to be unoccupied.

B. Pre-construction surveys for active raptor nests within one-quarter mile of the construction area would be conducted by a qualified biologist within 5 days prior to initiation of construction activities. Areas to be surveyed would be limited to those areas subject to increased disturbance because of construction activities (i.e., areas where existing traffic or human activity is greater than or equal to construction-related disturbance need not be surveyed). If any active raptor nests are identified, appropriate conservation measures (as determined by a qualified biologist) would be implemented.

   These measures may include, but are not limited to, establishing a construction-free buffer zone around the active nest site, biological monitoring of the active nest site, and delaying construction activities near the active nest site until the young have fledged.

C. To prevent attracting corvids (birds of the *Corvidae* family which include jays, crows, and ravens), no trash or foodstuffs would be left or stored on-site. All trash would be deposited in a secure container daily and disposed of at an approved waste facility at least once a week. Also, on-site workers would not attempt to attract or feed any wildlife.

D. A qualified biologist would monitor in-stream construction activities that could potentially impact sensitive biological receptors (e.g., amphibians, fish). The biological monitor would be present during activities such as installation and removal of dewatering or diversion systems, demolition, pile-driving and hoe-ramming, and drilling for culvert foundations to ensure adherence to permit conditions. In-water work restrictions would be implemented.

E. An Aquatic Species Relocation Plan, or equivalent, would be prepared by a qualified biologist and include provisions for pre-construction surveys and the appropriate methods or protocols to relocate any species found. If previously unidentified threatened or endangered species are encountered or anticipated incidental take levels are exceeded, work would either be stopped until the species is out of the impact area, or the appropriate regulatory agency would be contacted to establish steps to avoid or minimize potential adverse effects.

This Plan may be included as part of the Temporary Creek Diversion System Plan identified in BR-5.

F. Artificial night lighting may be required. To reduce potential disturbance to sensitive resources, lighting would be temporary, and directed specifically on the portion of the work area actively under construction. Use of artificial lighting would be limited to Cal/OSHA work area lighting requirements.

G. A Limited Operating Period would be observed, whereby all in-stream work below ordinary high water would be restricted to the period between June 15 and October 15 to protect water quality and vulnerable life stages of sensitive aquatic species.

H. To protect nesting or roosting northern spotted owl (NSO) and marbled murrelet (MAMU), suitable northern spotted owl or marbled murrelet nesting trees would be removed between September 16 and January 31. No construction activities generating sound levels 20 or more dB above ambient sound or with maximum sound levels (ambient sound level plus activity-generated sound level) above 90 dB (with the exception of backup alarms) would occur between February 1 and August 5. Between August 6 and September 15, work that generates sound levels equal to or greater than 10 dB above ambient sound levels or above 90 dB max would observe a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset. Sound-related work windows would be lifted between September 16 and January 31.

   No human activities (including use of drones) would occur within a visual line-of-sight of 328 feet (100 meters) or less from a known nest site (USFWS 2022), or from unsurveyed suitable nesting habitat containing potential murrelet nest trees within 328 feet (100 meters) of proposed activities. These visual disturbance restrictions would be lifted after September 15; after which the USFWS considers visual disturbance as having “no effect” on nesting adults or dependent young. The 328-foot (100 meters) visual disturbance distance may be reduced or eliminated through technical assistance with the USFWS if site-specific information suggests that ambient visual disturbance within the action area is already high enough to likely preclude species from nesting within 328 feet (100 meters) of the project footprint, or vegetation near the roadway is sufficiently dense to shield the view from habitat farther from the roadway.

I. Caltrans would contact USFWS if proposed NSO/MAMU habitat removal is within the designated critical habitat area to ensure removal would not result in an adverse effect.

BR-3: Invasive Species

Invasive non-native species control would be implemented. Measures would include:

- Straw, straw bales, seed, mulch, or other material used for erosion control or landscaping which would be free of noxious weed seed and propagules.

- All equipment would be thoroughly cleaned of all dirt and vegetation prior to entering the job site to prevent importing invasive non-native species. Project personnel would adhere to the latest version of the *California Department of Fish and Wildlife Aquatic Invasive Species Cleaning/Decontamination Protocol (Northern Region)* (CDFW 2020) for all field gear and equipment in contact with water.

BR-4: Plant Species, Sensitive Natural Communities, and ESHA

A. Seasonally appropriate, pre-construction surveys for sensitive plant species would be completed (or updated) as necessary by a qualified biologist prior to construction in accordance with *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018).

B. A Revegetation Plan would be prepared which would include a plant palette, establishment period, watering regimen, monitoring requirements, and pest control measures. The Revegetation Plan would also address measures for wetland and riparian areas temporarily impacted by the project.

C. Prior to the start of work, THVF and/or flagging would be installed around sensitive natural communities, environmentally sensitive habitat areas, rare plant occurrences, intermittent streams, and wetlands and other waters, where appropriate. No work would occur within fenced/flagged areas.

D. Where feasible, the structural root zone would be identified around each large-diameter tree (>2-foot diameter at breast height [DBH]) directly adjacent to project activities, and work within the zone would be limited.

E. When possible, excavation of roots of large diameter trees (>2-foot DBH) would not be conducted with mechanical excavator or other ripping tools. Instead, roots would be severed using a combination of root-friendly excavation and severance methods (e.g., sharp-bladed pruning instruments or chainsaw). At a minimum, jagged roots would be pruned away to make sharp, clean cuts.

F. Upon completion of construction, all superfluous construction materials would be completely removed from the site. The site would then be restored by regrading and stabilizing with a hydroseed mixture of native species along with fast growing sterile erosion control seed, as required by the Erosion Control Plan.

BR-5: Wetlands and Other Waters

A. Prior to any creek diversion, the contractor would be required to prepare and submit a Temporary Creek Diversion System Plan to Caltrans for approval. Depending on site conditions, the plan may also require specifications for the relocation of sensitive aquatic species (see also Aquatic Species Relocation Plan in BR-2E). Water generated from the diversion operations would be pumped and discharged according to the approved plan and applicable permits.

B. In-stream work would be restricted to the period between June 15 and October 15 to protect water quality and vulnerable life stages of sensitive fish species (see also BR-2G). Construction activities restricted to this period include any work below the ordinary high water. Construction activities performed above the ordinary high water mark of a watercourse that could potentially directly impact surface waters (i.e., soil disturbance that could lead to turbidity) would be performed during the dry season, typically between June through October, or as weather permits per the authorized contractor-prepared Storm Water Pollution Prevention Plan (SWPPP), Water Pollution Control Program (WPCP),) and/or project permit requirements.

C. See BR-4C for Temporary High Visibility Fencing (THVF) information.

D. If allowed by regulatory agencies, temporary wetland protection mats may be used to prevent permanent damage and minimize temporary damage to wetlands from construction activities. Mats should be designed to accommodate motorized equipment or vehicles. Mats shall be removed when wetland access is no longer needed or by November 1 of each year.

Cultural Resources

CR-1: Caltrans would coordinate with the tribes and incorporate measures to protect any inadvertent discoveries of tribal resources. This would include any potential work windows associated with tribal ceremonies.

CR-2: If necessary**,** archaeological monitors and tribal monitors would be used during ground-disturbing activities.

CR-3: If cultural materials are discovered during construction, work activity within a 60-foot radius of the discovery would be stopped and the area secured until a qualified archaeologist can assess the nature and significance of the find in consultation with the State Historic Preservation Officer (SHPO).

CR-4: If human remains and related items are discovered on private or State land, they would be treated in accordance with State Health and Safety Code § 7050.5. Further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to California Public Resources Code (PRC) § 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission (NAHC) who would then notify the Most Likely Descendent (MLD).

Human remains and related items discovered on federally-owned lands would be treated in accordance with the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (23 USC 3001). The procedures for dealing with the discovery of human remains, funerary objects, or sacred objects on federal land are described in the regulations that implement NAGPRA 43 CFR Part 10. All work in the vicinity of the discovery shall be halted and the administering agency's archaeologist would be notified immediately. Project

activities in the vicinity of the discovery would not resume until the federal agency complies with the 43 CFR Part 10 regulations and provides notification to proceed.

Geology, Seismic/Topography, and Paleontology

GS-1: The project would be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and Best Management Practices (BMPs). New earthen slopes would be vegetated to reduce erosion potential.

GS2: In the unlikely event that paleontological resources (fossils) are encountered, all work within a 60-foot radius of the discovery would stop, the area would be secured, and the work would not resume until appropriate measures are taken.

Greenhouse Gas Emissions

GHG-1: Caltrans Standard Specification "Air Quality" requires compliance by the contractor with all applicable laws and regulations related to air quality (Caltrans Standard Specification SS 14-9).

GHG-2: Compliance with Title 13 of the California Code of Regulations, which includes restricting idling of diesel-fueled commercial motor vehicles and equipment with gross weight ratings of greater than 10,000 pounds to no more than 5 minutes.

GHG-3: Caltrans Standard Specification “Emissions Reduction” ensures that construction activities adhere to the most recent emissions reduction regulations mandated by the California Air Resource Board (CARB) (Caltrans SS 7-1.02C).

GHG-4: Use of a Transportation Management Plan (TMP) to minimize vehicle delays and idling emissions. As part of this, construction traffic would be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along the highway during peak travel times.

GHG-5: All areas temporarily disturbed during construction would be revegetated with appropriate native species. Landscaping reduces surface warming and, through photosynthesis, decreases CO_2. This replanting would help offset any potential CO_2 emissions increase.

GHG-6: Pedestrian and bicycle access would be maintained on U.S. Highway 101, State Route 36, and State Route 299 during project activities.

Hazardous Waste and Material

HW-1: Per Caltrans requirements, the contractor(s) would prepare a project-specific Lead Compliance Plan (CCR Title 8, § 1532.1, the "Lead in Construction" standard) to reduce worker exposure to lead-impacted soil. The plan would include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of lead-impacted soil.

HW-2: When identified as containing hazardous levels of lead, traffic stripes would be removed and disposed of in accordance with Caltrans Standard Special Provision "Remove Yellow Traffic Stripes and Pavement Markings with Hazardous Waste Residue" (SSP 14-11.12).

HW-3: If treated wood waste (such as removal of signposts or guardrail) is generated during this project, it would be disposed of in accordance with Standard Specification "Treated Wood Waste."

HW-4: If arsenic contaminated soil is encountered or generated during this project, it would be removed and disposed of in accordance with Caltrans Non-Standard Special Provisions "Department Generated Contaminated Soil (14-11.11) and "Stockpiling and Liner" (14-11.05).

Traffic and Transportation

TT-1: Pedestrian and bicycle access would be maintained during construction.

TT-2: The contractor would be required to schedule and conduct work to avoid unnecessary inconvenience to the public and to maintain access to driveways, houses, and buildings within the work zones.

TT-3: A Transportation Management Plan (TMP) would be applied to the project.

Utilities and Emergency Services

UE-1: All emergency response agencies in the project area would be notified of the project construction schedule and would have access to U.S. Highway 101, State Route 36, and State Route 299 throughout the construction period.

UE-2: Caltrans would coordinate with utility providers to plan for relocation of any utilities to ensure utility customers would be notified of potential service disruptions before relocation.

UE-3: The project is located within *Moderate, High, and Very High* CAL FIRE Fire Hazard Severity Zones. The contractor would be required to submit a jobsite fire prevention plan as required by Cal/OSHA before starting job site activities. In the event of an emergency or wildfire, the contractor would cooperate with fire prevention authorities.

Water Quality and Stormwater Runoff

WQ-1: The project would comply with the Provisions of the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) Permit (Order 2022-0033-DWQ) as amended by subsequent orders, which became effective January 1, 2023. If the project results in a land disturbance of one acre or more, coverage under the Construction General Permit (Order 2022-0057-DWQ) is also required.

Before any ground-disturbing activities, the contractor would prepare a Stormwater Pollution Prevention Plan (SWPPP) (per the Construction General Permit Order 2022-0057-DWQ) or Water Pollution Control Program (WPCP) (for projects that result in a land disturbance of less than one acre) that includes erosion control measures and construction waste containment measures to protect Waters of the State during project construction.

The SWPPP or WPCP would identify the sources of pollutants that may affect the quality of stormwater; include construction site Best Management Practices (BMPs) to control sedimentation, erosion, and potential chemical pollutants; provide for construction materials management; include non-stormwater BMPs; and include routine inspections and a monitoring and reporting plan.

All construction site BMPs would follow the latest edition of the *Caltrans Storm Water Quality Handbooks: Construction Site BMPs Manual* (Caltrans 2017) to control and reduce the impacts of construction-related activities, materials, and pollutants on the watershed.

The project SWPPP or WPCP would be continuously updated to adapt to changing site conditions during the construction phase.

Construction may require one or more of the following temporary construction site BMPs:

- Any spills or leaks from construction equipment (e.g., fuel, oil, hydraulic fluid, and grease) would be cleaned up in accordance with applicable local, state, and/or federal regulations.
- Accumulated stormwater, groundwater, or surface water from excavations or temporary containment facilities would be removed by dewatering.
- Water generated from the dewatering operations would be discharged on-site for dust control and/or to an infiltration basin, or disposed off-site.
- Temporary sediment control and soil stabilization devices would be installed.
- Existing vegetated areas would be maintained to the maximum extent practicable.
- Clearing, grubbing, and excavation would be limited to specific locations, as delineated on the plans, to maximize the preservation of existing vegetation.
- Vegetation reestablishment or other stabilization measures would be implemented on disturbed soil areas, per the Erosion Control Plan.
- Soil-disturbing work would be limited during the rainy season.

WQ-2: The project would incorporate pollution prevention and design measures consistent with the *2016 Caltrans Storm Water Management Plan* (Caltrans 2016). This plan complies with the requirements of the Caltrans Statewide NPDES Permit (Order 2022-0033-DWQ) as amended by subsequent orders.

The project design may include one or more of the following:

- Vegetated surfaces would feature native plants, and revegetation would use the seed mixture, mulch, tackifier, and fertilizer recommended in the Erosion Control Plan prepared for the project.
- Where possible, stormwater would be directed in such a way as to sheet flow across vegetated slopes, thus providing filtration of any potential pollutants.

1.5 Discussion of the NEPA Categorical Exclusion

This document contains information regarding compliance with the California Environmental Quality Act (CEQA) and other state laws and regulations. Separate environmental documentation supporting a Categorical Exclusion determination will be prepared in accordance with the National Environmental Policy Act. When needed for clarity, or as required by CEQA, this document may contain references to federal laws and/or regulations (CEQA, for example, requires consideration of adverse effects on species identified as a candidate, sensitive, or special status species by the National Marine Fisheries Service and the United States Fish and Wildlife Service—in other words, species protected by the Federal Endangered Species Act).

Chapter 2. CEQA Environmental Checklist

Environmental Factors Potentially Affected

The environmental factors noted below would be potentially affected by this project. Please see the CEQA Environmental Checklist on the following pages for additional information.

Potential Impact Area	Impacted: Yes / No
Aesthetics	NO
Agriculture and Forest Resources	NO
Air Quality	NO
Biological Resources	**Yes**
Cultural Resources	NO
Energy	NO
Geology and Soils	NO
Greenhouse Gas Emissions	**Yes**
Hazards and Hazardous Materials	NO
Hydrology and Water Quality	**Yes**
Land Use and Planning	NO
Mineral Resources	NO
Noise	NO
Population and Housing	NO
Public Services	NO
Recreation	NO
Transportation	NO
Tribal Cultural Resources	NO
Utilities and Service Systems	NO
Wildfire	NO
Mandatory Findings of Significance	NO

The CEQA Environmental Checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the project will indicate there are no impacts to a particular resource. A "No Impact" answer in the last column of the checklist reflects this determination.

The words "significant" and "significance" used throughout the CEQA Environmental Checklist are only related to potential impacts pursuant to CEQA. The questions in the CEQA Environmental Checklist are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project as well as standardized measures applied to all or most Caltrans projects (such as Best Management Practices [BMPs] and measures included in the Standard Plans and Specifications or as Standard Special Provisions [Section 1.4]), are considered to be an integral part of the project and have been considered prior to any significance determinations documented in the checklist or document.

Project Impact Analysis Under CEQA

CEQA broadly defines "project" to include "*the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment"* (14 California Code of Regulations [CCR] § 15378). Under CEQA, normally the baseline for environmental impact analysis consists of the existing conditions at the time the environmental studies began. However, it is important to choose the baseline that most meaningfully informs decision-makers and the public of the project's possible impacts. Where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture practically possible of the project's impacts, a lead agency may define existing conditions by referencing historic conditions, or conditions expected when the project becomes operational, or both, that are supported with substantial evidence. In addition, a lead agency may also use baselines consisting of both existing conditions and projected future conditions that are supported by reliable projections based on substantial evidence in the record. The CEQA Guidelines require a "statement of the objectives sought by the proposed project" (14 CCR § 15124(b)).

CEQA requires the identification of each potentially "significant effect on the environment" resulting from the project, and ways to mitigate each significant effect. Significance is defined as *"Substantial or potentially substantial adverse change to any of the physical conditions within the area affected by the project"* (14 CCR § 15382). CEQA determinations are made prior to and separate from the development of mitigation measures for the project.

The legal standard for determining the significance of impacts is whether a "fair argument" can be made that a "substantial adverse change in physical conditions" would occur. The fair argument must be backed by substantial evidence including facts, reasonable assumption predicated upon fact, or expert opinion supported by facts. Generally, an environmental professional with specific training in an area of environmental review can make this determination.

Though not required, CEQA suggests Lead Agencies adopt thresholds of significance, which define the level of effect above which the Lead Agency will consider impacts to be significant, and below which it will consider impacts to be less than significant. Given the size of California and it's varied, diverse, and complex ecosystems, as a Lead Agency that encompasses the entire state, developing thresholds of significance on a state-wide basis has not been pursued by Caltrans. Rather, to ensure each resource is evaluated objectively, Caltrans analyzes potential resource impacts in the project area based on their location and the effect of the potential impact on the resource as a whole. For example, if a project has the potential to impact 0.10 acre of wetland in a watershed that has minimal development and contains thousands of acres of wetland, then a "less than significant" determination would be considered appropriate. In comparison, if 0.10 acre of wetland would be impacted that is located within a park in a city that only has 1.00 acre of total wetland, then the 0.10 acre of wetland impact could be considered "significant."

If the action may have a potentially significant effect on any environmental resource (even with mitigation measures implemented), then an Environmental Impact Report (EIR) must be prepared. Under CEQA, the lead agency may adopt a negative declaration (ND) if there is no substantial evidence that the project may have a potentially significant effect on the environment (14 CCR § 15070(a)). A proposed negative declaration must be circulated for public review, along with a document known as an Initial Study. CEQA allows for a "Mitigated Negative Declaration" in which mitigation measures are proposed to reduce potentially significant effects to less than significant (14 CCR § 15369.5).

Although the formulation of mitigation measures shall not be deferred until some future time, the specific details of a mitigation measure may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review. The lead agency must (1) commit itself to the mitigation, (2) adopt specific performance standards the mitigation will achieve, and (3) identify the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure. Compliance with a regulatory permit or

other similar processes may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards (14 CCR § 15126.4(a)(1)(B)).

Per CEQA, measures may also be adopted, but are not required, for environmental impacts that are not found to be significant (14 CCR § 15126.4(a)(3)). Under CEQA, mitigation is defined as avoiding, minimizing, rectifying, reducing, and compensating for any potential impacts (CEQA 15370). Regulatory agencies may require additional measures beyond those required for compliance with CEQA. Though not considered "mitigation" under CEQA, these measures are often referred to in an Initial Study as "mitigation", Good Stewardship or Best Management Practices. These measures can also be identified after the Initial Study/Negative Declaration is approved.

CEQA documents must consider direct and indirect impacts of a project (California Public Resources Code [PRC] § 21065.3). They are to focus on significant impacts (14 CCR § 15126.2(a)). Impacts that are less than significant need only be briefly described (14 CCR § 15128). All potentially significant effects must be addressed.

No-Build Alternative

For each of the following CEQA Environmental Checklist questions, the "No-Build" Alternative has been determined to have "*No Impact*". Under the "No-Build" Alternative, no alterations to the existing conditions would occur and no proposed improvements would be implemented. The "No-Build" Alternative will not be discussed further in this document.

Definitions of Project Parameters

When determining the parameters of a project for potential impacts, the following definitions are provided:

Project Area: This is the general area where the project is located. This term is mainly used in the Environmental Setting section (e.g., watershed, climate type, etc.).

Project Limits: This is the beginning and ending post miles for a project. This is different than the Environmental Study Limits in that it sets the beginning and ending limits of a project along the highway. It is the limits programmed for a project, and every report, memo, etc. associated with a project should use the same post mile limits. In some cases, there may be areas associated with a project that are outside of the project limits, such as staging and disposal locations.

Project Footprint: The area within the Environmental Study Limits the project is anticipated to impact, both temporarily and permanently. This includes staging and disposal areas.

Environmental Study Limits (ESL): The project engineer provides the Environmental team the ESL as an anticipated boundary for potential impacts. The ESL is *not* the project footprint. Rather, it is the area encompassing the project footprint where there could *potentially* be direct and indirect disturbance by construction activity. The ESL is larger than the project footprint in order to accommodate any future scope changes. The ESL is also used for identifying the various Biological Study Areas needed for different biological resources.

Biological Study Area (BSA): The BSA encompasses the ESL plus any areas outside of the ESL that could potentially affected by a project (e.g., noise, visual, Coastal Zone, etc.). Depending on resources in the area, a project could have multiple BSAs. Each BSA should be identified and defined. If the project is within the Coastal Zone, this area would also include the required 100 foot buffer.

2.1 Aesthetics

Except as provided in the Public Resources Code Section 21099:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Have a substantial adverse effect on a scenic vista?				✓
Would the project: b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✓
Would the project: c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?				✓
Would the project: d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the Visual Impact Assessment (VIA) (Caltrans 2022b). U.S. Highway 101 (U.S. 101) passes through the corridor between Arcata and Fortuna, including Eureka, consisting of a population of roughly 60,000. A portion of U.S. 101 within the project limits is eligible for designation as a State Scenic Highway.

Scenic resources within the project viewshed include the Pacific coastline, redwood forests (including old-growth redwoods), near designated Wild and Scenic Rivers including the Eel and Van Duzen rivers, Humboldt Bay National Wildlife Refuge, Redwood National and State Parks, and other highly valued and sensitive natural areas. Any work performed within the project limits must be sensitive with regard to visual resources, and communities in the project area would be sensitive to visual change.

Potential impacts to aesthetics are not anticipated due to the proposed culvert work replacing similar drainage system features at the same locations. Headwalls, anchor assemblies, rock slope protection (RSP), and other drainage elements occur downslope of the highway and will likely not be visible to the road users or recreationalists. Any vegetation removal will recover quickly due to coastal climate and vegetation species on site. Disturbed soil areas will be treated for erosion control through hydroseed or other methods to ensure coverage of areas that may be visible during plant establishment. There would be no permanent visual impacts at these locations. This project is not expected to result in visual impacts. Furthermore, no scenic resources are affected by this project.

Given the above, Caltrans anticipates the project will have "***No Impact***" on Aesthetics.

2.2 Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection (CAL FIRE) regarding the state's inventory of forest land, including the Forest and Range Assessment Project; the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				✓
Would the project: b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
Would the project: c) Conflict with existing zoning for, or cause rezoning of forest land (as defined by Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				✓
Would the project: d) Result in the loss of forest land or conversion of forest land to non-forest use?				✓

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. Project locations are predominately within the existing Caltrans right of way or bordered by property zoned for timber, agriculture, open space, public lands, commercial, and residential uses. The Resource Production Land Use designation includes land zoned as Timberland, Agricultural Exclusive, Agricultural General, and Agricultural Grazing. The Open Space, Public Lands, and Tribal Land designation includes land zoned as Natural Resources, Public Recreation, Public Lands, Railroad, among others (County of Humboldt 2021).

All the drainage systems are within the existing Caltrans right of way; therefore, construction work will not conflict with zoning or result in the conversion of farmland to non-agricultural use. Areas required for temporary construction easements will be revegetated and will not be subject to permanent land use changes or conversion. Approximately ten temporary construction easements (TCEs) and one drainage easement will be needed for staging (i.e., parking and storing of materials), not for drainage system construction. Potential impacts to agriculture and forest resources are not anticipated as the improvement of existing drainage facilities and use of the TCE areas will not cause a change in zoning or land use or result in the loss or conversion of forest or agricultural land. The loss or conversion of farmland to non-agricultural use or forest land to non-forest use is not anticipated.

Given the above, Caltrans anticipates the project will have "***No Impact***" on agriculture and forest resources.

2.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Conflict with or obstruct implementation of the applicable air quality plan?				✓
Would the project: b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?				✓
Would the project: c) Expose sensitive receptors to substantial pollutant concentrations?				✓
Would the project: d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the Traffic Noise and Air Quality (Caltrans 2022c) and Energy and Greenhouse Gas (Caltrans 2022d) memorandums. Humboldt County is classified as an "attainment" area for all current National Ambient Air Quality Standards; therefore, transportation conformity requirements do not apply. There are no sensitive receptors in the immediate vicinity of any of the project's construction areas. Potential long-term impacts to air quality are not anticipated because the project will not result in changes to traffic volumes, capacity, vehicle miles traveled (VMT), fleet mix, speed, location of existing facilities, or any other factor that will increase long-term operational emissions.

The project may result in temporary air quality impacts during construction, including fugitive dust and exhaust from construction equipment. Fugitive dust, or PM_{10}, may be generated during excavation, grading, and hauling activities. However, both fugitive dust and pollutants from construction equipment will be temporary in nature. Dust and emissions will be reduced and controlled in conformance with Caltrans standard specifications. A discussion of greenhouse gas emissions is provided in Section 2.8.

Given the above, Caltrans anticipates the project will have "***No Impact***" on air quality.

2.4 Biological Resources

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?				✓
Would the project: b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			✓	
Would the project: c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			✓	
Would the project: d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				✓

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				✓
Would the project: f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				✓

Regulatory Setting

Within this section of the document (2.4. Biological Resources), the topics are separated into Sensitive Natural Communities, Wetlands and Other Waters, Plant Species, Animal Species, Threatened and Endangered Species, and Invasive Species. Of note, plant and animal species listed as "threatened" or "endangered" are covered within the Threatened and Endangered sections. Other special status plant and animal species, including CDFW fully protected species, species of special concern, USFWS and NMFS candidate species, and California Native Plant Society (CNPS) rare and endangered plants are covered in the respective Plant and Animal sections.

Sensitive Natural Communities

CDFW maintains a list of sensitive natural communities (SNCs). SNCs are those natural communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status taxa or their habitat.

Wetlands and Other Waters

"Waters" of the United States (including wetlands) and State are protected under several laws and regulations. The primary laws and regulations governing wetlands and other waters include:

- Federal: Clean Water Act (CWA)–33 United States Code (USC) 1344

- Federal: Executive Order for the Protection of Wetlands–Executive Order [EO] 11990
- State: California Fish and Game Code (CFGC)–Sections 1600–1607
- State: Porter-Cologne Water Quality Control Act–Section 3000 et seq.

Plant Species

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special status plant species. The primary laws governing plant species include:

- Federal Endangered Species Act (FESA)–USC 16 Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402
- California Endangered Species Act (CESA)–California Fish and Game Code Section 2050, et seq.
- Native Plant Protection Act–California Fish and Game Code Sections 1900–1913
- National Environmental Policy Act (NEPA)–40 CFR Sections 1500 through 1508
- California Environmental Quality Act (CEQA)–California Public Resources Code Sections 21000–21177

Animal Species

The USFWS, NMFS, and CDFW have regulatory responsibility for the protection of special status animal species. The primary laws governing animal species include:

- National Environmental Policy Act (NEPA)–40 CFR Sections 1500 through 1508
- California Environmental Quality Act (CEQA)–California Public Resources Code Sections 21000–21177
- Migratory Bird Treaty Act–16 USC Sections 703–712
- Fish and Wildlife Coordination Act–16 USC Section 661
- California Fish and Game Code Sections 1600–1603
- California Fish and Game Code Sections 4150 and 4152

Threatened and Endangered Species

The primary laws governing threatened and endangered species include:

- FESA–USC 16 Section 1531, et seq. See also 50 CFR Part 402
- CESA–California Fish and Game Code Section 2050, et seq.
- CESA–California Fish and Game Code Section 2080
- CEQA–California Public Resources Code Sections 21000–21177
- Magnuson-Stevens Fishery Conservation and Management Act, as amended–16 USC Section 1801

Invasive Species

The primary laws governing invasive species are Executive Order (EO) 13112 and NEPA.

Environmental Setting

A Natural Environment Study (NES) (Caltrans 2022e) was prepared for the project. Caltrans coordinated with fisheries biologists and water quality specialists, as well as agency personnel from USACE, USFWS, NMFS, CDFW, and NCRWQCB. See Chapter 3 for a summary of these coordination efforts and professional contacts.

The Biological Study Area (BSA) encompasses the Environmental Study Limits (ESL) at each work location, as shown on the project layouts (Appendix A), as well as areas adjacent to the ESL where standard environmental assessments for sensitive resources (habitats, plants, wildlife, wetlands, rivers/creeks, etc.) were conducted (Caltrans 2022e). The potential for direct and indirect impacts are considered when determining the BSA. The BSA considers elements of construction that reach beyond the immediate construction footprint, such as elevated noise levels and modifications to surface and subsurface hydrology or permanent and temporary changes to solar or sound exposure. When there is more than one type of potential impact or several resources with different sensitivities outside of the ESL, more than one type of BSA may be defined and analyzed.

The limits of the project BSAs were determined to be:

- A 328-foot buffer surrounding the construction footprint for potential auditory and visual disturbance determined using the USFWS Guidance: *Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owl and Marbled Murrelets in Northwestern California* (USFWS 2006, 2022).

- A 100-foot buffer surrounding the coastal portion of the construction footprint to evaluate the potential presence and impacts to Environmentally Sensitive Habitat Areas (ESHAs) for the Coastal Development Permit.

Sensitive Natural Communities

Natural and semi-natural vegetation types within the BSA were identified based on the vegetation classification and keys in *A Manual of California Vegetation, 2nd edition* and online updates (Sawyer et al., 2009). The classification is based on the dominant plant species and emphasizes natural, existing vegetation. Vegetation types within the BSA were identified at the alliance level where possible. Rarity of each vegetation type was determined from CDFW's current California Natural Communities List, the current list of vegetation Alliances, Associations, and Special Stands, which notes which vegetation types are considered sensitive.

The global rank reflects the overall status of an element throughout its global range:

- G1 = Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
- G2 = Imperiled—At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
- G3 = Vulnerable—At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
- G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5 = Secure—Common; widespread and abundant.

The state rank reflects the overall status of an element throughout its California range:

- S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s), such as very steep declines, making it especially vulnerable to extirpation from the state.
- S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.
- S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.
- S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors.
- S5 = Secure—Common, widespread, and abundant in the state.

For alliances with State ranks of S1, S2, and S3, all associations within them are also considered sensitive. Alliances that are not sensitive may have associations within them that are sensitive; therefore, the natural vegetation types were identified to the association level as far as possible and where necessary to determine if sensitive associations are present. Semi-natural stands are not ranked because they are strongly dominated by nonnative species.

Field surveys to map vegetation types were conducted concurrently with the special status plant surveys and the wetland delineation surveys. During the field surveys, Stantec botanists identified the boundaries of each vegetation type polygon and noted dominant species and associated species.

Table 5 below identifies the various Sensitive Natural Communities and Natural Communities of Concern within the ESL followed by discussion of each community type. Additional detail for all communities is available in the NES (Caltrans 2022e).

Table 5. Sensitive Natural Communities within the Environmental Study Limits

Community Type/Rarity (global/state)	Species/Habitat	Post Mile Location	ESL Area (Acres)
Sensitive Natural Community Rank: G4/S3	*Acer macrophyllum* (Bigleaf maple) Forest and Woodland Alliance	PMs R97.92 and R97.95	0.17
Sensitive Natural Community Rank: G5/S4 Rank: G3G4/SNR	*Alnus rubra (*Red alder) Forest Alliance *Alnus rubra* / *Rubus spp. / Sambucus racemosa* Association	PMs 113.88, 115.25,117.31, and R131.75	0.70
Sensitive Natural Community Rank: G5/S4 Rank: G4/S3	*Alnus rubra (*Red alder) Forest Alliance *Alnus rubra* / *Salix lasiolepis* (arroyo willow) / *Rubus spectabilis* (blackberry) Association	PM 72.39	0.07
Sensitive Natural Community Rank: G5/S2	*Picea sitchensis (*Sitka spruce) Forest and Woodland Alliance	Various locations along projects extent. (See NES, Caltrans 2022e)	2.86
Sensitive Natural Community Rank: G3/S3	*Pinus muricata (*Bishop pine) Forest and Woodland Alliance	PM 56.75	0.0
Sensitive Natural Community Rank: G5/S3	*Populus trichocarpa* (Black cottonwood) Forest and Woodland Alliance	PM 100.71	0.03
Sensitive Natural Community Rank: G5/S4 Rank: G3G4/SNR	*Pseudotsuga menziesii* (Douglas-fir) Forest and Woodland Alliance *Pseudotsuga menziesii* (Douglas-fir) / *Gaultheria shallon* (salal) Association	PM R105.05	0.09
Sensitive Natural Community Rank: G3/S3	*Sequoia sempervirens* (Redwood) Forest and Woodland Alliance	PMs 56.75, R105.05, 110.63, 111.05, 111.07, and R131.75	0.43
Sensitive Natural Community Rank: GNR/S4 Rank: SA/NR	*Gaultheria shallon-Rubus (ursinus)* (*Salal*–Berry bramble Pacific blackberry) *S*hrubland Alliance *Rubus parviflorus* (Thimbleberry) Association	PM 65.23	0.05
Sensitive Natural Community Rank: G4/S3	*Rubus spectabilis* (Salmonberry) Shrubland Alliance	PMs 105.5, R106.08, and 117.23	0.12

Community Type/Rarity (global/state)	Species/Habitat	Post Mile Location	ESL Area (Acres)
Sensitive Natural Community Rank: G4/S4 Rank: SA/NR	*Salix lasiolepis* (Arroyo willow thickets) Shrubland Alliance *Salix lasiolepis* (Arroyo willow) Association	PM 71.15	0.01
Sensitive Natural Community Rank: G4/S3	*Salix sitchensis* (Sitka willow thicket) Shrubland Alliance	PMs 60.68, 71.16, 71.22, 71.34, and 71.64	0.10
Sensitive Natural Community Rank: GNR/S3S4	*Equisetum arvense* (Field horsetail) Wet Meadow Herbaceous Alliance	PM 72.05	0.03
Sensitive Natural Community Rank: G4/S2	*Scirpus microcarpus* (Small-fruited bulrush marsh) Herbaceous Alliance	PMs 61.71, 71.64, and 75.01	0.06

Environmentally Sensitive Habitat Areas (ESHA)

The Humboldt County zoning regulations and Local Coastal Plan provide specific definitions for Environmentally Sensitive Habitat Areas (ESHAs). The proposed project is almost entirely within the Coastal Zone, and because the project is focused on drainage improvements within perennial and ephemeral streams, many of the sites will be located within a designated ESHA. Impacts to ESHA resulting from the proposed project and restoration of impacted habitats in these locations will be determined in consultation with the County of Humboldt and California Coastal Commission during the permitting phase of the project. Pertinent ESHA types found in the project BSA are:

- Coastal wetlands and lagoons
- Rivers, creeks, and associated riparian habitats
- Species listed under the state and/or Federal Endangered Species Act as rare, threatened, or endangered.

Wetlands and Other Waters

Aquatic resources within the ESLs include wetlands and other waters. Wetland delineations were performed to survey for potentially jurisdictional wetland and non-wetland Waters of the U.S. and State within and adjacent to the project construction footprint at each location. Atypical aquatic features are discussed below. The boundaries and area of potential Waters of the U.S. occurring within the ESL are illustrated in the Aquatic Resources Delineation Report (Caltrans 2022f). A total of 0.610 acre (1,032 linear feet) of aquatic resources were delineated by Stantec Consulting Services (Caltrans 2022f).

The following aquatic features were observed within the ESL of the project and briefly described below. For additional detail on each of the feature types, refer to the project NES (Caltrans 2022e).

- ***Palustrine Scrub-Scrub (PSS)***: includes wetlands dominated by woody plants that are less than 20 feet (6 meters) tall (i.e., shrubs). There are six PSS wetlands within the ESLs—located at PMs 56.75, 60.68, 71.22, 71.34 (x2), and 72.05. This includes both young trees, true shrubs, and woody plants that are stunted in growth.

- ***Palustrine Emergent (PEM)***: includes nontidal wetlands with salinity less than 0.5 parts per thousand and dominated by emergent plants including erect, rooted, herbaceous hydrophytes with at least 30% areal coverage. There are 23 palustrine emergent wetlands within 17 different PMs of the ESLs—located at PMs 61.71 70.86, 71.34, 71.64, 72.05, 74.54, 75.01, 76.96, 96.90, 105.05, 106.08, 111.05, 115.25, 115.66, 122.05, 122.21, and 136.23.

- ***Riparian areas***: can be defined as "transitional between terrestrial and aquatic ecosystems, providing linkages between water bodies and adjacent uplands and include portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems". Within this document, the definition of "riparian" refers to the land area that encompasses the stream channel and its current or potential floodplain—e.g., bed, bank, and channel up to the ordinary high water mark (OHWM), or land area with the potential to influence the floodplain and river channel—i.e., habitat extending to top of bank.

- ***Ephemeral streams:*** includes drainages that exhibit an OHWM and convey water during and directly after precipitation events. These drainage channels are usually located above the groundwater reservoir and lack a riparian corridor. Ephemeral streams are called R6 (Riverine, Ephemeral) features on the USACE Aquatic Resources Excel spreadsheet. R6, ephemeral stream, is considered a Cowardin type for the purposes of this delineation, even though R6 does not appear in Cowardin et al. (Caltrans 2022f). Naturally occurring ephemeral streams were not observed within the ESLs. Two ephemeral streams were observed consisting of a 2-foot-wide concrete lined ditch, likely draining storm drain runoff from surface streets at PM 87.49, and a 3-foot-wide asphalt lined feature draining uplands at PM 105.05.

The Aquatic Resources Delineation Report lists PM 57.68 as an ephemeral system. This location was previously assessed for an adjacent project within the same manmade drainage ditch; however, the RWQCB and Caltrans staff agree that the ditch is a storm drain rather than a stream.

- ***Intermittent streams:*** includes drainages that exhibit an OHWM and convey water seasonally. Intermittent streams are distinguished from ephemeral streams because they contain a groundwater component to their flow. They often support hydrophytic plant species along the edges of the OHWM or within a riparian zone. All intermittent streams within the ESLs are classified R4SB (Riverine, Intermittent, Streambed) in Cowardin et al. (Caltrans 2022f). There are six intermittent streams within the following ESLs: PMs 65.23, 70.86, 71.34, 97.92/97.95, 113.88, 131.75. The intermittent streams at PM 65.23 and PM 70.86 displayed a strong break in slope, lacked vegetation within the OHWM, but had little change in substrate. The intermittent streams at PMs 97.92/97.95, 113.88, and 131.75 are not natural features. They either convey seepage from roadcuts or are drainage systems constructed in uplands. PMs 97.92/97.95 comprise a concrete-lined ditch that conveys seepage from a hill cut along U.S. 101. PM 113.88 includes a rip-rap-lined channel along a hill cut below U.S. 101. The intermittent stream at PM 131.75 travels along the edge of U.S. 101 and was sourced from a hill cut seep located outside the ESL. Intermittent streams range in OHWM width from 1 to 3 feet.

- ***Perennial streams***: are similar to intermittent streams because they include a groundwater component as part of their flow. However, perennial streams have a year-round flow of water. Typically, plants that require or tolerate more moisture are present in the riparian corridor along perennial streams, such as rushes, sedges, and willows. All perennial streams within the ESLs are classified as Cowardin type R3UB (Riverine, Upper Perennial, Unconsolidated Bottom) (Caltrans 2022f). There are 19 perennial stream segments within the nine ESLs—located at PMs 60.68, 65.53, 65.68, 65.91, 71.22, 71.34, 105.05, 113.88, and 136.23. The streams typically exhibited strong OHWM indicators, such as a moderate or steep break in bank slope, change in sediment type, and change in vegetation cover. Most of the perennial streams are small, with OHWMs ranging from 1 to 4 feet wide, and are sourced from local groundwater emergence. A larger 8-foot-wide perennial stream exists at PM 136.23, which is a tributary to McGarvey Creek.

Rohner Creek at PM 60.68 is the largest perennial stream at approximately 8 to 12-foot wide and the only named stream in the project. Hydrology for Rohner Creek is provided from groundwater and runoff from the surrounding mountains.

A list of the delineated features is presented in Table 6 below. All aquatic resources, regardless of potential jurisdiction by various state or federal agencies, are presented in this section and potential jurisdictional status is subject to verification by applicable agencies. Additional details on Water of the U.S. and State and riparian areas are available in the NES (Caltrans 2022e).

Table 6. List of Aquatic Resources within the Environmental Study Limits

Post Mile (PM)	Cowardin[1]	HGM class[2]	Isolated	Area (Acres)	Length (feet)	Width (feet)
Wetlands						
56.75	PSS	Depression	Yes	0.018	—	—
60.68	PSS	Riverine	No	0.008	—	—
61.71	PEM	Riverine	No	0.129	—	—
70.86	PEM	Depression	Yes	0.025	—	—
71.22	PSS	Mineral Soil Flats	No	0.007	—	—
71.34	PSS	Organic Soil Flats,	No	0.014	—	—
71.34	PEM	Slope, Depressional	No	0.009		
71.64	PEM	Depressional, Mineral Soil Flats	No	0.009	—	—
72.05	PEM, PSS	Mineral Soil Flats, Slope	No	0.063	—	—
74.54	PEM	Mineral Soil Flats	No	0.014	—	—
75.01	PEM	Mineral Soil Flats	Yes	0.028	—	—
76.96	PEM	Depressional	No	0.016	—	—
96.90	PEM	Mineral Soil Flats	No	0.006	—	—
105.05	PEM	Mineral Soil Flats, Slope	No	0.025	—	—
106.08	PEM	Riverine, Slope	Yes	0.027	—	—
111.05	PEM	Depressional	Yes	<0.001	—	—
115.25	PEM	Slope	No	0.071	—	—
115.66	PEM	Slope	No	0.008	—	—
122.05	PEM	Slope	No	0.005	—	—
122.21	PEM	Riverine	Yes	0.003	—	—
136.23	PEM	Slope	No	0.005	—	—
Total Wetlands in ESL				**0.491**		

Post Mile (PM)	Cowardin[1]	HGM class[2]	Isolated	Area (Acres)	Length (feet)	Width (feet)
Other Waters						
60.68	R3UB	Riverine	No	0.049	71	15-36
65.23	R4SB	Riverine	Yes	0.002	35	2
65.53	R3UB	Riverine	Yes	0.007	109	2.5
65.68	R3UB	Riverine	Yes	0.004	58	3
65.91	R3UB	Riverine	Yes	<0.001	11	2
70.86	R4SB	Riverine	No	<0.001	4	1
71.22	R3UB	Riverine	No	<0.001	15	2
71.34	R3SB	Riverine	No	0.001	36	2
87.49	R6	Riverine	No	0.003	65	2
97.92/97.95	R4SB	Riverine	No	0.003	68	2
105.05	R3UB, R6	Riverine	No	0.010	152	3
113.88	R3UB, R4SB	Riverine	No	0.017	250	3
131.75	R4SB	Riverine	No	<0.001	30	1
136.23	R3UB	Riverine	Yes	0.019	128	3-8
Total Other Waters				**0.119**	**1,032**	
Total Aquatic Resources				**0.610**	**1,032**	

[1] Cowardin classification codes (Cowardin et al., 1979)
[2] Hydrogeomorphic (HGM)

Plant Species

The project footprint contains potentially suitable habitat for 89 special status plant species (Caltrans 2022e). For the remaining species identified on the species list, either suitable habitat is lacking or the project sites are outside the elevation and/or geographic range. Botanical surveys described in the NES did not document any special status plants within or immediately adjacent to the project footprint (Caltrans 2022e).

Western lily (*Lilium occidentale*) is federally and state listed as endangered. It is a perennial herb that grows from a bulb and produces crimson red flowers with yellow centers between June and July. It occurs in coastal areas between Coos Bay, Oregon, and Eureka, California, where it is associated with freshwater marshes, swamps, bogs and fens, in coastal scrub, coastal bluff scrub, coastal prairie, or North Coast coniferous forest habitats. It is typically found on well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil, usually near margins of Sitka spruce at elevations ranging from 6.5 to 605 feet

(CDFW 2022a). Threats to the species are primarily from development, hydrological modification from land use changes, and encroachment by trees and shrubs due to a lack of ecological disturbance, such as fire and grazing.

Floristic surveys were completed within the project area in 2021 and 2022 for Western lily and other regionally-occurring special status plant species. Although the project footprint may support suitable habitat for Western lily, none were observed within the ESLs during floristic surveys.

Furthermore, seasonally appropriate botanical surveys determined there was no suitable habitat and no presence within the ESLs for the following federal and/or state listed plant species:

- Humboldt County milk-vetch (*Astragalus agnicidus*)
- Menzies' wallflower (*Erysimum menziesii*)
- Beach layia (*Layia carnosa*)

As there will be no impact to these species, they are not discussed further.

Animal Species

There is potentially suitable habitat for several special status animal species within the project study area (ESLs and BSAs). Special status animal species which would be outside the range of the project area and/or there is no suitable nesting, roosting, foraging, or dispersal habitat present within the project area are not discussed further. Special status animals which may potentially be present within the project area are discussed below.

Because of their FESA and CESA listing status and relative sensitivity, the NES also discusses those special status animals with potentially suitable habitat within the project area, although considered not likely to be present due to project location or will not likely be affected by the proposed action (Caltrans 2022e). The animals listed within the species table (Caltrans 2022e) are considered to be special concern based on (1) federal, state or local laws regulating their development; (2) limited distributions; and/or (3) the presence of habitat required by the special status animal occurring onsite.

Special Status Amphibians

Areas of the ESLs or BSAs may support habitat for the following Species of Special Concern (SSC) (Caltrans 2022e):

- foothill yellow-legged frog (FYLF) (*Rana boylii*)
- Northern red-legged frog (NRLF) (*Rana aurora*)
- Pacific tailed frog (*Ascaphus truei*)
- Southern torrent salamander (*Rhyacotriton variegatus*)

Surveys for special status amphibians were not conducted. These species may be present in the drainages around the culverts and nearby riparian habitat and could occur within the ESLs.

Special Status Bird Species

A number of special status bird species (indicated below) could potentially occur within the project limits along U.S. 101.

Golden Eagle

The golden eagle (*Aquila chrysaetos*) is a CDFW fully protected species and also protected by the Bald and Golden Eagle Protection Act—no take of the species is allowed. Golden eagle nests are more prevalent in open and semi-open habitat, but also may nest at lower densities in coniferous habitat when open space is available. Golden eagles nest on cliffs, in the upper one third of deciduous and coniferous trees, or on artificial structures (windmills, electricity transmission towers, artificial nesting platforms, etc.) (Caltrans 2022e).

Species-specific surveys were not performed for this species, and golden eagles or nests were not observed during field visits. The closest occurrence documented in the CNDDB RareFind database includes a nest observed 7.1 miles from the project's southern extent (Caltrans 2022e).

Northern Harrier

Northern harrier (*Circus hudsonius*) is a state Species of Special Concern and nests and forages in tall grasslands. Northern harriers usually choose shrubby vegetation at marsh edges where it builds large mound nests from sticks. Harriers typically fly low over the ground when hunting.

No northern harrier surveys were conducted. The ESLs contain marginal foraging and nesting habitat. The species may be present along the sections of marsh or grassland adjacent to the ESLs. The CNDDB RareFind tool lists the nearest occurrence of this species 1.9 miles north of the ESLs along Humboldt Bay.

White-tailed Kite

In California, the white-tailed kite (*Elanus leucurus*) is a state Fully Protected species. It is a common to uncommon, yearlong resident in coastal and valley lowlands and rarely found away from agricultural areas. The white-tailed kite preys mostly on voles and other small, diurnal mammals, and occasionally on birds, insects, reptiles, and amphibians (Caltrans 2022e). White-tailed kites breed in lowland grasslands, agriculture, wetlands, oak-woodland and savannah habitats, and riparian areas associated with open areas. These kites typically nest in the upper third of trees that may be 10–160 feet tall. These can be open-country trees growing in isolation, or at the edge of or within a forest (Caltrans 2022e).

No species-specific surveys were conducted for white-tailed kite. The CNDDB lists the nearest occurrence 0.49 mile east of the PM 75.01 ESL. The eBird database contains numerous occurrences of white-tailed kites within two miles of the project area. Suitable foraging habitat is present within the ESL. No nesting habitat is present within the ESL (Caltrans 2022e).

Special Status Fish Species

A number of special status fish occur within the project area. Due to its linear nature, the project ESL passes near the Mainstem Eel River, the Van Duzen River, the Mad River, and Redwood Creek—major drainages containing anadromous fish. In addition to the rivers, the project passes near Humboldt Bay, the Humboldt Lagoons, and numerous small drainages that provide habitat to a variety of special status fish species which are discussed below. Note: federal and state threatened and endangered fish species are discussed in the Threatened and Endangered Species section.

Coastal Cutthroat Trout

Coastal cutthroat trout (*Oncorhynchus clarkii clarkii*) is a California Species of Special Concern. Of the 13 subspecies of cutthroat trout indigenous to North America, only the coastal cutthroat is anadromous. Coastal cutthroat have complex life histories and not all fish are anadromous. In any given body of water, some may migrate to sea, while others become resident fish (Caltrans 2022e).

Pacific Lamprey

Pacific lamprey (*Entosphenus tridentatus*) is a California Species of Special Concern. No species-specific surveys were performed for these species. While this species is known to be present in the Eel River and may be present in the Eel River within the BSA, it is unlikely lamprey will be present within the ESL during construction and dewatering. Lamprey spawn in gravel bottomed streams in medium sized rivers and smaller tributaries at the upstream end of riffles. Spawning occurs between March and July. Primary conservation opportunities to protect and restore Pacific lamprey populations include providing lamprey passage, protecting ammocoete habitat, and restoring stream channel complexity.

Western Brook Lamprey

Western brook lamprey (*Lampetra richardsoni*), a California Species of Special Concern. Western brook lamprey are not anadromous nor parasitic; they stay in streams for their entire lives as filter feeders. Ammocoetes are typically found in slack water areas or pools where they burrow tail first into soft substrate. Burrowed ammocoetes feed on algae and organic matter passing in the water column (Caltrans 2022e). Ammocoetes undergo metamorphosis in the fall and the resulting adults are ready to spawn by the following spring. Spawning takes place in riffles in the early spring and may last up to six months depending upon the flow regime of the stream. Ammocoetes require streams with deep pockets of sediment and flowing water because they bury themselves in sediment during the day and extend their bodies into the water column during the night to feed. They feed by filtering organic material from the water. This species requires areas with pebbles or sand for spawning (Caltrans 2022e).

Special Status Invertebrates

Bumble Bee Species

The western bumble bee (*Bombus occidentalis*) is state candidate endangered. This species is associated with several plant genera including *Melilotus, Cirsium, Lupinus, Trifolium, Centaurea* and *Eriogonum.* Queens of this species emerge from hibernation in late January and select a nest site in an existing hole in the ground (such as an abandoned rodent hole). The first workers appear in early March and the drones and new queens emerge by the end of April. The colony dissolves in late October when the old queen, workers, and drones die. Habitat for this species includes open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows (Caltrans 2022e).

The crotch bumble bee (*Bombus crotchii*) is a species of bumble bee native to the west coast of the U.S. where its distribution extends from Mediterranean region on the Pacific Coast to the Western Desert, and adjacent foothills through most of southwestern California. It is state candidate endangered due to rarity, few populations, and restricted range. The species is associated with several plant genera including *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.* Crotch bumble bees are social insects that often nest underground in abandoned rodent nests, or above ground in tufts on grass, old bird nests, rock piles, or cavities in dead trees (Caltrans 2022e).

No surveys were conducted for bumble bee species. Potential suitable habitat for both species is located adjacent to the ESL. A historical occurrence of the crotch bumble bee from 1976 was identified 1.54 miles southeast of the ESL. For the Western bumble bee, there are multiple occurrences adjacent to the ESL.

Special Status Mammals

Pacific Fisher–West Coast DPS-Northern California ESU

The West Coast Distinct Population Segment (DPS) of Pacific fisher (*Pekania pennanti)* is a state Species of Special Concern, while other populations outside the North Coast have been designated state and federally threatened (Caltrans 2022e). The fisher is one of the largest members of the weasel family (*Mustelidae*) and are opportunistic, generalist predators with a diverse diet which includes mammalian and avian prey, ungulate carrion, vegetation, insects, and fungi. Fisher are known to occur in coniferous forest in the coastal ranges of northern California, including second growth and old-growth redwood forest, with a possible preference for stands with structural complexity, diversity, and large logs and snags for resting and denning (Caltrans 2022e). Fisher require large areas of mature, structurally

complex conifer and mixed conifer hardwood forest and occupy home ranges that can exceed 14,826 acres (6,000 hectares) (Caltrans 2022e). They mate between February and May, usually giving birth in March.

Protocol-level surveys were not performed for this species. The CNDDB RareFind database shows the nearest fisher detections approximately 0.26 mile east of the PM 87.73 ESL (Caltrans 2022e).

Ringtail

Ringtail (*Bassariscus astutus*) is a state Fully Protected mammal. It is a member of the raccoon family that can be found in fragmented and disturbed areas, and dens inside buildings and other manmade structures. Ringtails are nocturnal carnivores that forage for a variety of prey, primarily small mammals, invertebrates, birds, and reptiles (Caltrans 2022e). In northwest California, ringtails tend to select diurnal rest sites near steep slopes and water sources. Dens can be located in rock crevices, living and dead hollow trees, logs, brush piles, buildings, and other manmade structures. Female ringtails may regularly move young between dens (Caltrans 2022e).

No surveys were conducted for this species. No CNDDB occurrence information is available, as CNDDB does not track ringtail observations. The project's region is within the known distribution of this species. No potential natal dens were observed within the project footprint (Caltrans 2022e).

Sonoma Tree Vole and White-footed Vole

Sonoma tree vole (*Arborimus pomo*) is a state Species of Special Concern. They are endemic to California and occur in the coastal fog belt from the Oregon border to Sonoma County in Douglas-fir, redwood, and montane hardwood-conifer forests. They nest in trees and feed almost exclusively on Douglas-fir and grand fir (*Abies grandis*) needles. The Sonoma tree vole breeds year around, but most breeding is from February through September. Litter size ranges from one to four, with an average of two. There is potential for the Sonoma tree vole to occur within the project ESLs, although unlikely given their preference for old-growth habitat (Caltrans 2022e).

The white-footed vole (*Arborimus albipes*) is a state Species of Special Concern and known only from Humboldt and Del Norte counties in California. This scarce resident of humid coastal forests is found in redwood, Douglas-fir, and riparian forests. Found from sea level to 3,500 feet (1,100 meters), white-footed voles feed principally on the leaves of green plants

including trees, shrubs, forbs, ferns, grasses, and aquatic plants. Red alder is the preferred food source overall, but most hardwoods, forbs, and shrubs are also consumed. The white-footed vole builds a nest on the ground, under stumps, logs, or rocks and finds cover in dense vegetation near streams (Caltrans 2022e). White-footed voles may breed throughout the year. However, pregnant individuals have been captured only from mid-April to late July, suggesting an extended spring-summer breeding season (Caltrans 2022e).

No species-specific surveys for the voles were conducted. CNDDB RareFind reports the closest detection of Sonoma tree vole approximately 0.37 mile from the project footprint in 1981 when specimens were collected, which are now housed in the Cal Poly Humboldt vertebrate museum. White-footed voles were trapped and collected in 1926 near Trinidad, California (Caltrans 2022e).

Bats

In the northern California coastal climate, bats are present year-round. In colder areas they are often migratory. At night, bats often roost in the open on the undersides of concrete bridges. Bats can roost on rocky surfaces, trees, culverts, and other manmade structures (Caltrans 2022e).

The project is within range of two bats which are state Species of Special Concern—Pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*). Both have the potential to forage within ESLs along the project limits (Caltrans 2022e). The forested woodlands adjacent to the ESL offer foraging and roosting habitat for bats. The roadway offers an opening in the forest for edge-foraging bats. Both day and night roosting habitat could occur within crevices and cavities of trees and snags within the ESL. Pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*) are potentially present within the ESL (Caltrans 2022e).

The nearest CNDDB occurrence of pallid bat is 4.2 miles west of PM 61.71 which dates back to 1924. CNDDB shows an occurrence of Townsend's big-eared bat approximately 3.7 mile east of PM 70.86.

Threatened And Endangered Species

A number of threatened and endangered species have habitat within the project area. Discussions on these species and their habitat requirements are provided below. Impact discussions are provided in Section 2.4.

Bald Eagle

Although the bald eagle (*Haliaeetus leucocephalus*) was delisted from federal status, it is still considered state endangered. The bald eagle is also federally protected by the Bald and Golden Eagle Protection Act (16 United States Code [USC] § 668) (Caltrans 2022e). Bald eagles typically nest in large trees within one mile of fishable waters, within or directly adjacent to forests with large trees that provide suitable nesting structures. Nesting occurs February through August. In Humboldt County, bald eagles are strongly tied to open water and undisturbed shorelines.

No species-specific surveys were performed for this species. No bald eagles or nests were observed within the BSA during field visits. The CNDDB RareFind lists a single historic nest site approximately 1.04 miles east of the ESL (Caltrans 2022e).

Bank Swallow

The bank swallow (*Riparia riparia*) is a state threatened species that requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean to dig nesting holes. The species is considered a colonial breeder with colonies that range in size from 10 to 1,500 nesting pairs.

Surveys for bank swallows were not conducted and bank swallows were not observed within the project footprint. The CNDDB RareFind lists a single breeding colony on a vertical cliff above the Van Duzen River (Caltrans 2022e). The CNDDB BIOS mapping application shows this occurrence as a circle that encompasses the start of the project limits. This record was last observed in 1946 with no subsequent reporting of the population. Nesting habitat for this species was not observed within the project footprint (Caltrans 2022e).

California Condor

California condor (*Gymnogyps californianus*) is federally and state endangered and a Fully Protected species. In 1982 there were only 22 individuals remaining of this species, whose range once encompassed much of North America (Caltrans 2022e). In 2008, the Yurok Tribe Wildlife Program obtained a grant from the U.S. Fish and Wildlife Service and began scientifically assessing the historical habitat for current suitability. It has been shown that the landscape still is a viable habitat for the condors (Caltrans 2022e).

Species-specific surveys were not conducted and condors were not observed within the project footprint. While nesting habitat for this species was not observed within the project footprint, there may be suitable foraging or roosting habitat within the BSA (Caltrans 2022e).

Marbled Murrelet

Marbled murrelet (MAMU) (*Brachyramphus marmoratus*) is federally threatened and state endangered with over 3.6 million acres of critical habitat designated in the combined states of Washington, Oregon, and California (Caltrans 2022e). They forage in the ocean, primarily within a few miles of shore, and fly inland to nest in mature conifers. Nesting habitat is primarily associated with large tracts of old-growth forest, typically within 50 miles from shore, characterized by large trees, a multistoried stand, and moderate to high canopy closure.

The primary constituent elements (PCE) of critical habitat for MAMU are individual trees with potential nesting platforms, forested areas within 0.5 mile of individual trees with potential nesting platforms, and a canopy height of at least one-half the site-potential tree height (Caltrans 2022e).

Protocol-level surveys were not conducted for MAMU. CNDDB RareFind lists MAMU detections in multiple areas along the project's northern extent. Critical habitat for MAMU has been designated and is within the BSA of ten project locations. A total of 6.89 acres of MAMU critical habitat is within the project ESLs.

Northern Spotted Owl

The northern spotted owl (NSO) (*Strix occidentalis caurina*) is federally and state threatened. This species occurs in southwest British Columbia, through the Cascade Mountains, and coastal ranges in Washington, Oregon, and California, as far south as Marin County, California. Nesting, roosting, and foraging occurs in structurally complex, older coniferous forests (Caltrans 2022e).

Protocol-level surveys were not conducted for NSO. CNDDB RareFind tool lists several activity centers (AC) and potential habitat adjacent to the ESLs. As there is potential for NSO to occur within the BSA due to suitable nesting habitat, potential presence is presumed; however, there are no documented nesting sites nor critical habitat within the ESLs (Caltrans 2022e).

Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor)* is a state threatened species in California. Historically, tricolored blackbirds bred in wetlands almost exclusively. However, because of extensive losses to wetlands along the U.S. West Coast, many now nest in agricultural fields, though some still breed in remnant marshes (Caltrans 2022e).

Unlike red-winged blackbirds, tricolored blackbird nest in tight colonies and often travel away from the colony to find food. During nonbreeding season, they join flocks of red-winged blackbirds, Brewer's blackbirds, brown-headed cowbirds, and European starlings.

No tricolored blackbird surveys were conducted. The project ESLs contain marginal foraging and nesting habitat. The species may be present along the sections of marsh or grassland adjacent to the ESLs. The CNDDB RareFind tool lists the nearest occurrence of this species 0.5 mile north of the project footprint (Caltrans 2022e). The eBird online database documents several observations along the project's extent.

Yellow-billed Cuckoo–Western U.S. DPS

The yellow-billed cuckoo (YBCU) (*Coccyzus americanus occidentalis*)–Western U.S. DPS is federally listed as threatened and state listed as endangered. These birds breed in large blocks of riparian habitats (particularly woodlands with mature cottonwoods and willows). Optimal size of habitat patches for the species is generally greater than 200 acres in extent with a dense canopy closure (Caltrans 2022e).

Critical habitat for YBCU was proposed by the USFWS in 2014 (79 FR 48547). The proposed critical habitat adjacent to the project site is Unit 1, located along the Eel River in Humboldt County, California. However, this unit was removed from the final designation and currently there is no YBCU critical habitat within or adjacent to the project area (Caltrans 2022e).

With technical assistance from USFWS (liaison Greg Schmidt, pers. comm. 2022), Caltrans determined there is no suitable nesting habitat for YBCU in the project area. There are no sufficiently large tracts of cottonwood/willow-dominated riparian habitat within the ESL. There is potential foraging habitat within the BSA (Caltrans 2022e).

Pacific (Humboldt) Marten–Coastal DPS

The Coastal DPS of the Pacific (Humboldt) marten (*Martes caurina humboldtensis*) became federally threatened on October 8, 2020, and is a state endangered species and Species of Special Concern. Martens historically occurred in the coastal mountains of California from Sonoma County north to the Oregon border. The current known distribution is limited to Del Norte and western Siskiyou counties and the extreme northern part of Humboldt County. Humboldt marten is associated with late successional conifer stands with dense shrub layers and abundant downed tree structures used for resting, denning, and escape cover. Natal and maternal dens will likely be occupied from late March or April when females give birth until the young disperse in late summer or autumn (Caltrans 2022e).

Species-specific surveys were not conducted for Humboldt marten. There is potentially suitable foraging, resting, or denning habitat for Humboldt marten within the BSA and potential for this species to occur in or move throughout the BSA. They are unlikely to occur within the ESL due to its proximity to the busy highway. While critical habitat has been adopted for Pacific (Humboldt) marten, the BSA is outside of designated critical habitat.

Chinook Salmon–California Coastal ESU

Eel River Chinook salmon (*Oncorhynchus tshawytscha*) (population 17)–California Coastal (CC) Evolutionarily Significant Unit (ESU) is federally listed as threatened and a state Species of Special Concern. Chinook salmon have a life history similar to Southern Oregon/Northern California Coast (SONCC) coho salmon but are easily distinguished from other *Oncorhynchus* species by their large size, with some individuals growing to more than 100 pounds (Caltrans 2022e).

Chinook salmon typically spawn in November and December, depending on rainfall patterns. In late winter or spring, fry emerge from the gravel and begin their downstream migration to rear in the lower mainstem and estuary until late summer or fall before ocean entry (Caltrans 2022e).

The project overlaps designated critical habitat for the Chinook salmon–California Coastal ESU at all sites between PMs 60.68 and 122.21, including Rohner Creek at PM 60.68, Little River at PM 97.13, Big Lagoon at PM 110.63, Stone Lagoon at PMs 115.25 and 115.66, and Redwood Creek at PMs 121.96 and 122.21.

Coho Salmon–Southern Oregon/Northern California Coast ESU

The coho salmon (*Oncorhynchus kisutch*)–SONCC ESU (population 2) is federally and state listed as endangered. The SONCC ESU includes all naturally spawned populations of coho salmon in coastal streams between Cape Blanco, Oregon, and Punta Gorda, California, as well as salmon produced by three artificial propagation programs: the Cole River Hatchery near the Rogue River in Oregon and the Trinity River and Iron Gate (Klamath River) hatcheries in California.

Critical habitat for the SONCC ESU of coho salmon was designated in 1999 (64 FR 24049) as encompassing accessible reaches of all rivers (including estuarine areas and tributaries) between the Mattole River in California and the Elk River in Oregon. Critical habitat includes all waterways, substrate, and adjacent riparian zones, but excludes 1) areas above specific dams, 2) areas above longstanding, naturally impassible barriers, and 3) tribal lands. (Caltrans 2022e). The project overlaps with designated critical habitat at all sites between PMs 60.68 and 122.21, including the Elk River at PM 74.70, Little River at PM 97.13, Big Lagoon at PM 110.63, Stone Lagoon at PMs 115.25 and 115.66, and Redwood Creek at PMs 121.96 and 122.21.

Pacific Eulachon–Southern DPS

The Southern Distinct Population Segment (DPS) of Pacific eulachon (*Thaleichthys pacificus*) is listed as federally threatened and has designated critical habitat (Caltrans 2022e). Eulachon is endemic to the eastern Pacific Ocean, ranging from northern California to southwest Alaska and into the southeastern Bering Sea. In California, eulachon have been documented in the Sacramento River, Russian River, Humboldt Bay (including several nearby smaller coastal rivers (e.g., Mad River)), and the Klamath River (Caltrans 2022e). Eulachon spawn in fresh water from mid-winter through late spring. In northern California, spawning typically begins in late January and may continue as late as May. Prior to

spawning, they spend their adult lives (3 to 5 years) in salt water (Caltrans 2022e). In the Redwood Creek watershed, critical habitat extends from the mouth of the river upstream to the confluence with Prairie Creek. Critical habitat for the species overlaps the project area at Prairie Creek at PMs 122.05 and 122.21.

Green Sturgeon–Southern DPS

Green sturgeon (*Acipenser medirostris*) is listed as federally threatened. They are anadromous fish that spend the majority of their life feeding in the ocean, bays and estuaries, returning to their natal rivers every 3 to 5 years to spawn. Adult sturgeon typically spawn in deep pools of rivers from late February–July with a peak in mid-April to mid-June. Juvenile green sturgeon spend one to four years in fresh and estuarine waters before migrating to the ocean. Critical habitat for the southern DPS encompasses certain coastal bays and estuaries from Monterey Bay, California, to the Strait of Juan de Fuca, Washington (Caltrans 2022e). The project area overlaps critical habitat at Elk River at PMs 74.54 and 74.70.

Longfin Smelt

Longfin smelt (*Spirinchus thaleichthys*) is a state threatened species. Longfin smelt inhabit open waters of bays and spawn in estuaries in fresh or slightly brackish water where they deposit their eggs on sandy, gravel, cobble, or plant substrates at the bottom of deep channel habitats. Most spawning occurs between January and March and the eggs hatch in around 40 days. Larvae spend little time residing in the estuary and off-channel habitats before initiating migration to the ocean (Caltrans 2022e).

Steelhead–Northern California DPS and Summer-run Steelhead

The steelhead (*Oncorhynchus mykiss irideus*)–Northern California (NC) DPS (population 16) is a federally threatened species. The NC DPS includes all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in California coastal river basins from Redwood Creek southward to, but not including, the Russian River, as well as some state and federal propagation programs (Caltrans 2022e). Steelhead in this DPS include both winter and summer-run types, and what is presently considered to be the southernmost population of summer-run steelhead in the Middle Fork Eel River.

The NC summer-run steelhead subspecies (pop. 36) was listed as candidate endangered under CESA in 2021. Migration timing is a major difference between winter and summer-run steelhead ecotypes; however, winter steelhead share many characteristics of summer-run steelhead and are similar in more ways than they are different (Caltrans 2022e).

The project overlaps critical habitat for the steelhead–Northern California DPS and summer-run steelhead at Prairie Creek at PMs 122.05 and 122.21.

Tidewater Goby

The tidewater goby (*Eucyclogobius newberryi*) is listed as federally endangered (59 FR 5494). The species is endemic to California where it historically ranged from Tillas Slough (mouth of the Smith River in Del Norte County) to Agua Hedionda Lagoon (northern San Diego County). They are currently found throughout their known historic range but reside at fewer locations having been extirpated from some sites as a result of coastal development, channelization of streams and estuaries, water diversions, predation, and drought (Caltrans 2022e).

Tidewater goby are benthic fish that inhabit shallow lagoons and the lower reaches of coastal streams where the water is brackish (salinities usually <10 parts per thousand) to fresh and slow-moving or fairly still but not stagnant. They typically occur in waters less than 6.5 feet (2 meters) in depth but have been documented in waters up to 15 feet (4.6 meters) deep in large lagoons (Caltrans 2022e). Tidewater gobies can tolerate a range of salinities but are rarely found in the marine environment, typically only when flushed out of their preferred estuarine habitats by seasonal breaching of sandbars following storm events. They often migrate upstream into tributaries as far as 0.5 mile from the estuary (Caltrans 2022e). The project area overlaps critical habitat for the species at Big Lagoon at PM 110.63 and Stone Lagoon at PMs 115.25 and 115.66.

Invasive Species

Introduction and naturalization of non-native species is one of the largest threats to global biodiversity. The project area contains several invasive plant species that adversely affect ecologic functions. Some species that most threaten native ecosystem function and structure include redtop (*Agrostis stolonifera*), silvery hairgrass (*Aira caryophyllea*), white flowered onion (*Allium triquetrum*), sweet vernal grass (*Anthoxanthum odoratum*), slim oat (*Avena barbata*), common mustard (*Brassica rapa*), bull thistle (*Cirsium vulgare*), poison hemlock (*conium maculatum*), cape ivy (*Delairea odorata*), English ivy (*Hedera helix*), bristly ox-tongue (*Helminthotheca echioides*), jubata grass (*Cortaderia jubata*), Scotch broom, (*Cytisus scoparius*), and French broom (*Genista monspessulana*). All of the above listed species were observed within the project limits.

Discussion of CEQA Environmental Checklist Question 2.4a)—Biological Resources

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries/NMFS?

Plant Species

Floristic surveys were completed within the project area in 2021 and 2022 for Western lily and other regionally-occurring special status plant species (Caltrans 2022e). Although the ESL may support suitable habitat for special status plant species, none were observed within the ESL during floristic surveys. Based on the floristic survey results and the lack of recorded occurrences within the project footprint, no Western lily is expected to occur within the project footprint or be impacted by the project.

Under FESA, Caltrans anticipates the project will have "***No Effect***" on Western lily.

Under CESA, as project activities are not anticipated to impact Western lily, no "***take***" will occur.

As a result of these surveys and habitat analysis, Caltrans has determined there will be "***No Impact***" to special status plants.

Animal Species

There is potentially suitable habitat for several special status animal species within the project area (ESLs and BSAs of varying locations). Those special status animal species that would be outside the range of the project area and/or there is no suitable nesting, roosting, foraging, or dispersal habitat present within the project area are not discussed further. Special status animals which may potentially be present within the project area are discussed below.

Amphibians

Areas of the ESLs or BSAs may support habitat for the following state Species of Special Concern (SSC):

- Foothill yellow-legged frog (FYLF) (*Rana boylii*)
- Northern red-legged frog (NRLF) (*Rana aurora*)
- Pacific tailed frog (*Ascaphus truei*)
- Southern torrent salamander (*Rhyacotriton variegatus*)

In work areas adjacent to surface waters, special status amphibians and reptiles could be crushed or run over by construction equipment, if present. Any degradation of water quality caused by accidental spills or increased sediment loads could also have deleterious effects to all life stages, if exposed. Implementation of the Standard Measures and Best Management Practices described in Section 1.4 to protect water quality will avoid and minimize these potential impacts.

Due to the limited disturbance, short-term nature of the activities, and the presence of suitable habitat adjacent to the ESLs to which they could relocate, if necessary, Caltrans does not anticipate any substantial adverse effects to these species.

Bird Species

The following bird species are special status species (federal or state threatened or endangered, or fully protected under state law) with potential to occur within the project area; however, were not observed during field visits nor have nesting habitat within the ESL (Caltrans 2022e). Because of the lack of habitat and observations during field visits, no further analysis of these species is provided:

- Bald eagle (*Haliaeetus leucocephalus*)–state endangered
- Bank swallow (*Riparia riparia*)–state threatened
- California condor (*Gymnogyps californianus*)–federal and state endangered and state fully protected
- Golden eagle (*Aquila chrysaetos*)–state fully protected
- Northern harrier (*Circus hudsonius*)–state Species of Special Concern
- Tricolored blackbird (*Agelaius tricolor)*–state threatened

- White-tailed kite (*Elanus leucurus*)–state fully protected

Under FESA, Caltrans anticipates the project will have "***No Effect***" on the federally listed bird species indicated above.

Under CESA, with implementation of the standard bird protection measures provided in Section 1.4, there would be no "***take***" to the state listed bird species indicated above.

Migratory Bird Species

There are numerous migratory bird species that could utilize the site during construction. No nests will be removed or altered during project activities. Impacts to migratory birds are not anticipated given the minimal amount of vegetation to be removed, temporary nature of the project, and implementation of the Standard Measures and Best Management Practices to avoid disturbing active nests.

Caltrans anticipates there will be "***No Impact***" to Migratory Birds as a result of the proposed project.

Given the project will not impact migratory birds or permanently affect potentially suitable habitat for migratory birds, cumulative impacts are not anticipated.

Avoidance and Minimization Measures

Impacts on migratory birds or their nests are not anticipated with incorporation of the standard bird protection measures identified in Section 1.4. Potential project-related impacts to migratory birds will be avoided by restricting vegetation removal to the period outside of the bird breeding season (September 16 through January 31). If vegetation removal is required between February 1 and September 15, a nesting bird survey will be conducted by a qualified biologist within five days prior to removal. If an active nest is located, the biologist will coordinate with the CDFW to establish appropriate species-specific buffer(s) and any monitoring requirements. The appropriate buffer will be delineated around each active nest, and construction activities will be excluded from these areas.

Insect Species

The western bumble bee (*Bombus occidentalis*) is state candidate endangered. This species is associated with several plant genera including *Melilotus, Cirsium, Lupinus, Trifolium, Centaurea* and *Eriogonum.* The crotch bumble bee (*Bombus crotchii*) is a species of bumble bee native to the west coast of the U.S. It is state candidate endangered due to rarity, few populations, and restricted range. Potential impacts to western and crotch bumble bee are

considered negligible due to the lack of meadow habitat within the ESLs and the abundance of potential nesting and foraging habitat for the species outside of the ESLs. Given the low level of disturbance and lack of suitable habitat, it is anticipated the proposed work will not disturb suitable nesting or foraging habitat. Proposed ground disturbance is not within any meadows or grassy areas that are not regularly mowed and disturbed.

Per CESA, the project will not result in "***take***" of western bumble bee or crotch bumble bee.

Caltrans anticipates there will be "***No Impact***" to special status insects as a result of the proposed project.

Fish Species

This section evaluates the potential for impacts of proposed culvert repair/replacement activities on fish and fish habitat related to water quality degradation, general construction noise and visual disturbance, injury or mortality from in-water construction activities. Species-specific analysis is not provided due to the common habitat requirements of fish species.

Water Quality Impacts

Potential water quality impacts from project construction include turbidity and sedimentation and discharge of pollutants. Pollutants in highway runoff or from construction operations can result in the mobilization of sediment both during and after construction. With implementation of Caltrans' Standard Measures and Best Management Practices identified in Section 1.4, and the ABMPs from the PBO identified in the NES (Caltrans 2022e), potential water quality impacts and their effects on salmonids is considered negligible because the impacts will be short-term, temporary, and limited to the construction period.

Turbidity and Sedimentation

Increases in suspended sediment or turbidity can affect water quality, which in turn can affect fish health and behavior. Salmonids typically avoid areas of higher suspended sediment, which means they displace themselves from their preferred habitat to seek areas with less suspended sediment. Fish unable to avoid suspended sediment can experience negative effects; the severity of which increases as a function of the sediment concentration and exposure time (Caltrans 2022e). Suspended sediment and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels.

With implementation of Caltrans' Standard Measures and Best Management Practices identified in Section 1.4, and the ABMPs from the PBO identified in the NES (Caltrans 2022e), potential water quality impacts and their effects on salmonids is considered negligible because the impacts will be short-term, temporary, and limited to the construction period. The proposed project is not likely to result in significant excursions of suspended sediment and turbidity relative to baseline conditions that would result in acute physical or behavioral effects on individual salmonids. The work will be conducted during the dry season (June 15 to October 15) which avoids the most vulnerable periods of adult and smolt migration and coincides with the period when juvenile salmonid populations are lowest.

Disturbed soil areas will be seeded and mulched in accordance with Caltrans Standard Measures and Best Management Practices (Section 1.4) to control erosion and sedimentation and minimize long-term water quality impacts.

Pollutants Associated with Stormwater Runoff and Accidental Spills

During construction, a risk will exist for accidental release of oil, grease, wash water, solvents, drilling fluid, or other construction materials into the water. However, with implementation of Caltrans' Standard Measures and Best Management Practices identified in Section 1.4, and the ABMPs from the PBO identified in the NES (Caltrans 2022e), which include provisions for the proper handling, storage, and disposal of contaminants, localized degradation of water quality from construction-related spills is unlikely. The standard measures are expected to sufficiently restrict any discharged pollutants to the immediate area; therefore, chemical contamination of the project watercourses as a result of construction operations is unlikely to occur and potential effects to salmonids is expected to be discountable. There will not be a significant increase in pollutant loading from roadway runoff due to traffic over the existing condition as the proposed project is not intended to generate an increase in traffic volume.

Threatened And Endangered Species

Federal and state Threatened and Endangered or Fully Protected bird species include the bald eagle, bank swallow, California condor, golden eagle, marbled murrelet (MAMU), Northern spotted owl (NSO), tricolored blackbird, white-tailed kite, and yellow-billed cuckoo. Within the ESL there are approximately 6.9 acres of designated critical habitat for MAMU.

Mammal species include the Pacific (Humboldt) marten.

Federal and state listed Threatened and Endangered fish species include the specific populations of Chinook salmon–California Coastal ESU, coho salmon–SONCC ESU, Pacific eulachon–Southern DPS, green sturgeon–Southern DPS, longfin smelt, steelhead, and tidewater goby. In addition, the project is within designated critical habitat for Chinook salmon, coho salmon, and steelhead.

Threatened and Endangered Bird Species

As discussed earlier, with implementation of the Standard Measures and Best Management Practices, which include standard bird protection measures, and as these species are unlikely to be affected by the proposed work, Caltrans anticipates there will be no impact to:

- Bald eagle
- Bank swallow
- California condor
- Tricolored blackbird

Under FESA, Caltrans anticipates the project will have "***No Effect***" on the federally listed bird species indicated above.

Under CESA, with implementation of the standard bird protection measures provided in Section 1.4, there would be no "***take***" to the state listed bird species indicated above.

There is some potential for impacts to the following species:

- marbled murrelet
- Northern spotted owl
- yellow-billed cuckoo

Discussion of these potential impacts is provided below.

Marbled Murrelet

Potential auditory and visual impacts on MAMU were evaluated using USFWS guidance *Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California* and *Re-initiation of Informal Consultation for the California Department of Transportation's Routine Maintenance and Repair Activities, and Small Projects Program for Districts 1 and 2* (USFWS 2006, 2022). Caltrans anticipates there will be no visual disturbances to MAMU nests because no activities will occur within a visual line-of-sight of 328 feet (100 meters) from any known nest locations. Proposed work

within critical habitat consists of construction required to replace drainage features. These activities will not result in removal of any suitable nest trees or affect the primary constituent elements of critical habitat.

Potential airborne sound levels generated by the project were evaluated using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) to determine the maximum and average noise levels anticipated during each phase of construction (Caltrans 2022e).

Daytime ambient sound levels within the project footprint along U.S. 101 were estimated as *High* (81-90 decibels [dB]) and are generally characterized by high-speed vehicle traffic, including recreational vehicles, large trucks, buses, and loud motorcycles. Sound levels for equipment used in project activities were estimated as *Moderate* (71-80 dB) to *High* (81-90 dB) (Caltrans 2022e).

Action-generated sound levels are not anticipated to exceed the threshold of 20 or more decibels above the ambient conditions (81-90 dB) or exceed the maximum of 90 decibels overall. The estimated harassment distance due to elevated action-generated sound levels for the proposed project where MAMU could be affected is 328 feet (100 meters) from the ESLs.

The PLOC, issued by the USFWS, will be used for Section 7 consultation for potential effects to MAMU (USFWS 2022). Gregory Schmidt (USFWS liaison) was contacted to discuss tree removal within critical habitat. It was determined that the limited amount of habitat removal will not constitute an adverse effect.

Under FESA, Caltrans anticipates the project ***may affect, but is not likely to adversely affect*** MAMU. Because no potentially suitable nesting habitat for MAMU will be removed, Caltrans anticipates the project will have "***No Effect"*** on MAMU critical habitat.

Under CESA, the project will not result in "***take***" of MAMU.

There will be no impact on MAMU as a result of the proposed project.

Avoidance and Minimization Measures

To protect nesting marbled murrelet, no potential marbled murrelet nest trees will be removed during the nesting season (March 24 through September 15). Potential suitable nesting habitat may be removed or altered outside the nesting season (i.e., from September 16 through the following March 23) provided USFWS and Caltrans agree that the habitat

removal or alteration represents an "insignificant" action based on the amount of habitat removed or altered and whether the remaining habitat is still considered suitable for nesting murrelets.

No construction activities generating sound levels 20 or more decibels (dB) above ambient sound levels or with maximum sound levels (ambient sound levels plus activity-generated sound levels) above 90 dB (with the exception of backup alarms) will occur between March 24 and August 5 (Caltrans 2022e). Between August 6 and September 15, work that generates sound levels equal to or greater than 10 dB above ambient sound levels will observe a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset. Sound-related work windows will be lifted between September 16 and March 23.

Further, no construction activities will occur within a visual line-of-sight of 328 feet or less from any known nest locations, or from unsurveyed suitable nesting habitat containing potential murrelet nest trees within 328 feet of proposed activities. These visual disturbance restrictions will be lifted after September 15.

Northern Spotted Owl

Protocol-level surveys were not conducted for NSO. CNDDB RareFind lists several activity centers (AC) and potential habitat adjacent to the ESLs (Caltrans 2022e). As there is potential for NSO to occur within the BSAs due to suitable nesting habitat, potential presence is presumed. However, there are no documented nesting sites within the ESLs. The project ESLs do not occur within NSO critical habitat.

Action-generated sound levels are not anticipated to exceed the threshold of 20 or more decibels above the ambient conditions (81-90 dB) or exceed the maximum of 90 decibels overall. The PLOC, issued by the USFWS (2022), will be used for Section 7 consultation for potential effects of the project on NSO (Caltrans 2022e).

Under FESA, Caltrans anticipates the project "***may affect, but is not likely to adversely affect"*** NSO.

Under CESA, as project activities will not directly harm NSO, no "***take***" will occur.

There will be no "***No Impact***" on NSO as a result of the proposed project.

Avoidance and Minimization Measures

To protect nesting northern spotted owl, no potential nest trees will be removed during the nesting season (February 1 through September 15). Potential suitable nesting habitat may be removed or altered outside the nesting season (i.e., from September 16 through the following March 23) provided USFWS and Caltrans agree that the habitat removal or alteration represents an "insignificant" action, based on the amount of habitat removed or altered and whether the remaining habitat is still considered suitable for owl nesting/roosting or foraging.

No construction activities generating sound levels 20 or more decibels (dB) above ambient sound levels or with maximum sound levels (ambient sound levels plus activity-generated sound levels) above 90 dB (with the exception of backup alarms) will occur between February 1 through July 31.

No construction activities will occur within a visual line-of-sight of 328 feet or less from any known nest locations, or from unsurveyed suitable nesting habitat containing potential owl nest trees within 328 feet (100 meters) of proposed activities. These sound and visual disturbance restrictions will be lifted after July 31.

Yellow-billed Cuckoo–Western DPS

Protocol level YBCU surveys were conducted in 2022 and none were detected; therefore, Caltrans biologists concluded with 95% confidence that YBCU were not present within the survey area (Caltrans 2022e). YBCU are not expected to be present within the ESL during construction. In addition, there will be no vegetation or potential nest structure removal during the nesting season associated with this project.

Under FESA, the project will have ***"No Effect"*** on yellow-billed cuckoo (*Coccyzus americanus occidentalis*)–Western U.S. DPS.

Under CESA, as the project is not anticipated to affect yellow-billed cuckoo, there will be no "***take***" of the species.

There will be ***"No Impact"*** on yellow-billed cuckoo as a result of the proposed project.

Avoidance and Minimization Measures

Because of the lack of habitat and project impacts to the species or its habitat, there are no species-specific avoidance and minimization measures or compensatory mitigation proposed.

Threatened and Endangered Mammal Species

Pacific Marten

Species-specific surveys were not conducted for Humboldt marten. There is potentially suitable foraging, resting, or denning habitat for Humboldt marten within the BSA and potential for this species to occur in or move throughout the BSA. They are unlikely to occur within the ESL due to its proximity to the busy highway. While critical habitat has been adopted for Pacific (Humboldt) marten, the BSA is outside of designated critical habitat.

Under FESA, Caltrans anticipates the project will have "***No Effect***" on the federally listed Marten species indicated above.

Under CESA, there would be no "***take***" to the state listed Marten species indicated above.

Threatened and Endangered Fish Species

The following federal and state listed fish species are presumed to be absent from the project's ESL because there is no suitable fish habitat; however, they may be present within the BSA at multiple locations. Therefore, Caltrans anticipates the project ***may affect, but is not likely to adversely affect*** the following species:

- Chinook salmon–California Coastal ESU *(Oncorhynchus tshawytscha)*
- coho salmon–SONCC ESU *(Oncorhynchus kisutch)*
- Pacific eulachon–Southern DPS *(Thaleichthys pacificus)*
- green sturgeon–sDPS *(Acipenser medirostris)*
- longfin smelt *(Spirinchus thaleichthys)*
- steelhead–Northern California DPS and summer-run *(Oncorhynchus mykiss irideus)*
- tidewater goby *(Eucyclogobius newberryi)*

In addition, there is designated critical habitat for Chinook salmon–CC ESU, coho salmon–SONCC ESU, Pacific eulachon–Southern DPS, green sturgeon–sDPS, steelhead–Northern California DPS, and tidewater goby within the BSAs at multiple locations.

Potential effects to these species and critical habitats include temporary water quality impairment resulting from construction activities. Standard Measures and Best Management Practices identified in Section 1.4, and the ABMPs identified in the NMFS PBO (2013), will

be implemented to avoid and minimize potential effects on these listed fish species and critical habitats.

Under FESA, Caltrans has determined the proposed project ***may affect, but is not likely to adversely affect*** Chinook salmon–CC ESU, coho salmon–SONCC ESU, Pacific eulachon–Southern DPS, green sturgeon–sDPS, steelhead–Northern California DPS, and tidewater goby and critical habitat for these species.

Under CESA, Caltrans anticipates the project will not result in "***take***" of coho salmon–SONCC ESU, longfin smelt, or summer-run steelhead trout.

The NMFS Programmatic Biological Opinion (PBO) (Caltrans 2022e) will be used for potential effects on Chinook salmon–CC ESU, coho salmon–SONCC ESU, Pacific eulachon–Southern DPS, green sturgeon–sDPS, steelhead–NC DPS and critical habitats for these species.

The PLOC, issued by the USFWS, will be used for Section 7 consultation for potential effects of the project on tidewater goby and critical habitat.

Caltrans anticipates there will be ***"No Impact"*** to fish species as a result of the proposed project.

Discussion of CEQA Environmental Checklist Question 2.4b)—Biological Resources

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Sensitive Natural Communities

The project is expected to have no substantial impact on SNCs because the areas along the road and ESLs are fragmented by roads and development and the limited temporary impacts. These forest and vegetation types are typically much less than half of an acre in extent within the ESLs. Temporary impacts are estimated to be up to 0.673 acre (29,328 square feet) for access and restoration of culvert systems and there will be no permanent impacts. Table 7 below summarizes the estimated temporary impacts on SNCs within the ESL.

Table 7. Estimated Temporary Impacts on Sensitive Natural Communities within the ESL

Location Post Mile	Vegetation Type	Area of Temporary Impacts	
		Acre	Square Feet
60.68	*Salix sitchensis* (Sitka willow) Shrubland Alliance Rank: G4/S3	0.001	387
61.71	*Scirpus microcarpus* (Small-fruited bulrush marsh) Herbaceous Alliance Rank: G4/S2	0.030	1,106
65.23	*Rubus ursinus* (Salal–Berry bramble Pacific blackberry) *S*hrubland Alliance *Rubus parviflorus* (Thimbleberry) Association Rank: GNR/S4	0.002	335
65.53	*Picea sitchensis* (Sitka spruce) Forest and Woodland Alliance Rank: G5/S2	0.110	5,117
65.68	*Picea sitchensis* (Sitka spruce) Forest and Woodland Alliance Rank: G5/S2	0.190	8,082
65.91	*Picea sitchensis* (Sitka spruce) Forest and Woodland Alliance Rank: G5/S2	0.020	1,058
75.01	*Scirpus microcarpus* (Small-fruited bulrush marsh) Herbaceous Alliance Rank: G4/S2	0.001	70
71.15	*Salix lasiolepis* (Arroyo willow thickets) Shrubland Alliance *Salix lasiolepis* (Arroyo willow thickets) Association Rank: SA/NR	0.003	139
71.16	*Salix sitchensis* (Sitka willow) Shrubland Alliance Rank: G4/S3	0.003	127
71.22	*Salix sitchensis* (Sitka willow) Shrubland Alliance Rank: G4/S3	0.005	207
71.34	*Salix sitchensis* (Sitka willow) Shrubland Alliance Rank: G4/S3	0.004	176
71.64	*Salix sitchensis* (Sitka willow) Shrubland Alliance Rank: G4/S3	0.002	82
71.64	*Scirpus microcarpus* (Small-fruited bulrush marsh) Herbaceous Alliance Rank: G4/S2	0.003	117

Location Post Mile	Vegetation Type	Area of Temporary Impacts	
		Acre	Square Feet
72.05	*Equisetum arvense* (Field horsetail) Wet Meadow Herbaceous Alliance Rank: GNR/S3S4	0.040	1,782
72.39	*Alnus rubra* (Red alder) Forest Alliance *Alnus rubra*/*Salix lasiolepis* (arroyo willow) / *Rubus spectabilis* (blackberry) Sensitive Association Rank: G5/S4 Rank: G4/S3	0.010	593
R97.92	*Acer macrophyllum* (Bigleaf maple) Forest and Woodland Alliance Rank: G4/S3	0.020	826
100.71	*Populus trichocarpa* (Black cottonwood) Forest and Woodland Alliance Rank: G5/S3	0.005	209
R105.05	*Picea sitchensis* (Sitka spruce) Forest and Woodland Alliance Rank: G5/S2	0.008	367
R105.05	*Rubus spectabilis* (Salmonberry) Shrubland Alliance Rank: G4/S3	0.007	283
R105.05	*Pseudotsuga menziesii* (Douglas-fir) Forest and Woodland Alliance *Pseudotsuga menziesii* (Douglas-fir) / *Gaultheria shallon* (salal) Association Rank: G5/S4 Rank: G3G4/SNR	0.001	39
106.92	*Picea sitchensis* (Sitka spruce) Forest and Woodland Alliance Rank: G5/S2	0.030	1,274
110.63	*Sequoia sempervirens* (Redwood) Forest and Woodland Alliance Rank: G3/S3	0.005	209
111.05	*Sequoia sempervirens* (Redwood) Forest and Woodland Alliance Rank: G3/S3	0.004	175
111.07	*Sequoia sempervirens* (Redwood) Forest and Woodland Alliance Rank: G3/S3	0.007	292

Location Post Mile	Vegetation Type	Area of Temporary Impacts	
		Acre	Square Feet
115.25	*Alnus rubra* (Red alder) Forest Alliance *Alnus rubra*/*Salix lasiolepis* (arroyo willow) / *Rubus spectabilis* (blackberry) Sensitive Association Rank: G5/S4 Rank: G4/S3	0.020	723
117.23	*Picea sitchensis* (Sitka spruce) Forest and Woodland Alliance Rank: G5/S2	0.004	160
117.31	*Picea sitchensis* (Sitka spruce) Forest and Woodland Alliance Rank: G5/S2	0.002	80
117.31	*Alnus rubra* (Red alder) Forest Alliance *Alnus rubra*/ *Rubus spectabilis* (blackberry) / *Sambucus racemosa* Sensitive Association Rank: G5/S4 Rank: G4/S3	0.009	391
R131.75	*Alnus rubra* (Red alder) Forest Alliance *Alnus rubra*/*Salix lasiolepis* (arroyo willow) / *Rubus spectabilis* (blackberry) Sensitive Association Rank: G5/S4 Rank: G4/S3	0.004	169
R131.75	*Sequoia sempervirens* (Redwood) Forest and Woodland Alliance Rank: G3/S3	0.010	498
R136.23	*Picea sitchensis* (Sitka spruce) Forest and Woodland Alliance Rank: G5/S2	0.100	4,255
	Total Impacts	**0.673**	**29,328**

Caltrans anticipates there will be a *Less than Significant Impact* on these SNCs due to the limited extent of the habitats within each construction site, the fragmentation of existing habitat due to the location of the road and current development patterns, as well as the limited temporary impacts anticipated. The affected community types are abundant in the watersheds and the region, and the area of disturbance to these communities is so small as to be inconsequential on a landscape scale. These forest and vegetation types are typically much less than half of an acre in extent within the ESLs.

There will be no permanent impacts and an estimated temporary impact of up to 0.673 acre (29,328 square feet) to SNCs for access and restoration of culvert systems, as shown in Table 7 above. With implementation of standard revegetation measures, and given the minor potential impacts, the proposed project will not have a cumulative impact on sensitive natural communities. All these slivers of impact, to generally edge habitats, and which stretch across about 80 miles of highway, were determined to be *Less Than Significant*.

Avoidance and Minimization Measures

Caltrans will develop a Revegetation Plan for areas impacted by construction, as described in Section 1.4. The Revegetation Plan could include on-site restoration and enhancement strategies for SNCs impacted by construction. These strategies may include, but are not limited to, enhancing recruitment of young trees by allowing them to become reestablished wherever they are present outside the construction footprint.

Several other Standard Measures implemented for the project will help reduce overall impacts to SNCs within the project ESL (Section 1.4). These include designating adjacent SNCs as an Environmentally Sensitive Area (ESA) and installation of THVF at the closest edge of the proposed project footprint.

A Revegetation Plan will also address temporary impacts to wetland and riparian vegetation, including on-site revegetation and enhancement (e.g., invasive species removal) and planting (where possible) within existing SNCs in the project area. Caltrans will determine the revegetation ratio for impacts to SNCs during permitting. Exact location and type of revegetation and enhancement would also be determined in the permitting phase and the final combination of strategies would be determined after additional conversations with local and state regulatory agencies.

Critical Habitats

Critical habitats are specific geographical areas designated by USFWS or NMFS for federally listed species with special management or protections. This may include areas that were occupied by the specific species at the time it was listed, or those areas not occupied by the species at the time of listing but are considered essential to its conservation.

Critical habitats within the project area include some of the forests, rivers, estuaries, and streams that the highway corridor passes through. Table 8 below summarizes the designated critical habitats identified within the project area.

Table 8. Critical Habitat Types, Locations, and Extent within the Project Area

Species/Habitat	Location	ESL Area (Acres)	BSA Area (Acres)
Marbled Murrelet	PM 106.08 PM 106.92 PM 110.63 PM 111.05 PM 113.88 PM 115.25 PM 115.66 PM 117.23 PM 117.30 PM 117.31	6.89	151.30
Chinook salmon–California Coastal ESU Coho salmon–Southern Oregon/Northern California Coast ESU Steelhead–Northern California DPS	PM 60.68 (Rohner Creek) PM 61.71 (Eel River) PM 74.54 (Elk River) PM 74.70 (Elk River) PM 97.13 (Little River) PM 110.63 (Big Lagoon) PM 115.25 (Stone Lagoon) PM 115.66 (Stone Lagoon) PM 121.96 (Redwood Creek) PM 122.05 (Prairie Creek) PM 122.21 (Prairie Creek)	0.13	40.49
Eulachon	PM 122.05 (Prairie Creek) PM 122.21 (Prairie Creek)	0	8.67
Green Sturgeon–sDPS	PM 74.54 (Elk River) PM 74.70 (Elk River)	0	5.05
Tidewater Goby	PM 110.63 (Big Lagoon) PM 115.25 (Stone Lagoon) PM 115.66 (Stone Lagoon)	0	16.41

The scope of work will require the removal of approximately 14 trees within MAMU critical habitat. USFWS liaison Greg Schmidt agreed that the minimal amount of tree removal spread out along eleven miles will not result in substantial adverse effects on MAMU critical habitat (Caltrans 2022e).

For fish species critical habitat, the scope of work will be on drainage systems which drain to waters that are considered critical habitat. However, no work will be conducted within fish-bearing waters. As a result of project activities, water quality may be temporarily impaired due to short term, localized increases in turbidity from activities that involve ground disturbance or by contaminants in roadway stormwater runoff or accidental spills during construction which could potentially compromise safe passage conditions for fish migration

and reduce the quality of localized rearing habitat. At some locations Caltrans has made efforts to shorten downdrains and slow stormwater before draining to waters to allow for filtration.

With implementation of the Standard Measures and BMPs, the proposed project will not have a cumulative impact on critical habitat.

Caltrans anticipates there will be a *Less than Significant Impact* to critical habitats as a result of the proposed project.

Avoidance and Minimization Measures

The Standard Measures and BMPs to protect water quality identified in Section 1.4 will minimize the magnitude and duration of any turbidity increases, provide for site stabilization post construction, and ensure proper handling and storage of contaminants to avoid accidental spills.

Essential Fish Habitat

Essential Fish Habitat (EFH) is defined by the Magnuson-Stevens Fishery Conservation and Management Act for federally-managed species as "those waters and substrate necessary for fish for spawning, breeding, feeding, or growth to maturity". The project is within EFH for the Pacific Coast Salmon (Chinook and coho salmon). EFH for the Pacific Coast Salmon includes those waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem. Freshwater EFH for Chinook salmon and coho salmon consists of four major components: (1) spawning and incubation; (2) juvenile rearing; (3) juvenile migration corridors; and (4) adult migration corridors. EFH for Chinook also includes adult holding habitats.

There is no suitable migration, spawning or rearing habitat within the ESL. Refer to Table 9 below for a summary of EFH location and extent in the project area.

Table 9. Essential Fish Habitat Types, Location, and Extent in Project Area

Species/Habitat	Location	ESL Area (Acres)	BSA Area (Acres)
Pacific salmon: Chinook salmon–California Coastal ESU Coho salmon–Southern Oregon/Northern California Coast ESU	60.68 (Rohner Creek) 61.71 (Eel River) 74.54, 74.70 (Elk River) 97.13 (Little River) 110.63 (Big Lagoon) 115.25 (Stone Lagoon) 115.66 (Stone Lagoon) 121.96 (Redwood Creek) 122.05, 122.21 (Prairie Creek)	0.13	40.49

Water quality within EFH may be temporarily impacted during project construction due to short term, localized increases in turbidity from activities that involve ground disturbance, or by contaminants in roadway stormwater runoff or accidental spills during construction. As the work will be done on U.S. 101 upslope from EFH, minimal amounts of soil could enter the river downslope of the ESL during construction or post-construction prior to full site stabilization. These water quality impacts could compromise safe passage conditions for fish migration and reduce the quality of spawning and rearing habitat, although impacts will be short-term and temporary. There will also be a small temporary loss of riparian habitat on fish-bearing streams as a result of vegetation removal during construction. Riparian vegetation will be restored after construction.

Potential water quality and habitat effects will be temporary during construction and reduced by implementing Caltrans' Standard Measures and Best Management Practices as indicated in Section 1.4, and the ABMPs from the NMFS Programmatic Biological Opinion (PBO) (Caltrans 2022e).

Caltrans anticipates the project ***may adversely affect*** EFH for Chinook salmon and coho salmon. Consultation with NMFS will be carried out through the PBO (Caltrans 2022e). Compensatory mitigation will not be required for Chinook salmon and coho salmon EFH given that potential effects resulting from the proposed project are anticipated to be minor, resulting in no permanent impacts.

Given the project will have negligible effects on Chinook salmon and coho salmon EFH, cumulative impacts are not anticipated.

There will be no ***"No Impact"*** as a result of the proposed project.

Avoidance and Minimization Measures

Caltrans will implement the applicable ABMPs from the NMFS PBO to minimize effects on EFH, as well as appropriate Standard Measures and BMPs to protect water quality and habitat (Section 1.4).

Invasive Species

There are no project elements that will increase the likelihood or extent of invasive species in the project footprint. The Standard Measures and BMPs identified in Section 1.4 will help prevent the introduction and spread of invasive species within the project area. Caltrans anticipates there will be *No Impact* on invasive species as a result of the proposed project.

Discussion of CEQA Environmental Checklist Question 2.4c)—Biological Resources

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Wetlands and Other Waters

The proposed project has the potential to result in permanent and temporary impacts on Waters of the U.S. and State, including jurisdictional wetlands and riparian habitat. Additional indirect temporary impacts caused by sedimentation or modification of hydrology could affect streams, wetlands, or riparian habitat. Temporary impacts may result from construction of access roads, work areas, containment systems, clear water diversions and excavation work for culvert placement. Caltrans will coordinate with USACE, NCRWQCB, and CDFW regarding wetlands and other waters that are affected by the project.

The project will result in up to 0.1879 acre of temporary impacts to wetland Waters of the U.S. and State. Permanent impacts are anticipated to be up to 0.0066 acre of wetland Waters of the U.S. and State (Table 10) (Caltrans 2022e).

The project will result in up to 0.0908 acre of temporary impacts to Other Waters of the U.S. and State (non-wetlands). Permanent impacts due to culvert realignment, restoration of flow lines, rock slope protection and the extension of culvert systems are anticipated to be up to 0.0015 acre of Other Waters (Table 11) (Caltrans 2022e).

These impacts will be offset with on-site revegetation efforts to the extent feasible and potential off-site efforts, if needed. Some new culverts will be shorter than existing culverts, allowing for both on-site revegetation and restoration of wetland, reducing potential off-site revegetation needs. The project will require a USACE Section 404 Nationwide Permit (NWP) 14, a Section 401 Water Quality Certification from the NCRWQCB, and a 1602 Lake or Streambank Alteration Agreement with CDFW.

Table 10. Temporary and Permanent Impacts to Wetlands

Post Mile	Cowardin Type	Temporary Impacts		Permanent Impacts	
		Length (linear feet)	Area (square feet)	Length (linear feet)	Area (square feet)
56.75	Palustrine Scrub-Shrub (PSS)	4	16	10	60
61.71	Palustrine Emergent	415	5,418	-	-
71.22	Palustrine Scrub-Shrub	6	36	14	58
71.34	Palustrine Emergent (PEM), Palustrine Scrub-Shrub	4	32	-	-
71.64	Palustrine Emergent	8	32	4	7
72.05	Palustrine Emergent, Palustrine Scrub-Shrub	115	1,155	-	-
76.96	Palustrine Emergent	19	74	-	-
96.90	Palustrine Emergent	12	45	-	-
97.13	Palustrine Emergent	4	20	-	-
105.05	Palustrine Emergent	6	72	13	78
106.08	Palustrine Emergent	92	1,164	-	-
111.07	Palustrine Emergent	4	13	-	-
115.25	Palustrine Emergent	8	32	15	85
122.05	Palustrine Emergent	30	60	-	-
122.21	Palustrine Emergent	4	16	-	-
Total Wetland Impacts		**731**	**8,185**	**56**	**288**
Acres		**0.1879**		**0.0066**	

Table 11. Temporary and Permanent Impacts to Other Waters

Post Mile	Cowardin Type	Temporary Impacts		Permanent Impacts	
		Length (linear feet)	Area (square feet)	Length (linear feet)	Area (square feet)
65.23	Intermittent Stream (R4SB)	71	170	-	-
65.53	R4SB	380	760	-	-
65.68	R3UB	410	1,230	-	-
65.91	R3UB	170	340	-	-
70.86	R4SB	70	105	4	1
71.22	R3UB	85	254	14	58
71.34	R3UB	164	343	-	-
105.05	R3UB, R6	294	754	3	5
Total Other Waters Impacts		**1,644**	**3,956**	**21**	**64**
Acres		**0.0908**		**0.0015**	

Based on the small area of temporary and permanent impacts to wetlands and other waters and the inclusion of Standard Measures provided in Section 1.4, there will be a *Less than Significant Impact* to wetlands and Other Waters. Given the project will have a minor, short-term effect on the aquatic environment, cumulative effects are not anticipated.

Avoidance and Minimization Measures

Impacts on jurisdictional waters and riparian vegetation will be minimized with incorporation of the Standard Measures and BMPs identified in Section 1.4. BMPs include treatment controls, soil stabilization practices, and weather-appropriate scheduling. Temporary high visibility fencing (THVF) will be used to protect sensitive areas and limit ground disturbance, and debris containment plans will be implemented to ensure construction debris does not enter adjacent waters.

Any debris and sediment will be contained within the project site and disposed appropriately off-site. Wetland and riparian areas temporarily impacted by construction will be restored to pre-existing conditions upon completion of construction. Caltrans will also implement a

program of invasive weed control in all areas of soil disturbance caused by construction to improve habitat for native species in and adjacent to disturbed soil areas within the project limits. A Revegetation Plan will be prepared to revegetate riparian areas temporarily impacted by the project.

Caltrans proposes to restore habitats on-site for areas impacted by project activities; however, if the project area does not provide the area needed to meet the permit determined restoration ratios, additional restoration would be sought off-site. Any impacts to wetlands and waters not restored on site will be restored off-site at an appropriate location to reach a final restoration ratio determined.

Invasive Species

Although a variety of invasive species exist within and around the project sites, the impact of additional invasive species will be *Less than Significant*. Revegetation and erosion control planting will utilize native species in areas impacted by the construction effort, and Standard Measures provided in Section 1.4 will reduce the potential for spreading or introducing invasive species.

Discussion of CEQA Environmental Checklist Question 2.4d)—Biological Resources

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

There will be no impact to wildlife species or wildlife corridors as a result of the proposed project. The project will replace and improve existing culverts along an existing highway corridor and will not create impediments to wildlife movement or exacerbate existing impediments.

There is no spawning habitat or fish passage in any of the culverts or drainages where culverts are being replaced. There will be no impact to migration corridors or nursery sites as a result of the proposed project.

Discussion of CEQA Environmental Checklist Question 2.4e)—Biological Resources

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

There will be no impact from the proposed project that will conflict with local policies or ordinances. Trees will be removed at some locations within the ESL on existing fill road embankments and fill slopes to facilitate access and provide space to work. Permanent impacts that will prevent trees from regrowing will be very minimal and focused on areas where new headwalls, flared end sections, and other ancillary project components are proposed. Total temporary impacts to tree habitats are approximately 0.67 acre across the entire project area.

Discussion of CEQA Environmental Checklist Question 2.4f)—Biological Resources

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

There are no project elements that will conflict with adopted conservation plans; therefore there is no further analysis or discussion of this issue. Specific impacts to SNCs, Coastal Zone resources, or EFH are discussed in specific sections above.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, no CEQA mitigation measures for Biological Resources are proposed for this project. With the implementation of the Standard Measures in Section 1.4, there will be no impacts requiring additional CEQA mitigation measures.

2.5 Cultural Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?				✓
Would the project: b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?				✓
Would the project: c) Disturb any human remains, including those interred outside of dedicated cemeteries?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the *Historic Property Survey Report* (Caltrans 2022f) and *Archaeological Survey Report* (Caltrans 2022h), both dated October 2022. Potential impacts to cultural resources are not anticipated; a 2021 Northwest Information Center records search (#21-2042), Native American consultation, past surveys, and a 2021 updated survey indicated there are no historical properties present within the construction footprint for any of the work locations. Caltrans has determined the project will have no potential to affect historic properties.

Based on the determinations made in the CEQA Environmental Checklist, there will be ***"No Impact"*** to cultural resources.

2.6 Energy

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?				✓
Would the project: b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the *Traffic Noise and Air Quality* and *Energy and Greenhouse Gas* memorandums (Caltrans 2022c and 2022d). The project will not increase capacity or provide congestion relief when compared to the No-Build Alternative; therefore, potential impacts to direct energy (mobile sources) are not anticipated. The project does not include maintenance activities which would result in long-term indirect energy consumption by equipment required to operate and maintain the roadway; thus, is unlikely to increase indirect energy consumption through increased fuel usage. Potential impacts to indirect energy (construction) are therefore not anticipated.

Project construction will primarily consume diesel and gasoline through operation of construction equipment, material deliveries, and debris hauling. Energy use associated with project construction is estimated to result in the short-term consumption of diesel and gasoline powered equipment, which represents a small and temporary demand on local and regional fuel supplies. This temporary demand for fuel would have no noticeable effect on peak or baseline demands for energy. Therefore, the project will not result in an inefficient, wasteful, and unnecessary consumption of energy.

Caltrans anticipates the project will have **"*No Impact*"** on energy.

2.7 Geology and Soils

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				✓
ii) Strong seismic ground shaking?				✓
iii) Seismic-related ground failure, including liquefaction?				✓
iv) Landslides?				✓
Would the project: b) Result in substantial soil erosion or the loss of topsoil?				✓
Would the project: c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				✓
Would the project: d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				✓

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				✓
Would the project: f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the California Geological Survey (CGS) Regulatory Maps (CGS 2015a). U.S. Highway 101 does have landslide activity mapped throughout the project area (CGS 2015b). Project locations reside within or adjacent to several Earthquake Fault Hazard Zones.

Drainage Systems 10, 11, 12, 13, 14 and 15 are located on the Little Salmon Fault, within the Little Salmon Fault Zone. Drainage Systems 23 and 24 are immediately adjacent to the Fickle Hill Fault, within the Mad River Fault Zone. Lastly, Drainage System 32 is located on the Trinidad Fault, within the Mad River Fault Zone. This project proposes to rehabilitate existing drainage facilities, not resulting in substantial adverse effects involving risk of loss, injury, or death. Many culvert diameters will be upsized which will decrease water velocities at the outlets of the culverts to address scour and reduce erosional processes. Standard Measures and BMPs will be incorporated into the project to prevent or minimize erosion by protecting existing vegetation to the extent possible and implementing an Erosion Control Plan (refer to Section 1.4 AR-1, AR-3, BR-4B, BR-4E, GS-1, WQ-1 and WQ-2). The project will not involve the building of structures, foundations or disposal of wastewater.

Potential impacts to paleontological resources are not anticipated because the project work primarily will occur within previously disturbed materials (constructed roadway), largely constructed using fill material; thus, minimizing the likelihood of impacting intact or undisturbed paleontological resources or geologic features.

Caltrans anticipates the project will have "***No Impact***" on geology and soils. No mitigation will be required.

2.8 Greenhouse Gas Emissions

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			✓	
Would the project: b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				✓

Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the Earth's climate system. The Intergovernmental Panel on Climate Change, established by the United Nations and World Meteorological Organization in 1988, is devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy. Climate change in the past has generally occurred gradually over millennia, or more suddenly in response to cataclysmic natural disruptions. The research of the Intergovernmental Panel on Climate Change and other scientists over recent decades, however, has unequivocally attributed an accelerated rate of climatological changes over the past 150 years to GHG emissions generated from the production and use of fossil fuels.

Human activities generate GHGs, consisting primarily of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), and various hydrofluorocarbons (HFCs). CO_2 is the most abundant GHG; and while it is a naturally occurring and necessary component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO_2 and the main driver of climate change. In the U.S. and in California, transportation is the largest source of GHG emissions, mostly CO_2.

The impacts of climate change are already being observed in the form of sea level rise, drought, more intense heat, extended and severe fire seasons, and historic flooding from

changing storm patterns. Both mitigation and adaptation strategies are necessary to address these impacts. The most important mitigation strategy is to reduce GHG emissions. In the context of climate change (as distinct from CEQA and NEPA), "mitigation" involves actions to reduce GHG emissions or to enhance the "sinks" that store them (such as forests and soils) to lessen adverse impacts. "Adaptation" is planning for and responding to impacts to reduce vulnerability to harm, such as by adjusting transportation design standards to withstand more intense storms, heat, and higher sea levels. This analysis will include a discussion of both in the context of this transportation project.

Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

FEDERAL

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 2022). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values— "the triple bottom line of sustainability" (FHWA 2019). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

The federal government has taken steps to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the *Energy Policy and Conservation Act of 1975* (42 USC Section 6201) as amended by the

Energy Independence and Security Act (EISA) of 2007; and *Corporate Average Fuel Economy (CAFE) Standards*. This act established fuel economy standards for on-road motor vehicles sold in the United States. The U.S. Department of Transportation's National Highway Traffic and Safety Administration (NHTSA) sets and enforces the CAFE standards based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States. The Environmental Protection Agency (U.S. EPA) calculates average fuel economy levels for manufacturers, and also sets related GHG emissions standards under the Clean Air Act. Raising CAFE standards leads automakers to create a more fuel-efficient fleet, which improves our nation's energy security, saves consumers money at the pump, and reduces GHG emissions (U.S. DOT 2014).

U.S. EPA published a final rulemaking on December 30, 2021, that raised federal GHG emissions standards for passenger cars and light trucks for model years 2023 through 2026, increasing in stringency each year. The updated GHG emissions standards will avoid more than 3 billion tons of GHG emissions through 2050. In April 2022, NHTSA announced corresponding new fuel economy standards for model years 2024 through 2026, which will reduce fuel use by more than 200 billion gallons through 2050 compared to the old standards and reduce fuel costs for drivers (U.S. EPA 2021a; NHTSA 2022).

STATE

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and executive orders (EOs) including, but not limited to, the following:

EO S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80% below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill (AB) 32 in 2006 and Senate Bill (SB) 32 in 2016.

Assembly Bill 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals outlined in EO S-3-05, while further mandating that the California Air Resources Board (CARB) create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code [H&SC] Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

EO S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10% by the year 2020. CARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the governor's 2030 and 2050 GHG reduction goals.

Senate Bill (SB) 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires CARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

SB 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under AB 32.

EO B-16-12 (March 2012): Orders State entities under the direction of the Governor, including the CARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

EO B-30-15 (April 2015): Establishes an interim statewide GHG emission reduction target of 40% below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80% below 1990 levels by 2050. It further orders all State agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs the CARB to update the *Climate Change Scoping Plan* (CARB 2022b) to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). GHGs differ in how much heat each traps in the atmosphere, called global warming potential, or GWP. CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent," or CO2e. The global warming potential of CO_2 is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO_2. Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure its provisions are fully implemented.

SB 32, Chapter 249, 2016: Codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40% below 1990 levels by 2030.

SB 1386, Chapter 545, 2016: Declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."

SB 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled to promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

SB 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires the CARB to prepare a report that assesses progress made by each Metropolitan Planning Organization in meeting their established regional greenhouse gas emission reduction targets.

EO B-55-18 (September 2018): Sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.

Assembly Bill 32, Chapter 337, 2022, The California Climate Crisis Act: This bill mandates carbon neutrality by 2045 and establishes an emissions reduction target of 85% below 1990 level as part of that goal. This bill solidifies a goal included in EO B-55-18. It requires CARB to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

Environmental Setting

The proposed project is largely in a rural area (PMs 56.60 to 74.60 and 77.49 to 137.10), with a natural resource-rich agricultural and tourism economy. The project is located in an urban area from PMs 74.6 to 77.49 which are within Eureka city limits. U.S. Highway 101 (U.S. 101) is the main transportation route to and through the area for both passenger and commercial vehicles. Alternative routes include Interstate 5, accessible by traveling east

using either State Route (SR) 36 or SR 299. The 2014 Transportation Concept Report (TCR) for U.S. 101 states that the route is functionally classified as a principal arterial, and a portion of it is eligible for designation as a Scenic Highway. The route concept is a 2-Lane conventional Highway/Expressway with intermittent passing lanes, even though Segments 1 to 4 and 6 are not. U.S. 101 is necessary for commerce, and the feasibility of U.S. 101 as a truck route is considered critical to developing Humboldt Bay as an active port. Rehabilitating deteriorating drainage systems is consistent with the TCR system maintenance and preservation strategies. The proposed purpose and need are consistent with statewide, regional, and local planning efforts, such as the 2012 District System Management Plan (DSMP). This project does not increase capacity and will not change travel demands or traffic patterns. There will be no increase in operational greenhouse gas (GHG) emissions. However, construction activities will result in temporary GHG emissions during each construction season.

The Humboldt County Association of Governments (HCAOG), acting as the Regional Transportation Agency (RTA), guides transportation development in the project area. The Humboldt County General Plan Circulation, Air Quality, and Energy elements, as well as the Variety in Rural Options of Mobility (VROOM) portion of the RTP, address GHGs in the project area (County of Humboldt 2017 and 2022).

GHG Inventories

A GHG emissions inventory estimates the amount of GHGs discharged into the atmosphere by specific sources over a period of time, such as a calendar year. Tracking annual GHG emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. U.S. EPA is responsible for documenting GHG emissions nationwide, and the CARB does so for the state, as required by H&SC Section 39607.4. Cities and other local jurisdictions may also conduct local GHG inventories to inform their GHG reduction or climate action plans.

NATIONAL GHG INVENTORY

The annual GHG inventory submitted by the U.S. EPA to the United Nations provides a comprehensive accounting of all human-produced sources of GHGs in the United States. Total GHG emissions from all sectors in 2020 were 5,222 million metric tons (MMT), factoring in deductions for carbon sequestration in the land sector. Of these, 79% were CO_2, 11% were CH_4, and 7% were N_2O; the balance consisted of fluorinated gases. Total GHGs in 2020 decreased by 21% from 2005 levels and 11% from 2019. The change from 2019 primarily resulted from less demand in the transportation sector during the COVID-19

pandemic. The transportation sector was responsible for 27% of total U.S. GHG emissions in 2020, more than any other sector and for 36% of all CO_2 emissions for 2020, decreased 13% from 2019 to 2020, but were 7% higher than transportation CO_2 emissions in 1990 (Figures 2 and 3) (U.S. EPA 2022a).

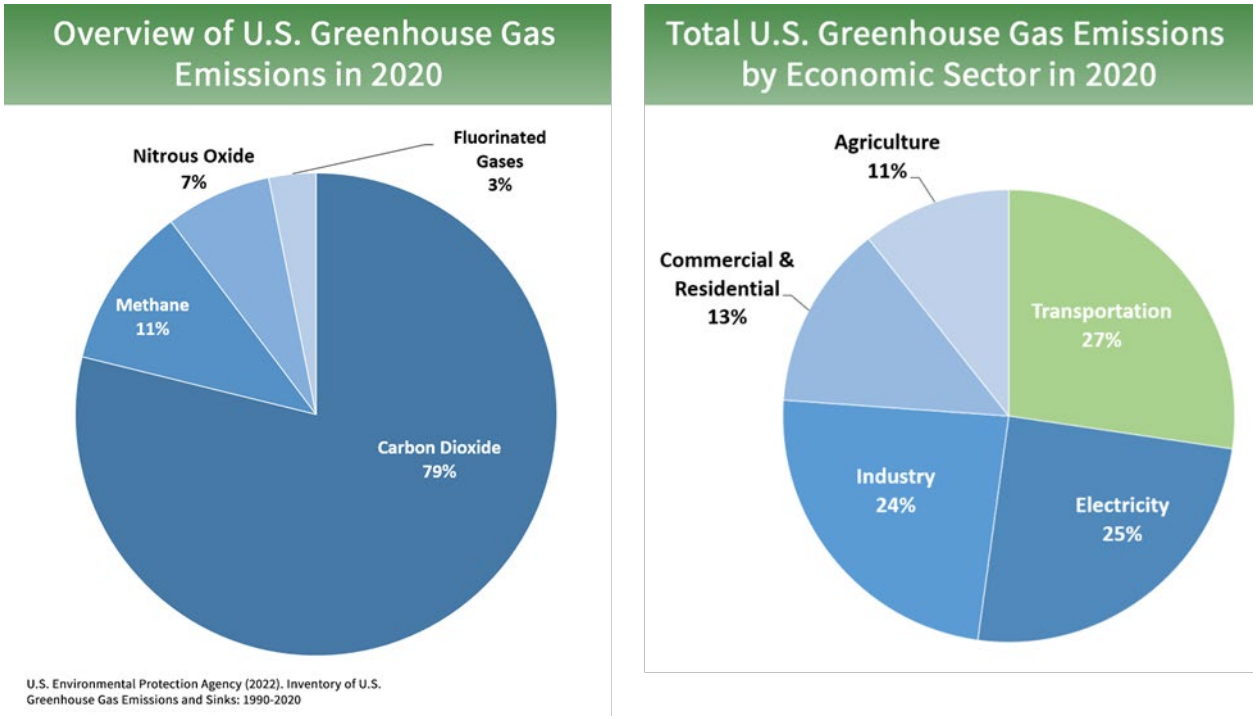


Figure 2. U.S. 2020 Greenhouse Gas Emissions

(Source: U.S. EPA 2021b)

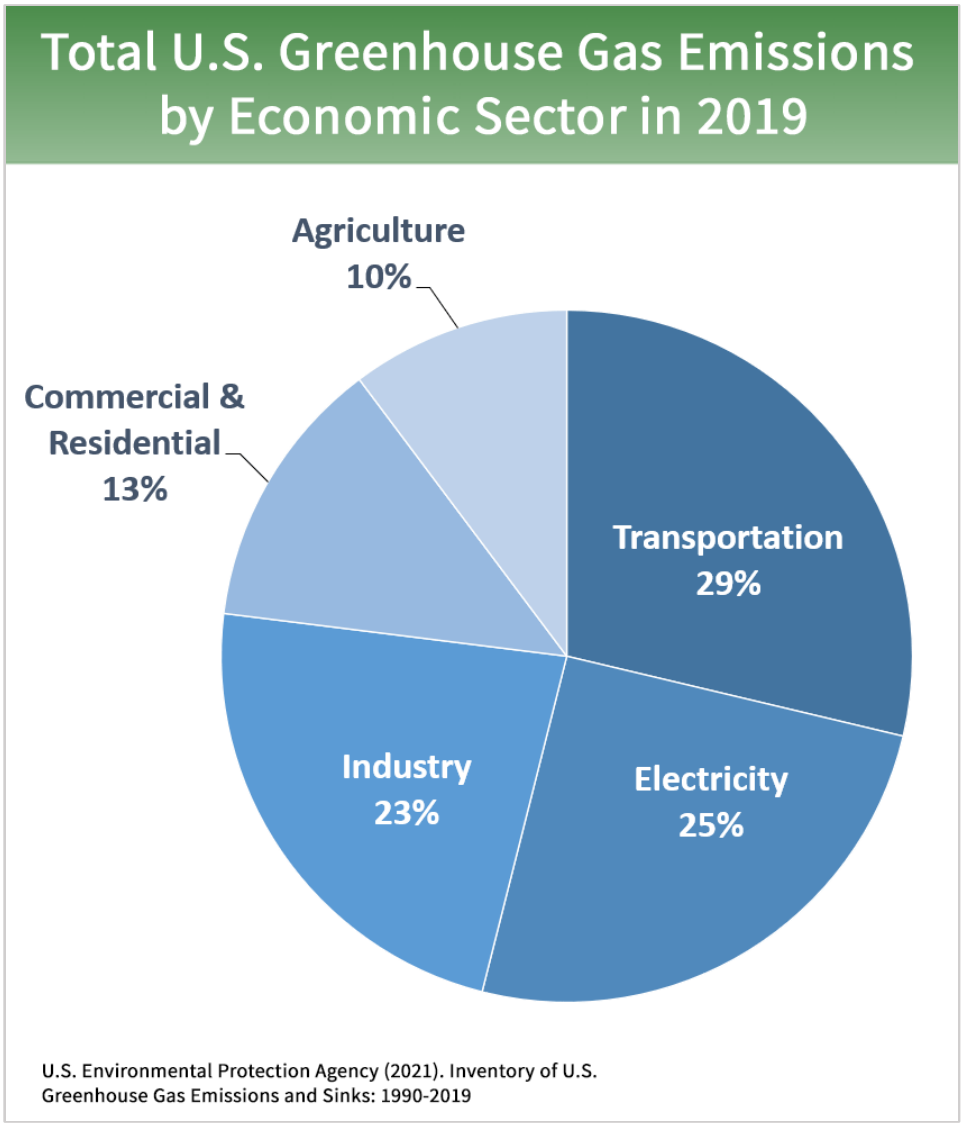


Figure 3. U.S. 2019 Greenhouse Gas Emissions

(Source: U.S. EPA 2022b)

STATE GHG INVENTORY

The CARB collects GHG emissions data for transportation, electricity, commercial and residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2022 edition of the GHG emissions inventory reported emissions trends from 2000 to 2020. Total California GHG emissions in 2020 were 369.2 $MMTCO_2e$, a reduction of 35.3 $MMTCO_2e$ since 2019 and 61.8 $MMTCO_2e$

below the 2020 statewide limit of 431 $MMTCO_2e$. Much of the decrease from 2019 to 2020, however, is likely due to the effects of the COVID-19 pandemic on the transportation sector, during which vehicle miles traveled declined under stay-at-home orders and reductions in goods movement.

Nevertheless, transportation remained the largest source of GHG emissions, accounting for 37% of statewide emissions (Figure 4). (Including upstream emissions from oil extraction, petroleum refining, and oil pipelines in California, transportation was responsible for about 47% of statewide emissions in 2020; however, those emissions are accounted for in the industrial sector.) California's gross domestic product (GDP) and GHG intensity (GHG emissions per unit of GDP) both declined from 2019 to 2020 (Figure 5). It is expected that total GHG emissions will increase as the economy recovers over the next few years (CARB 2022a).

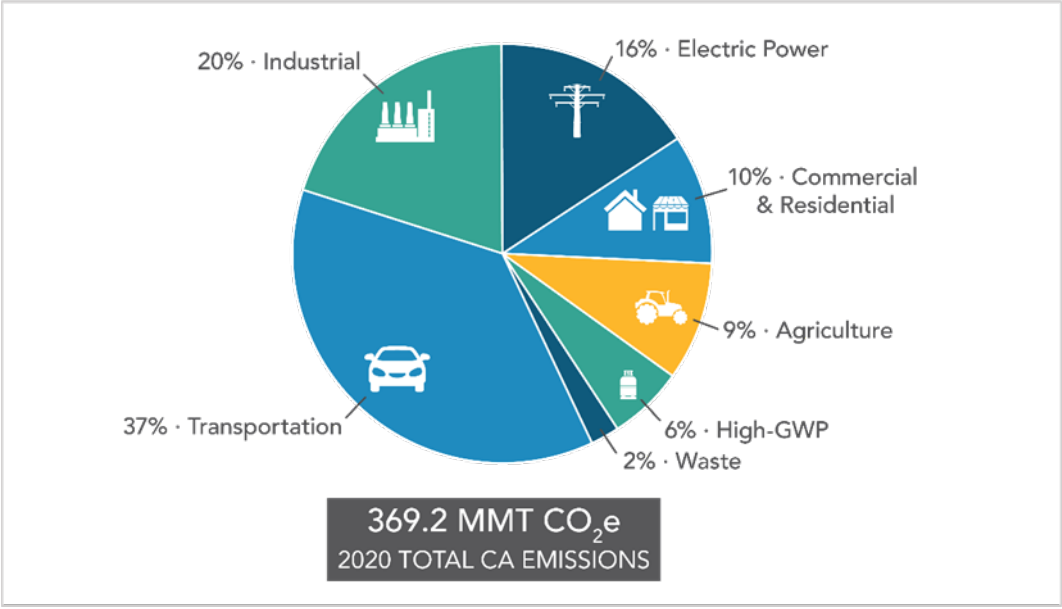


Figure 4. California 2020 Greenhouse Gas Emissions by Scoping Plan Category

(Source: CARB 2022a)

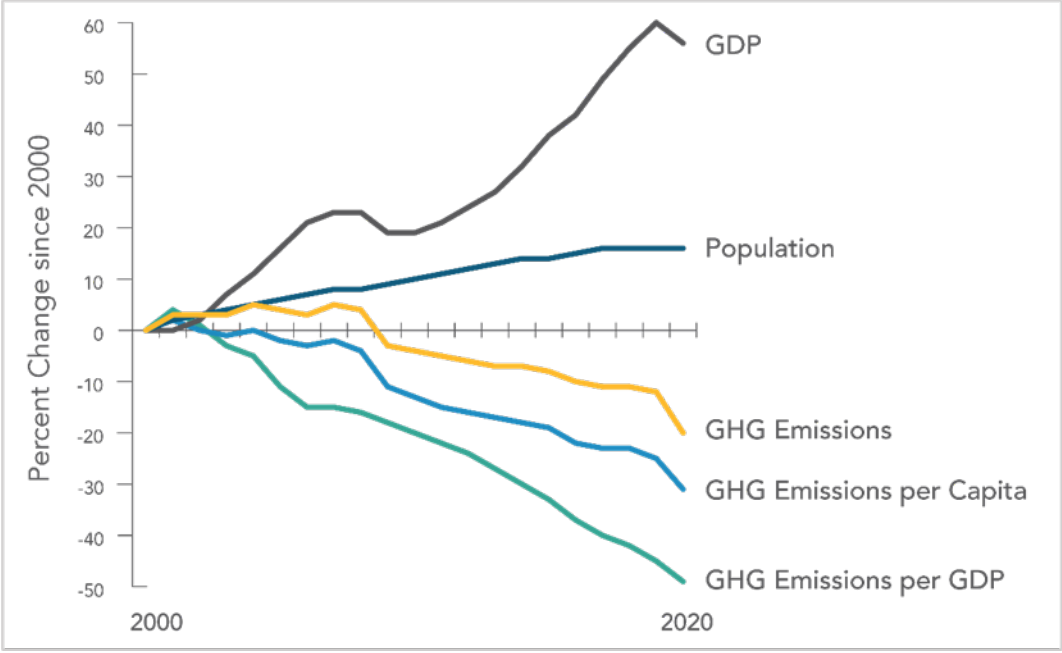


Figure 5. Change in California GDP, Population, and GHG Emissions since 2000

(Source: CARB 2022a)

AB 32 required the CARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. The CARB adopted the first scoping plan in 2008. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32. The draft 2022 Scoping Plan Update additionally lays out a path to achieving carbon neutrality by 2045 (CARB 2022b).

REGIONAL PLANS

The CARB sets regional GHG reduction targets for California's 18 Metropolitan Planning Organizations (MPOs) to achieve through planning future projects that will cumulatively achieve those goals and reporting how they will be met in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (CARB 2022c). The proposed project is not within the jurisdiction of an MPO, and therefore not subject to CARB GHG reduction targets. However, the Humboldt County Association of Governments is the Regional Transportation Planning Agency for the project area. The 2022 RTP identifies short-term and long-term goals for GHG reduction strategies, matching the California Climate Strategy goals (County of Humboldt 2017 and 2022).

Some of these goals include:

- Reduce countywide emissions by 40% of 1990 levels by 2030
- By 2035 have 100% zero-emission vehicle sales of passenger cars and trucks
- From 2030 to 2045, fully transition from fossil fuels to 100% renewable energy
- Make progress towards zero net greenhouse gas emissions by 2045
- By 2045 have statewide carbon neutrality and net-negative emissions thereafter
- By 2050 reduce GHG emissions to 80% below 1990 levels
- Improve accessibility of public transit
- Expand shared mobility
- Expand and increase safety of active transportation modes like walking and biking
- Make communities more compact and connected

The proposed project does not conflict with any plan, policy, or regulation established for the reduction of GHG.

Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation of the State Highway System (SHS) (operational emissions) and those produced during construction. The primary GHGs produced by the transportation sector are CO_2, CH_4, N_2O, and HFCs. CO_2 emissions are a product of burning gasoline or diesel fuel in internal combustion engines, along with relatively small amounts of CH_4 and N_2O. A small amount of HFC emissions related to refrigeration is also included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Public Resources Code § 21083(b)(2)). As the California Supreme Court explained, "because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself." (Cleveland National Forest Foundation *v.* San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512). In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

The purpose of the proposed project is to improve drainage facilities along the U.S. 101 corridor and will not increase the vehicle capacity of the roadway. This type of project will cause no increase in operational GHG emissions. Because the project will not increase the number of travel lanes on U.S. 101, no increase in vehicle miles traveled (VMT) will occur. While some GHG emissions during the construction period will be unavoidable, no increase in operational GHG emissions is expected.

Construction Emissions

Construction GHG emissions will result from material processing and transportation, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

Use of long-life pavement, improved Transportation Management Plans, and changes in materials, can also help offset emissions produced during construction by allowing longer intervals between maintenance and rehabilitation activities.

Construction is expected to begin in 2025 and last approximately 290 working days. The Caltrans Construction Emission Tool (CAL-CET 2021) was used to quantify the expected construction-related GHG emissions related to the proposed project. Such emissions include average carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and hydrofluorocarbons (HFCs) emissions expected for the project's construction period. Table 12 summarizes estimates of average GHG emissions generated by on-site equipment for the project. The average carbon dioxide equivalent (CO_2e) produced during construction is estimated to be approximately 630 U.S. tons over two construction seasons, lasting approximately 290 working days.

Table 12. Estimated Construction Emissions by Construction Season in U.S. Tons

Construction Duration	CO_2	CH_4	N_2O	HFCs	CO_2e*
2025	499	0.011	0.026	0.032	616
2026	130	0.003	0.007	0.008	159
Total	**629**	**0.014**	**0.033**	**0.040**	**775**

* A quantity of GHG is expressed as carbon dioxide equivalent (CO_2e) that can be estimated by the sum after multiplying each amount of CO_2, CH_4, N_2O, and HFCs by its global warming potential (GWP). Each GWP of CO_2, CH_4, N_2O, and HFCs is 1, 25, 298, and 14,800, respectively.

All construction contracts include Caltrans Standard Specifications related to air quality. Sections 7-1.02A and 7 1.02C, Emissions Reduction, require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all CARB emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations (such as equipment idling restrictions) that reduce construction vehicle emissions also help reduce GHG emissions.

CEQA Conclusion

While the proposed project will result in GHG emissions during construction, it is anticipated the project will not result in any increase in operational GHG emissions. The proposed project does not conflict with any applicable plan, policy, or regulation adopted for the

purpose of reducing the emissions of greenhouse gases. With implementation of construction GHG-reduction measures, the impact will be ***less than significant***.

Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

STATEWIDE EFFORTS

In response to AB 32, California is implementing measures to achieve emission reductions of GHGs that cause climate change. Climate change programs in California are effectively reducing GHG emissions from all sectors of the economy. These programs include regulations, market programs, and incentives that will transform transportation, industry, fuels, and other sectors, to take California into a sustainable, low-carbon and cleaner future, while maintaining a robust economy (CARB 2022d).

Major sectors of the California economy, including transportation, will need to reduce emissions to meet 2030 and 2050 GHG emissions targets. The Governor's Office of Planning and Research identified five sustainability pillars in a 2015 report: (1) increasing the share of renewable energy in the State's energy mix to at least 50% by 2030; (2) reducing petroleum use by up to 50% by 2030; (3) increasing the energy efficiency of existing buildings by 50% by 2030; (4) reducing emissions of short-lived climate pollutants; and (5) stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits (OPR 2015). OPR later added strategies related to achieving statewide carbon neutrality by 2045 in accordance with EO B-55-18 and AB 1279 (California Governor's Office OPR 2022).

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled (VMT). Reducing today's petroleum use in cars and trucks by 50% is a key state goal for reducing greenhouse gas emissions by 2030 (California Environmental Protection Agency 2015).

In addition, SB 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own

decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

Subsequently, Governor Gavin Newsom issued Executive Order N-82-20 to combat the crises in climate change and biodiversity. It instructs state agencies to use existing authorities and resources to identify and implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities and in particular low-income, disadvantaged, and vulnerable communities. To support this order, the California Natural Resources Agency (2021) released *Natural and Working Lands Climate Smart Strategy*, with a focus on nature-based solutions.

CALTRANS ACTIVITIES

Caltrans continues to be involved on the Governor's Climate Action Team as the CARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set an interim target to cut GHG emissions to 40% below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

Climate Action Plan for Transportation Investments

The California Action Plan for Transportation Infrastructure (CAPTI) builds on executive orders signed by Governor Newsom in 2019 and 2020 targeted at reducing GHG emissions in transportation, which account for more than 40% of all polluting emissions, to reach the state's climate goals. Under CAPTI, where feasible and within existing funding program structures, the state will invest discretionary transportation funds in sustainable infrastructure projects that align with its climate, health, and social equity goals (California State Transportation Agency 2021).

California Transportation Plan

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. It serves as an umbrella document for all the other statewide transportation planning documents. The CTP 2050 presents a vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The plan's climate goal is to achieve statewide GHG emissions

reduction targets and increase resilience to climate change. It demonstrates how GHG emissions from the transportation sector can be reduced through advancements in clean fuel technologies; continued shifts toward active travel, transit, and shared mobility; more efficient land use and development practices; and continued shifts to telework (Caltrans 2021a).

Caltrans Strategic Plan

The *Caltrans 2020–2024 Strategic Plan* includes goals of stewardship, climate action, and equity. Climate action strategies include developing and implementing a Caltrans Climate Action Plan; a robust program of climate action education, training, and outreach; partnership and collaboration; a VMT monitoring and reduction program; and engaging with the most vulnerable communities in developing and implementing Caltrans climate action activities (Caltrans 2021b).

Caltrans Policy Directives And Other Initiates

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) established a Department policy to ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. *Caltrans Greenhouse Gas Emissions and Mitigation Report* (Caltrans 2020) provides a comprehensive overview of Caltrans' emissions. The report documents and evaluates current Caltrans procedures and activities that track and reduce GHG emissions and identifies additional opportunities for further reducing GHG emissions from Department-controlled emission sources, in support of Departmental and State goals.

Project-Level Greenhouse Gas Reduction Strategies

The following measures will also be implemented to reduce greenhouse gas emissions and potential climate change impacts from the project.

- Caltrans Standard Specification "Air Quality" requires compliance by the contractor with all applicable laws and regulations related to air quality.
- Compliance with Title 13 of the California Code of Regulations, which includes restricting idling of diesel-fueled commercial motor vehicles and equipment with gross weight ratings of greater than 10,000 pounds to no more than 5 minutes.
- Caltrans Standard Specification "Emissions Reduction" ensures that construction activities adhere to the most recent emissions reduction regulations mandated by the California Air Resource Board (CARB).

- Use of a Transportation Management Plan (TMP) to minimize vehicle delays and idling emissions. As part of this, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along the highway during peak travel times.
- All areas temporarily disturbed during construction will be revegetated with appropriate native species. Landscaping reduces surface warming and, through photosynthesis, decreases CO_2. This replanting will help offset any potential CO_2 emissions increase.
- Pedestrian and bicycle access will be maintained on U.S. Highway 101, SR 36, and SR 299 during project activities.
- Where feasible, the removal of established trees and vegetation will be minimized. If necessary, environmentally sensitive areas would have Temporary High Visibility Fencing (THVF) installed before start of construction to demarcate areas that will be protected. Such areas can include, but are not limited to, wetlands and vegetation, including trees and their root systems.
- If previously vegetated, temporary access roads, construction easements, and staging areas would be restored to a natural contour and revegetated with regionally appropriate native vegetation.
- A Revegetation Plan will be prepared which will include a plant palette, establishment period, watering regimen, monitoring requirements, and weeding routines. The Revegetation Plan will also address proposed measures to address wetland and riparian areas temporarily impacted by the project.
- For improved fuel efficiency from construction equipment:
    - Maintain equipment in proper tune and working condition.
    - Use right sized equipment for the job.
    - Use equipment with new technologies.
- Earthwork Balance: Reduce the need for transport of earthen materials by balancing cut and fill quantities.
- Maximize use of recycled materials (tire rubber for example), as feasible.
- Where feasible, salvage large, removed trees for lumber or similar on-site beneficial uses other than standard wood-chipping (e.g., use in roadside landscape projects or green infrastructure components).

- Use recycled water or reduce consumption of potable water for construction.

Adaptation Strategies

Reducing GHG emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

FEDERAL EFFORTS

Under NEPA Assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The *Fourth National Climate Assessment*, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways."

The *U.S. DOT Policy Statement on Climate Adaptation* in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions" (U.S. DOT 2011). The U.S. DOT Climate Action Plan of August 2021 followed up with a statement of policy to "accelerate reductions in greenhouse gas emissions from the transportation sector and make our transportation infrastructure more climate change resilient now and in the future," following this set of guiding principles (U.S. DOT 2021):

- Use best-available science

- Prioritize the most vulnerable
- Preserve ecosystems
- Build community relationships
- Engage globally

U.S. DOT developed its climate action plan pursuant to the federal EO 14008, *Tackling the Climate Crisis at Home and Abroad* (January 27, 2021). EO 14008 recognized the threats of climate change to national security and ordered federal government agencies to prioritize actions on climate adaptation and resilience in their programs and investments (White House 2021).

FHWA Order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

STATE EFFORTS

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. A number of state policies and tools have been developed to guide adaptation efforts.

California's Fourth Climate Change Assessment (Fourth Assessment) (2019) is the state's effort to "translate the state of climate science into useful information for action." It provides information that will help decision makers across sectors and at state, regional, and local scales protect and build the resilience of the state's people, infrastructure, natural systems, working lands, and waters. The State's approach recognizes that the consequences of climate change occur at the intersections of people, nature, and infrastructure. The Fourth Assessment reports that if no measures are taken to reduce GHG emissions by 2021 or sooner, the state is projected to experience a 2.7 to 8.8 degrees Fahrenheit increase in average annual maximum daily temperatures, with impacts on agriculture, energy demand, natural systems, and public health; a two-thirds decline in water supply from snowpack and water shortages that will impact agricultural production; a 77% increase in average area burned by wildfire, with consequences for forest health and communities; and large-scale erosion of up to 67% of Southern California beaches and inundation of billions of dollars' worth of residential and commercial buildings due to sea level rise (State of California 2018).

Sea level rise is a particular concern for transportation infrastructure in the Coastal Zone. Major urban airports will be at risk of flooding from sea level rise combined with storm surge as early as 2040; San Francisco Airport is already at risk. Miles of coastal highways vulnerable to flooding in a 100-year storm event will triple to 370 by 2100, and 3,750 miles will be exposed to temporary flooding. The Fourth Assessment's findings highlight the need for proactive action to address these current and future impacts of climate change.

In 2008, then-governor Arnold Schwarzenegger recognized the need when he issued EO S-13-08, focused on sea level rise. Technical reports on the latest sea level rise science were first published in 2010 and updated in 2013 and 2017. The 2017 projections of sea level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018. This EO also gave rise to the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan), which addressed the full range of climate change impacts and recommended adaptation strategies. The Safeguarding California Plan was updated in 2018 and again in 2021 as the *California Climate Adaptation Strategy*, incorporating key elements of the latest sector-specific plans such as the *Natural and Working Lands Climate Smart Strategy*, *Wildfire and Forest Resilience Action Plan*, *Water Resilience Portfolio,* and the *CAPTI* (described above). Priorities in the 2021 California Climate Adaptation Strategy include acting in partnership with California Native American tribes, strengthening protections for climate-vulnerable communities that lack capacity and resources, nature-based climate solutions, use of best available climate science, and partnering and collaboration to best leverage resources (California Natural Resources Agency 2022b).

EO B 30 15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change in addition to sea level rise also threaten California's infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies in 2017* to encourage a uniform and systematic approach.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group to help actors throughout the state address the findings of California's Fourth Climate Change Assessment. In 2018, it released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California.* The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use

infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts (Climate Change Infrastructure Working Group 2018).

CALTRANS ADAPTATION EFFORTS

Caltrans Vulnerability Assessments

Caltrans completed climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects of precipitation, temperature, wildfire, storm surge, and sea level rise.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments guide the analysis of at-risk assets and development of Adaptation Priority Reports as a method to make capital programming decisions to address identified risks.

Project Adaptation Efforts

The impacts of climate change and extreme weather events may significantly impact the State Highway System (SHS) and other transportation infrastructure in the State. As the climate continues to change at an increasingly rapid pace, Caltrans must ensure climate change mitigation and adaptation measures are identified and implemented when appropriate and feasible. The project would not exacerbate the effects of climate change related to CEQA topics. However, the proposed project would include certain elements to prepare for increased precipitation, increased risk of wildfire, and hazards that may result from climate change, such as flooding, landslides, and road closures (Caltrans 2019). The intended design life of APC and downdrains is 50 years and 25 years, respectively (Caltrans 2022h).

Sea Level Rise

The *Caltrans Climate Change Vulnerability Assessment for District 1* (Caltrans 2019) includes an analysis using data from the Ocean Protection Council (OPC) and the National Oceanic and Atmospheric Administration (NOAA). The OPC developed a new set of sea level rise projections and scenarios for the state, which were chosen for consideration in this analysis to follow state guidance on sea level rise planning and use the best available sea level rise projections. These projections were paired with a NOAA sea level rise model, which was used to identify potential impacts to the SHS in District 1.

The areas of District 1 most vulnerable to flooding from sea level rise and storm surge mirror those identified by the NOAA data used in the sea level rise analysis and includes the district's northern portion along SR 255 and U.S. 101 which surround and traverse Humboldt Bay.

A sea level risk assessment has been conducted to determine the project's potential exposure to sea level rise utilizing *the State of California Sea Level Rise Guidance, 2018 Update* (California Ocean Protection Council, 2018). This guidance presents ranges of potential sea level rise under several different GHG-emissions scenarios (Figure SLR-3). Steps taken to determine the project's potential exposure to sea level rise included selecting the closest tide gauge location and referring to sea level rise projections for that location. Table 13 below provides projected sea level rise (in feet) for the project area. Data collected at the North Spit tide gauge was used to document sea level rise in the proximity. Risk aversion is defined as "the strong inclination to avoid taking risks in the face of uncertainty." The *State of California Sea Level Rise Guidance, 2018 Update* describes low risk aversion is the most likely of all projections, with a 66% probability sea level rise to occur. Medium-High risk aversion is considered to be a 1-in-200 chance, a 0.5% probability to occur. The extreme risk aversion is a single scenario which, according to the *State of California Sea Level Rise Guidance 2018 Update,* includes unknown probability of occurring. However, it is important, particularly for high stakes, long-term decisions.

Table 13. Projected Sea Level Rise (in feet) for Project Area

Year	Low Risk Aversion (feet)	Medium-High Risk Aversion (feet)	Extreme Risk Aversion (H++) (feet)
2030	0.7	1.0	1.2
2040	1.1	1.6	2.0
2050	1.5	2.3	3.1
2060	1.9	3.1	4.3
2070	2.4	4.0	5.6
2080	2.9	5.1	7.2
2090	3.5	6.2	8.9
2100	4.1	7.6	10.9

Replaced culverts are expected to provide 50 years of maintenance-free operation. Rehabilitated culverts are expected to provide an additional 20 years of maintenance-free operation. Considering the lifespan of the culverts being rehabilitated and or replaced, projected changes in the coastal Ordinary High-Water Mark (OHWM) were reviewed using the National Oceanic and Atmospheric Administration's (NOAA) sea level rise viewer.

This tool is a mapping tool to visualize community-level impacts from coastal flooding or sea level rise (up to 10 feet above average high tides). Photo simulations of how future flooding might impact local landmarks are also provided, as well as data related to water depth, connectivity, flood frequency, socio-economic vulnerability, wetland loss and migration, and mapping confidence (Figures 6-9).

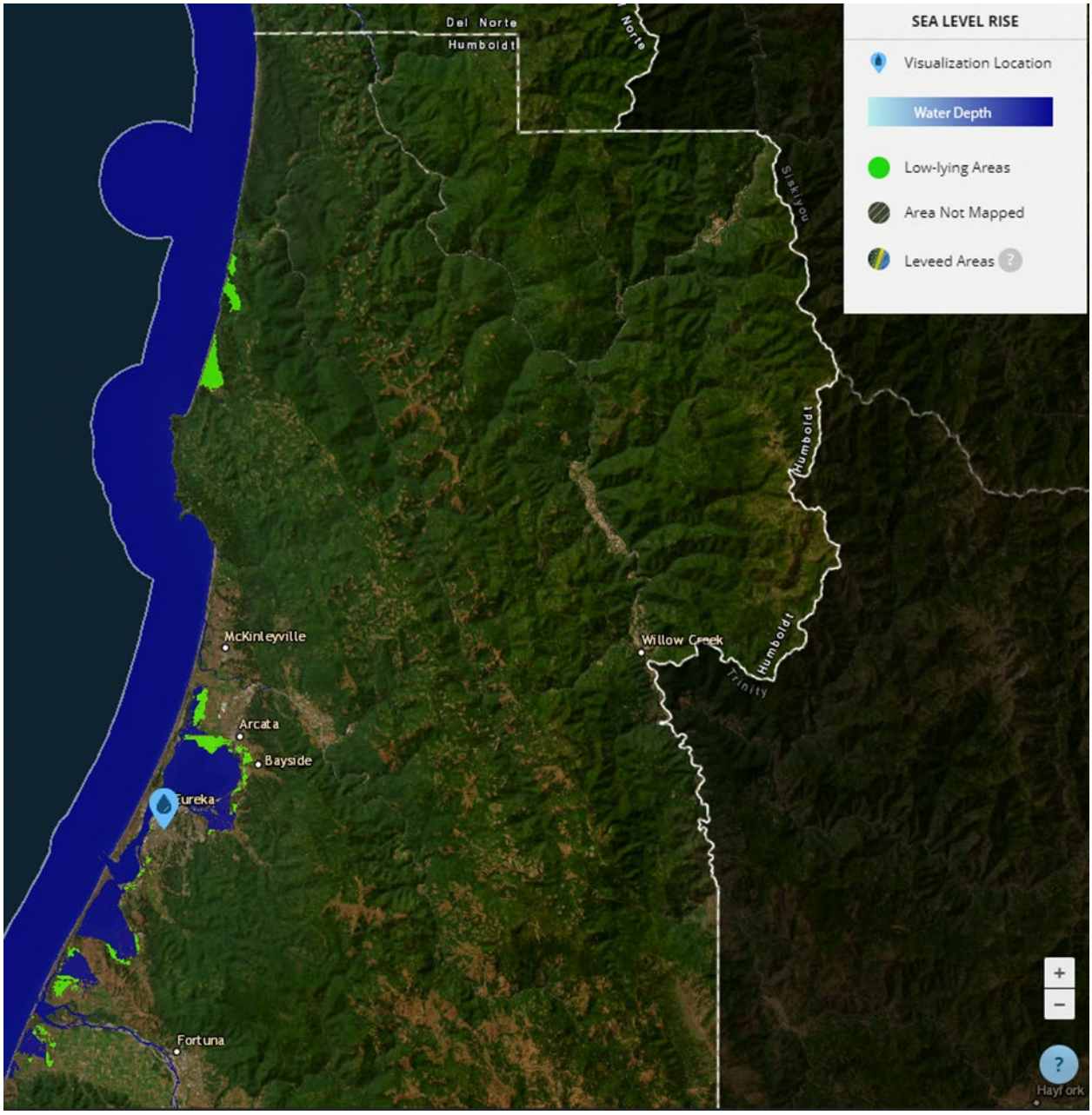


Figure 6. Existing OHWM per NOAA SLR Viewer

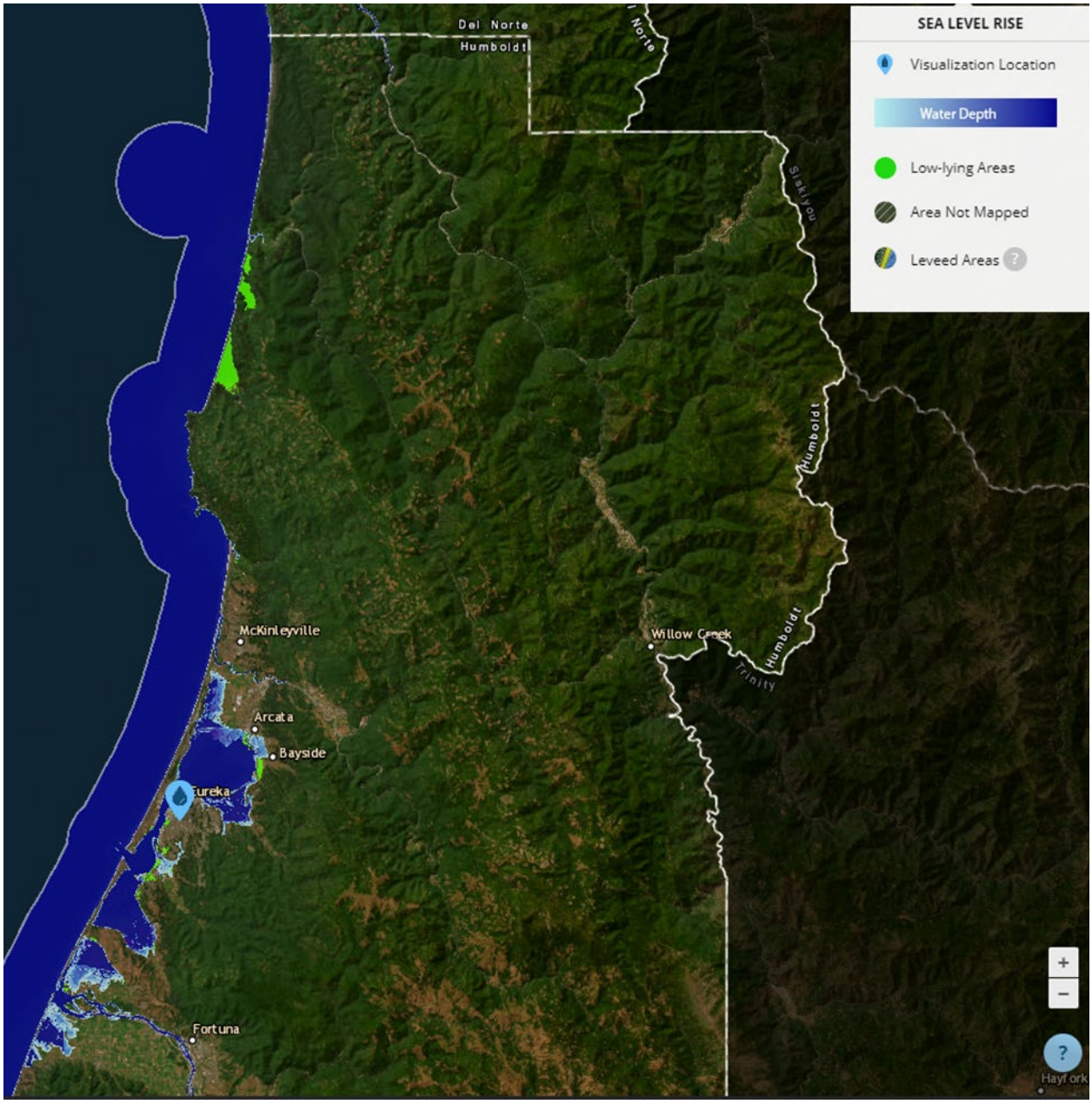


Figure 7. Low Risk Aversion Projected OHWM in 2050 per NOAA SLR Viewer

Sea level change of approximately 2 feet.

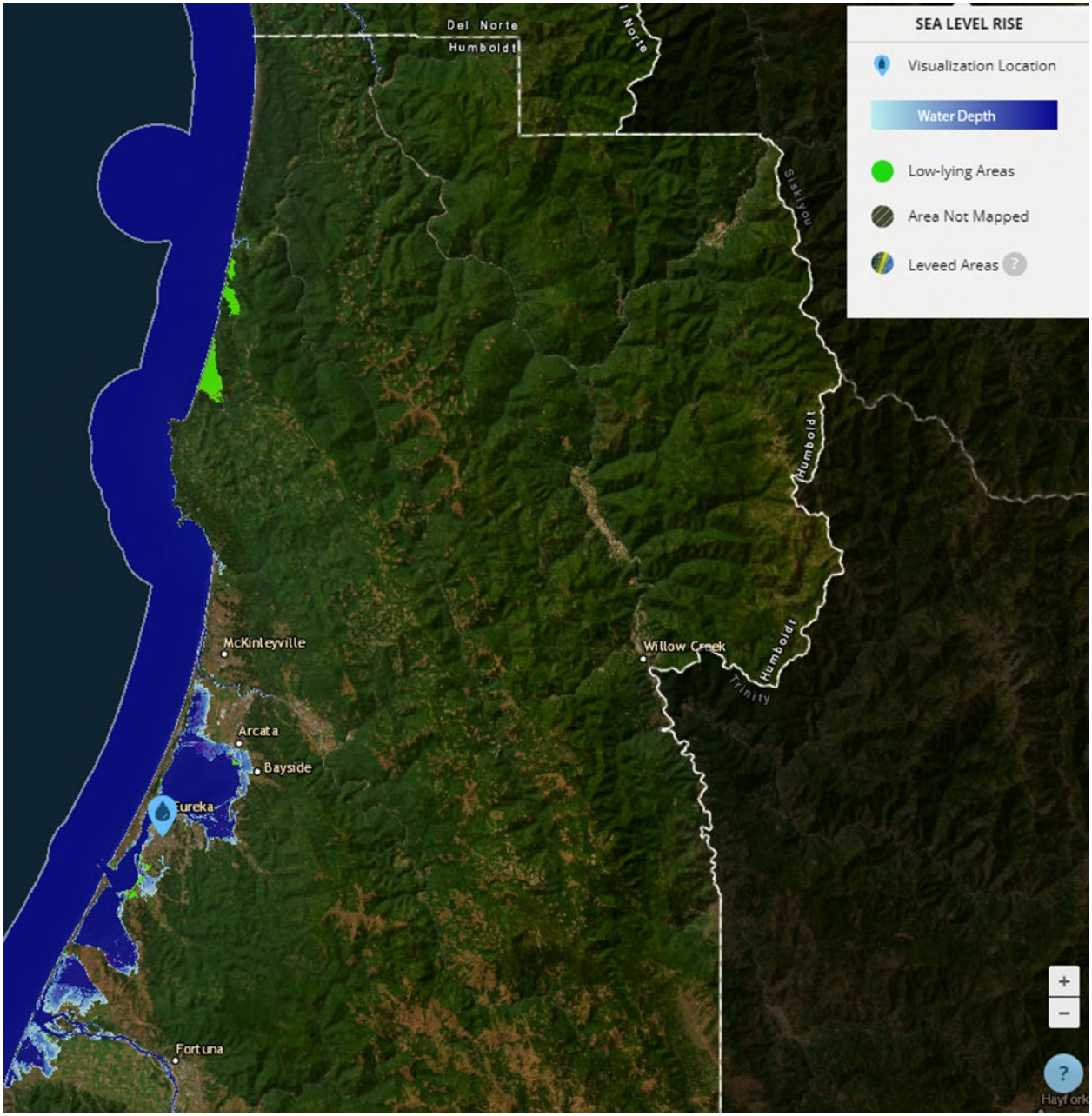


Figure 8. Low Risk Aversion Projected OHWM in 2070 per NOAA SLR Viewer

Sea level change of approximately 3 feet.

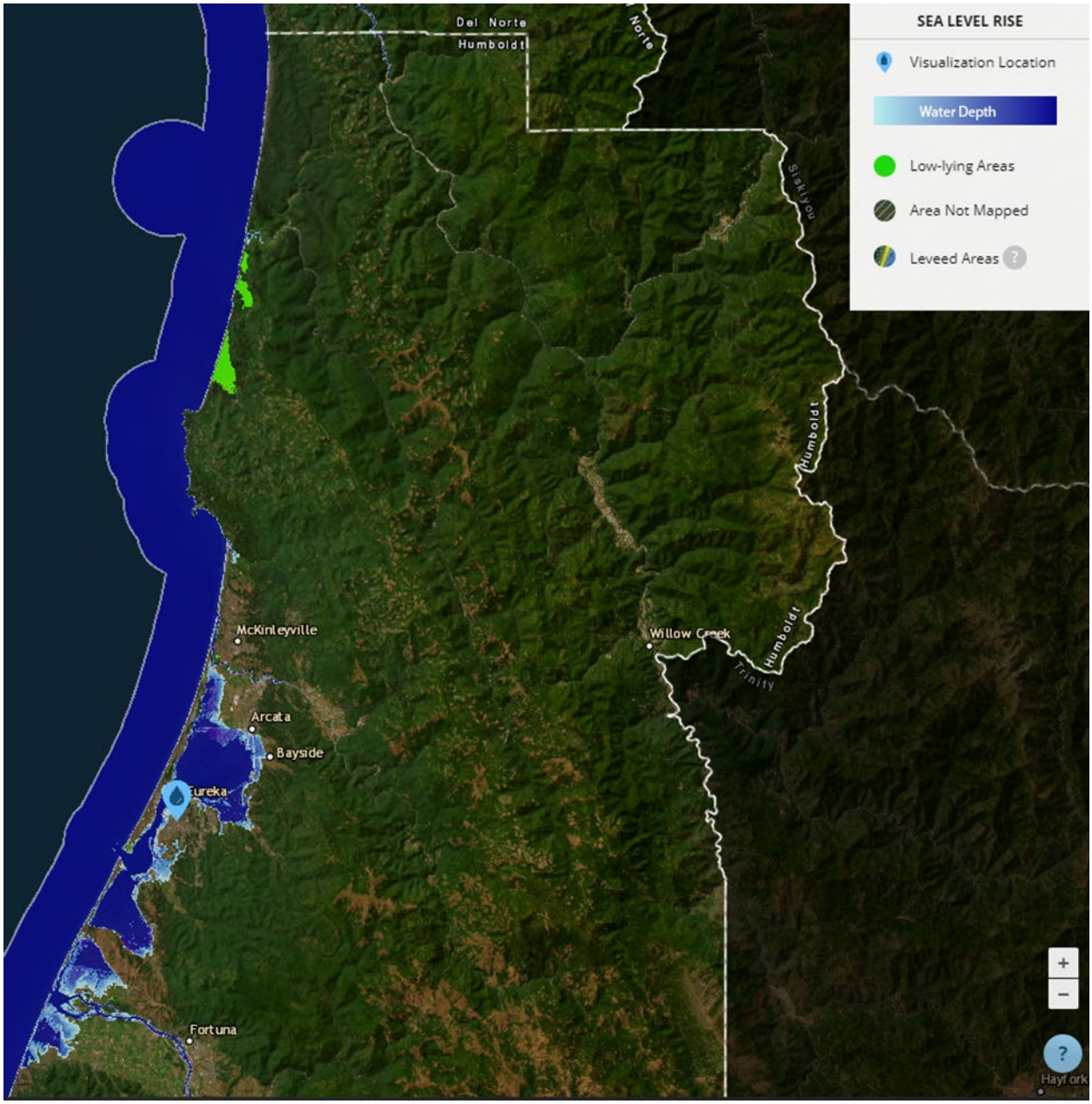


Figure 9. Low Risk Aversion Projected OHWM in 2100 per NOAA SLR Viewer.

Sea level change of approximately 4 feet.

Much of District 1's facilities are within areas under the jurisdiction of governmental agencies and tribal nations. District 1 staff interact with many different organizations and agencies, including four regional transportation planning agencies, local governments, Native American tribes, non-profit organizations, political representatives, bicycle and pedestrian advocacy groups, and other stakeholder organizations. District 1 acknowledges that portions of the coastal transportation infrastructure are vulnerable to the impacts of sea level rise. Most impacts are primarily around Humboldt Bay *California's Fourth Climate Change Assessment (Fourth Assessment) (2019)*. Caltrans is currently conducting statewide vulnerability assessments in each district to identify where the SHS is vulnerable to climate change, including sea level rise and storm surge.

The purpose of the proposed project is to repair or rehabilitate drainage systems that have exceeded their design life, need repair, or do not meet capacity standards. The project will preserve the roadway and prevent damage from storm events. The project's Project Development Team (PDT) has considered climate adaption strategies in the design. However, not all climate change considerations may be feasible for incorporation. As described, transportation facilities around Humboldt Bay are most vulnerable to sea level rise. The proposed work within this area is largely within the city of Eureka where incorporating adaptive strategies, such as sea walls or other barriers, elevated roadway, or natural infrastructure, is not feasible.

Precipitation and Flooding

The 100-year flood event is commonly used in the sizing and design of culverts and drainage systems. In most cases, it is presumed that the 100-year flood is caused by a 100-year precipitation event. In 2019, *The Caltrans Climate Change Vulnerability Assessment for District 1* (Caltrans 2019) mapped potential changes in the 100-year precipitation event throughout the district. The projections are based on the Representative Concentration Pathways (RCP) 8.5 Emissions Scenario. The mapping indicates a percentage increase of 5.0% in 2055 and 9.9% in 2085 in the 100-year flood within the project area as a result of climate change (Caltrans 2019). Although runoff and streamflow are proportional to precipitation, a given frequency precipitation event may not produce the same frequency streamflow (flood) event. Regardless, without extensive data on each watershed, precipitation frequency is a reliable proxy for streamflow for a given drainage.

A Floodplain Evaluation Report Summary was prepared for the project (Caltrans 2022k). The proposed project is located within the coastal ranges and coastal plain, and within the lower basins of the Eel River, Humboldt Bay, Mad River, Humboldt Lagoons and Redwood Creek. Table 1 summarizes the culvert locations. Most work locations are within areas defined as a flood zone "Area of Minimal Hazard." Considering all project locations, only one (Post Mile 60.68), is within a Regulatory Floodway. The proposed construction activities are not expected to have any significant adverse floodplain impacts

Any encroachment of the drainage systems in the base floodplain are improvements to existing facilities at discrete locations with negligible impacts, where the goal is to reduce flooding and erosion potential. Approximately 37 of the 51 drainage systems will be replaced with larger diameter culverts or downdrains. Because the lifespan of culverts can be 50 years or more, this process of upsizing culverts will help prepare the roadway for increased flows that may occur due to future precipitation increases, while also decreasing water velocities at culvert outlets, which could decrease downstream erosion. The project is also proposing rock slope protection (RSP) where necessary to reduce erosion during extreme flows. Project work will also stabilize slopes to lower the chances of landslide on slopes at risk of more frequent or intense wildfire and precipitation. The purpose of this project is to improve drainage systems to reduce risk of localized flooding. Accordingly, the project will be resilient to future increases in precipitation and flooding

Wildfire

The *Caltrans Climate Change Vulnerability Assessment for District 1* (Caltrans 2019) indicates most of the project consists of coastal areas that experience mild, dry, and frequently foggy summers, and wet, cool winters. However, climate change on the California coast will exacerbate existing coastal hazards, such as wildfire severity. Currently, most of the project locations are classified as having a *Medium* level of concern for wildfire exposure with no centerline miles considered having a *Very High* wildfire concern. By 2085, U.S. 101 within Humboldt County is projected to be classified predominately as *High* wildfire concern (Caltrans 2019). Such projections are based on the Representative Concentration Pathways (RCP) 8.5 Emissions Scenario (Caltrans 2019).

The project limits span Local Responsibility Areas (LRAs) and State Responsibility Areas (SRAs), served by CAL FIRE. Locations within the SRA are primarily within the *Moderate* Fire Hazard Severity Zone (FHSZ). According to the Fire Hazard Severity Zone maps for SRAs, adopted by CAL FIRE in November 2007, there is no work proposed in a *Very High* FHSZ.

Within the LRA, the project is primarily within the *Moderate* Fire Hazard Severity Zone (County of Humboldt 2021). While average temperatures on the coast are currently relatively mild, changes in precipitation due to climate change are projected to result in more frequent drought periods and storm events, producing heavier rainfall and leading to an increase in fuels in already fire prone locations.

Standard fire prevention measures will be implemented during construction, including:

- The names and emergency telephone numbers of the nearest fire suppression agencies will be posted at a prominent place at the job site.
- A Fire Prevention Plan will be required from the contractor to identify measures taken to reduce the risk of fire.
- Fires occurring within and near the project limits will be immediately reported to the nearest fire suppression agency by using the emergency phone numbers retained at the job site and by dialing 911. Performance of the work will be in cooperation with fire prevention authorities.
- Fires caused directly or indirectly by job site activities will be extinguished and escape of fires would be prevented.
- Materials resulting from clearing and grubbing will be disposed of or managed to prevent accumulation of flammable material.
- All emergency response agencies in the project area will be notified of the project construction schedule and will have access to U.S. Highway 101 throughout the construction period.
- Standard Special Provision 7-1.02M(2) includes a list of fire prevention procedures that will be required by the contractor during construction.

These measures will minimize wildfire risk during construction. It is the policy of District 1 not to expose plastic pipe to fire hazards; therefore, downdrains will be steel and constructed so that a connection is made with any plastic pipe underdrain below the original ground. Culvert liners will be grouted and buried below the fill. Replacing culverts that have exceeded their design life is expected to reduce the risk of slope instability if a wildfire were to leave areas with steep slopes exposed.

Temperature

The *Caltrans Climate Change Vulnerability Assessment for District 1* (Caltrans 2019) describes that the *US National Climate Assessment* advised that the "number of extremely hot days is projected to continue to increase over much of the United States, especially by late century. Summer temperatures are projected to continue rising, and a reduction of soil moisture, which exacerbates heat waves, is projected for much of the western and central US in summer." Because of California's size and its many highly varied climate zones, temperatures will likely rise in varying degrees across the state. However, as described above, the proposed project largely consists of coastal areas that experience mild, dry, and frequently foggy summers, and wet, cool winters. Temperature affects choice of pavement materials, which may have implications on a project's design and maintenance needs. The proposed project is a culvert rehabilitation effort which, according to the District Climate Change Vulnerability Assessment, does not indicate temperature changes during the project's design life that will require adaptive changes in pavement design or maintenance practices.

2.9 Hazards and Hazardous Materials

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				✓
Would the project: b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				✓
Would the project: c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				✓
Would the project: d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				✓
Would the project: e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				✓

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				✓
Would the project: g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the Initial Site Assessment (Update) dated January 31, 2022 (Caltrans 2022a). Potential hazards and impacts from hazardous materials are not anticipated because the project will not create a significant hazard to the public or environment, is not located near a school or airport, and is not on a list of hazardous sites compiled pursuant to Government Code Section 65962.5 (Cortese List). Emergency vehicles will be accommodated through any temporary ramp or lane closures. If a wildland fire were to affect the area, work will stop and evacuation routes will be accessible. Caltrans specifications require the management of hazardous materials to comply with applicable laws, rules, and regulations. If encountered, Aerially Deposited Lead, commonly found in unpaved areas around the highway, and treated wood waste from potential guardrail replacement, will be handled and disposed of in accordance with Caltrans standard specifications for these materials. Similarly, if encountered, Department generated arsenic contaminated soil will be handled and disposed of in accordance with Caltrans standard specifications for these materials. Best Management Practices will be used on-site to contain hazardous materials should they be encountered and avoid exposure to workers, the public, and surrounding environment.

Based on the determinations made in the CEQA Environmental Checklist, there will be "***No Impact***" from the proposed project.

2.10 Hydrology and Water Quality

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			✓	
Would the project: b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				✓
Would the project: c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site;				✓
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;				✓
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				✓
(iv) impede or redirect flood flows?				✓

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				✓
Would the project: e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				✓

Regulatory Setting

The primary laws and regulations governing hydrology and water quality include:

- Federal Clean Water Act (CWA)–33 USC 1344
- Federal Executive Order for the Protection of Wetlands (EO 11990)
- State California Fish and Game Code (CFGC) Sections 1600–1607
- State Porter-Cologne Water Quality Control Act Sections 13000 et seq.

Environmental Setting

A Water Quality Assessment Report (WQAR) was prepared for the project in June 2022 (Caltrans 2022j) and is used to describe the environmental setting.

Hydrology

According to the Water Quality Planning Tool (Caltrans 2022j), there are several Hydrologic Units (HU) within the project limits. These include, from south to north, the Eel River HU, Eureka Plain HU, Mad River HU, Trinidad HU, Redwood Creek HU, and Klamath River HU. A summary of the HUs, Hydrologic Areas (HA), and Hydrologic Sub-Areas (HSA) is presented in Table 14.

Table 14. Hydrologic Breakdown within Project Limits

PM Limits	Hydrologic Unit	Hydrologic Area	Hydrologic Sub-Area
56.60 – 66.69	Eel River	Lower Eel River	Ferndale (111.11)
66.69 – 88.84	Eureka Plain	undefined	undefined (110.00)
88.84 – R95.78	Mad River	Blue Lake	undefined (109.10)
R95.78 – 98.17	Trinidad	Little River	undefined (108.20)
98.17 – 119.38	Trinidad	Big Lagoon	undefined (108.10)
119.38 – R130.90	Redwood Creek	Orick	undefined (107.10)
R130.90 – R137.10	Klamath River	Lower Klamath River	Klamath Glen (105.11)

Topography and general drainage patterns were obtained from the Water Quality Planning Tool (Caltrans 2022j). From PMs 70.86 to R92.94, U.S. 101 is within flat urban areas that slope west towards Humboldt Bay and Arcata Bay. The surface waters within these areas also flow westward and discharge into these bays. Other segments of the highway corridor within the project limits are surrounded by mountainous terrain with steep forested slopes and generally follow the westward flow patterns of creeks and rivers from inland towards the Pacific Ocean.

Based on the California's Groundwater Bulletin 118 from the California Department of Water Resources (California Natural Resources Agency 2020), portions of the proposed culverts are located within 7 groundwater basins, as summarized below in Table 15.

Table 15. Groundwater Basins within Project Limits

PM Limits	Groundwater Basins	Area	Groundwater Depths (below ground surface)
56.60- 67.35	Eel River Valley (#1-010)	73,700 acres / 115 square miles	3 to 20 feet
67.35 – 84.09	Eureka Plain (#1-009)	37,400 acres / 58 square miles	Less than 10 feet
84.09 – 91.08	Mad River Valley – Mad River Lowland (#1-008.01)	25,600 acres / 40 square miles	N/A
91.08 – 97.38	Mad River Valley – Dows Prairie (#1-008.02)	14,000 acres / 22 square miles	9 to 11 feet
97.63 – 109.96 Big Lagoon Area (#1-027)	97.63 – 109.96 Big Lagoon Area (#1-027)	13,400 acres / 21 square miles	N/A
118.80 – 124.26	Redwood Creek Area (#1-026)	2,000 acres / 3 square miles	N/A
126.03 – 136.39	Prairie Creek Area (#1-025)	20,000 acres / 31 square miles	N/A

Average annual precipitation at the project locations ranges from 39.45 inches to 80.09 inches. The majority of precipitation occurs from October to May. The average annual maximum temperature ranges from 58.6 to 61.4 degrees Fahrenheit (°F) and the average annual minimum temperature ranges from 42.2°F to 46.7°F (National Oceanic Atmospheric Association, 2022).

Water Quality

Table 16 below lists the following beneficial uses for surface waters within the project limits.

Table 16. Beneficial Uses of Surface Water within Project Limits

Beneficial Use	Existing Use by Hydraulic Unit/Area/Subunit	Potential Use by Hydraulic Unit/Area/Subunit
Municipal and domestic supply (MUN)	Klamath Glen HSA Orick HA Big Lagoon HA Blue Lake HA Eureka Plain HU, Salmon Creek Eureka Plain HU, Humboldt Bay Ferndale HSA	Little River HA
Agricultural supply (AGR)	All hydraulic units, areas, and subunits	Existing
Industrial service supply (IND)	Little River HA Orick HA Big Lagoon HA Blue Lake HA Eureka Plain HU, Salmon Creek Eureka Plain HU, Humboldt Bay Ferndale HSA	Klamath Glen HSA
Industrial Process Supply (PRO)	Blue Lake HA	Little River HA Orick HA Big Lagoon HA Klamath Glen HAS Eureka Plain HU, Salmon Creek Eureka Plain HU, Humboldt Bay Ferndale HSA
Groundwater recharge (GWR)	Little River HA Orick HA Big Lagoon HA Blue Lake HA Eureka Plain HU, Salmon Creek Klamath Glen HAS Ferndale HSA	
Freshwater replenishment (FRSH)	Little River HA Klamath Glen HAS Big Lagoon HA Blue Lake HA Eureka Plain HU, Salmon Creek Eureka Plain HU, Humboldt Bay Ferndale HSA	

Beneficial Use	Existing Use by Hydraulic Unit/Area/Subunit	Potential Use by Hydraulic Unit/Area/Subunit
Navigation (NAV)	All hydraulic units, areas, and subunits	
Hydropower generation (POW)		Klamath Glen HSA Orick HA Blue Lake HA Eureka Plain HU, Salmon Creek Eureka Plain HU, Humboldt Bay Ferndale HSA
Water contact recreation (REC-1)	Klamath Glen HSA Orick HA Big Lagoon HA Blue Lake HA Eureka Plain HU, Salmon Creek Eureka Plain HU, Humboldt Bay Ferndale HSA	Little River HA
Non-contact water recreation (REC-2)	All hydraulic units, areas, and subunits	
Commercial and sport fishing (COMM)	All hydraulic units, areas, and subunits	
Warm freshwater habitat (WARM)	Klamath Glen HSA	
Cold freshwater habitat (COLD)	All hydraulic units, areas, and subunits	
Areas of Special Biological Significance (ASBS)	Big Lagoon HA	
Wildlife habitat (WILD)	All hydraulic units, areas, and subunits	
Rare, threatened, or endangered species (RARE)	All hydraulic units, areas, and subunits	
Marine Habitat (MAR)	Klamath Glen HSA Orick HA Big Lagoon HA Little River HA Eureka Plain HU, Salmon Creek Eureka Plain HU, Humboldt Bay	Blue Lake HA Ferndale HSA
Migration of aquatic organisms (MIGR)	All hydraulic units, areas, and subunits	Existing
Spawning, reproduction, and/or early development (SPWN)	All hydraulic units, areas, and subunits	Existing

Beneficial Use	Existing Use by Hydraulic Unit/Area/Subunit	Potential Use by Hydraulic Unit/Area/Subunit
Shellfish Harvesting (SHELL)	Klamath Glen HSA Eureka Plain HU, Humboldt Bay Ferndale HSA	
Estuarine habitat (EST)	All hydraulic units, areas, and subunits	Existing - Ferndale HSA only
Native American culture (CUL)	All hydraulic units, areas, and subunits	Existing - Ferndale HSA only
Aquaculture (AQUA)	Eureka Plain HU, Humboldt Bay	Klamath Glen HSA Orick HA Big Lagoon HA Blue Lake HA Eureka Plain HU, Salmon Creek Little River HA Ferndale HSA

The SWRCB 2018 California Integrated Report (SWRCB 2020) lists 13 water features as pollutant impaired. According to the Total Maximum Daily Load (TMDL), and based on projects listed on the North Coast Regional Water Quality Control Board (NCRWQCB) website (NCRWQCB 2022), there are TMDL implementation programs approved by the U.S. EPA for Lower Eel River, Mad River, Redwood Creek, and Klamath River within the project area.

The sedimentation/siltation and water temperature TMDLs for the Lower Eel River were approved by the U.S. EPA in 2007, under the Lower Eel River TMDLs for Temperature and Sediment (U.S. EPA 2007). The Caltrans MS4 Permit identifies general requirements for TMDLs and specific TMDL control requirements for temperature and sediment in Sections III.A, III.B, and III.H of Attachment IV of the permit, respectively. The Caltrans MS4 permit further states that the U.S. EPA has assigned waste load allocations for the sediment TMDL to discharges from Caltrans facilities related to the Lower Eel River HA. Per the Caltrans MS4 permit, the final sediment waste load allocation is equivalent to the load allocation. Per the Caltrans MS4 Permit, the temperature waste load allocation specific to Caltrans and other point source dischargers is zero net increase in receiving water temperature.

The “Mad River TMDL for Sediment and Turbidity” was approved by the U.S. EPA in 2007. The Caltrans MS4 Permit states that the U.S. EPA grouped the Caltrans’ discharges under its NPDES municipal stormwater permit with other “diffuse” NPDES-permitted stormwater discharges occurring in the Mad River watershed TMDL. The Caltrans MS4 permit further

states that the U.S. EPA has assigned waste load allocations for the sediment and turbidity TMDL to discharges from Caltrans facilities to the Mad River HA. Per the Caltrans MS4 permit, waste load allocations for diffuse, permitted point sources function similarly to and are represented by the nonpoint source load allocations.

The TMDLs for sediment and turbidity include separate but identical load allocations for nonpoint sources and waste load allocations for the diffuse point sources for each subarea. The final sediment and turbidity waste load allocations are equivalent to the load allocations for roads, as specified in Table 8 and Table 9 of the TMDL, respectively (U.S. EPA 2007).

The "Redwood Creek Sediment TMDL" was approved by the U.S. EPA in 1998 and the "*TMDL Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region*" was approved by the NCRWQCB under Resolution R1-2004- 0087. The Caltrans MS4 Permit states that the U.S. EPA has not assigned waste load allocations to discharges from Caltrans facilities related to the Redwood Creek TMDL.

The temperature, dissolved oxygen, nutrients, and microcystin impairments at Klamath River were approved by the U.S. EPA in December 2010 pursuant to CWA Section 303(d)(2). The Caltrans MS4 Permit identifies general requirements for TMDLs and specific TMDL control requirements for temperature, dissolved oxygen, nutrients, and microcystin in Sections III.A, III.B, and III.H of Attachment IV of the permit, respectively. The Caltrans MS4 permit further states that no waste load allocations for nutrients are assigned specifically to Caltrans. Caltrans is expected to address nutrient inputs into the Klamath River watershed through control of sediment from its road and highway facilities.

Discussion of CEQA Environmental Checklist Question 2.10—Hydrology and Water Quality

A "No Impact" determination was made for CEQA Environmental Checklist Questions b), c), d), and e) of the CEQA Environmental Checklist—Hydrology and Water Quality section.

A "***Less Than Significant Impact***" determination was made for CEQA Environmental Checklist Question a). Determinations were based on the scope, description, and locations of the proposed project, as well as the Water Quality Assessment Report for HUM-101 Drainage North Project dated June 2022 (Caltrans 2022j), Floodplain Evaluation Report Summary (Caltrans 2022k), and Hydraulic Recommendations for the project dated September 2022 (Caltrans 2022l).

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The majority of the project is within the existing Caltrans right of way; however, several sites are located within the City of Eureka or County of Humboldt right of way. The project will involve culvert replacement, culvert upsizing, hot mix asphalt ditch/paved apron repair, embankment stabilization, and headwall and end wall replacement. Construction of the project will involve imported fill material for site grading, excavations for the culvert work, staging areas, and branch trimming/removal. These activities have the potential to create short- and long-term impacts to downstream water quality.

Groundwater may be minimally and temporarily impacted during construction. Dewatering will be incorporated as a project feature as necessary, and clean groundwater will be used as dust control, disposed in an upland area, or transported to a publicly owned treatment works facility.

A project-specific Stormwater Pollution Plan will be prepared. The amount of disturbed soil area (DSA) will determine if a Water Pollution Control Program (WPCP) or Stormwater Pollution Prevention Plan (SWPPP) will be prepared. Projects disturbing less than one acre of soil require a WPCP under the NCRWQCB's Stormwater Management Program. A Disturbed Soil Area of 0.56 acre was calculated using the quarter mile rule, where each culvert location was treated as noncontiguous unless it is within a quarter mile of another site. Potential temporary impacts to water quality will be addressed by implementing standard BMPs recommended for a particular construction activity. The temporary control BMPs necessary to address stormwater impacts and protect water quality will include soil stabilization, sediment control, tracking control, non-stormwater management, job site management, and waste management and materials pollution control. Further evaluation of the DSA and necessary BMPs will be detailed in the Plans, Specifications, and Estimate (PS&E) phase of the project.

During construction, the contractor will be required to describe in the stormwater pollution plan the in-field implementation of proposed BMPs and amend the document as necessary to match field conditions and phasing of the project to minimize potentially negative effects of construction on stormwater.

Suspended Particulates (Turbidity)

Temporary, short-term increases in turbidity to receiving waters could occur during construction. Soil erosion, especially during heavy rainfall, could increase the suspended solids, dissolved solids, and organic pollutants in stormwater runoff generated within the project limits. The potential for turbidity impacts is specifically of concern from construction-related activities, especially on culverts that require a clear water diversion system and the construction of access roads and work areas. These conditions will persist until construction activities and the proposed permanent structures are completed and long-term erosion control measures are implemented. Routinely used temporary BMPs will be included to protect water quality from turbidity impacts.

The project does not propose adding any impervious area; therefore, permanent impacts related to increased turbidity will be minimal or negligible. Access roads and work areas (jack and bore locations) will be stabilized and revegetated. Any permanent impacts will be addressed by standard erosion control practices and other pollution prevention measures.

Oil, Grease, and Chemical Pollutants

During construction, there is the potential for accidental releases of oil, grease, wash water, solvents, cement, sanitary wastes (which could be seen as visible film, coating on the surface, or floating material), and other construction materials to receiving waters. Materials and wastes could be tracked offsite by vehicles, deposited onto roads, and eventually picked up and transported into waterways. Temporary impacts to water quality could occur during culvert replacements, dewatering, excavation, saw cutting, and waste management.

The project does not propose any activities or uses likely to permanently degrade water quality. Future uses must comply with all local and regional water quality standards.

Temperature and Dissolved Oxygen

To construct access roads within the project, tree and vegetation removal is proposed. Removal of trees and vegetation could potentially cause a reduction in shade to adjacent water features, temporarily increasing temperature and decreasing dissolved oxygen levels. Existing native vegetation will be preserved to the maximum extent practicable. The implementation of project features, Standard Measures and Best Management Practices promote slope stabilization and re-establishment of vegetation in areas disturbed by the project.

Revegetation efforts are further discussed in the Natural Environment Study prepared for the project (Caltrans 2022e) and would be in compliance with the regulatory permits obtained for the project prior to construction.

Temporary, short-term increases in temperature and decreases in dissolved oxygen in receiving waters could occur during construction. Soil erosion, especially during heavy rainfall, could increase the suspended solids, dissolved solids, and organic pollutants in stormwater runoff generated within the project limits. The increase in pollutants could then increase the temperature and decrease the dissolved oxygen levels in the Eel River. These conditions will persist until construction activities and the proposed permanent structures are completed and long-term erosion control measures are implemented. Routinely used temporary BMPs will be included to protect water quality from temperature and dissolved oxygen impacts.

Potential permanent impacts related to increased temperature and decreased dissolved oxygen may result from fill material, exposed culverts, and removal of riparian vegetation. These permanent impacts will be minimal and will be addressed by implementation of standard erosion control practices and other permanent project features, Standard Measures, and Best Management Practices (such as revegetation efforts discussed above).

The project does not propose any activities or uses likely to permanently degrade water quality. Future uses must comply with all local and regional water quality standards.

Erosion and Accretion Patterns

Temporary increases in suspended particulates and turbidity during storm events may occur due to disturbed soil in close proximity to receiving water bodies. Any potential short-term impacts will be addressed using various construction site temporary BMPs. The project will involve alterations of existing drainage features, which may affect natural erosion and accretion patterns. Permanent impacts to erosion and accretion patterns from the project are anticipated to be minimal with the implementation of standard erosion control practices, specifications, and other measures identified in Section 1.4.

Baseflow

Dewatering during construction may be necessary in areas where groundwater is encountered during excavation. It is estimated that dewatering may be required at nine locations and, as a result, the project has the potential to temporarily alter baseflow. Temporary impacts due to dewatering will be minimal and limited to the construction period. Routinely used project features, such as practices that manage the discharge of pollutants during dewatering and clear water diversion, will be implemented to protect water quality. Work at these locations will require a LSAA from CDFW, providing additional assurance of protecting short and long-term water quality from dewatering.

The NCRWQCB Order No. R1-2015-0003, General NPDES No. CAG0024902, and Waste Discharge Requirements for Low Threat Discharges to Surface Waters in the North Coast Region cover construction groundwater dewatering of low threat, planned, short-term discharge of groundwater, provided that (1) the discharge does not contain pollutant quantities that could adversely affect beneficial uses, and (2) the discharge meets specific criteria listed in the Basin Plan. If it is proposed that the project would discharge to receiving waters during potential dewatering operations, Caltrans would obtain approval from the NCRWQCB as stated in Caltrans' *Field Guide to Construction Site Dewatering* (Caltrans 2014).

Based on the reasons discussed above, Caltrans anticipates the potential for the project to violate any water quality standards or waste discharge requirements or to otherwise substantially degrade surface or ground water is ***"Less than Significant."***

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, no mitigation measures are proposed for this project.

2.11 Land Use and Planning

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Physically divide an established community?				✓
Would the project: b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. Potential impacts to land use and planning are not anticipated as the proposed project will not divide an established community or conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The drainage system work will look and function similarly to existing features. The proposed project is consistent with statewide, regional, and local planning goals. The project will therefore have "***No Impact***" on land use and community planning. No mitigation will be required.

2.12 Mineral Resources

Question:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				✓
Would the project: b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the California Department of Conservation Division of Mine Reclamation–Mines Online web application (California Department of Conservation Division of Mine Reclamation 2022). There is mining activity near U.S. 101 within the project limits (Table 17), specifically in and around the Eel River near the city of Fortuna.

Table 17. Mining Operations Near Proposed Project

Mine Name	Mine ID	Operation Type	Primary Product	Lead Agency
Leland Rock Gravel Bar	91-12-0069	Streambed or Gravel Bar Skimming and Pitting	Sand and Gravel	County of Humboldt
Hauck Bar	91-12-0029	Streambed or Gravel Bar Skimming and Pitting	Sand and Gravel	County of Humboldt
Hansen Pit Mill	91-12-0034	Streambed or Gravel Bar Skimming and Pitting	Not Reported	County of Humboldt
Sandy Prairie	91-12-0002	Streambed or Gravel Bar Skimming and Pitting	Sand and Gravel	County of Humboldt
Canevari Timber Company	91-12-0043	Streambed or Gravel Bar Skimming and Pitting	Sand and Gravel	County of Humboldt

Mine Name	Mine ID	Operation Type	Primary Product	Lead Agency
Palmer Creek Gravel Bar	91-12-0063	Streambed or Gravel Bar Skimming and Pitting	Sand and Gravel	County of Humboldt
Worswick Bar/Eel River	91-12-0021	Streambed or Gravel Bar Skimming and Pitting	Sand and Gravel	County of Humboldt

As there are no designated mineral resource areas of state or regional importance in the project area, and the project will not reduce the availability of a locally-important mineral resource recovery site, the project is anticipated to have "***No Impact***" on mineral resources. No mitigation will be required.

2.13 Noise

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in: a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				✓
Would the project result in: b) Generation of excessive groundborne vibration or groundborne noise levels?				✓
Would the project result in: c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the Traffic Noise and Air Quality (Caltrans 2022c) and Energy and Greenhouse Gas reports dated May 5, 2021 (Caltrans 2022d). The project will improve existing drainage facilities and will not involve the construction of a new highway or expansion of an existing highway. Traffic volumes, composition, and speeds will remain the same. Based on the scope of work, the project is considered a Type III project, which does not require a noise analysis. Permanent traffic noise impacts are not anticipated, and noise abatement is not considered.

Noise generated during construction will be temporary and will not result in a substantial temporary or permanent increase of ambient noise levels in the vicinity of the project.

Given the above, the project is anticipated to have "***No Impact***" on noise and vibration. No mitigation will be required.

2.14 Population and Housing

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				✓
Would the project: b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. Potential impacts to population and housing are not anticipated because the project does not involve the construction of homes, businesses, road extensions or infrastructure that could induce population growth. The project will not provide new access or open a new area to development. The project will not involve acquisition of land occupied by homes or residences and will not result in displacement of people or housing.

Given the above, the project is anticipated to have "***No Impact***" on population and housing. No mitigation will be required.

2.15 Public Services

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection?				✓
Police protection?				✓
Schools?				✓
Parks?				✓
Other public facilities?				✓

No Impact" determinations in this section are based on the scope, description, and location of the proposed project. The culvert rehabilitation project will not result in an increased demand for fire or police protection or increased demand for space in schools, parks, or other public facilities in the area. Although there will be temporary, short-term ramp and lane closures during construction, all emergency response agencies in the project area will be notified of the project construction schedule and will have access to U.S. 101 throughout the construction period.

Given the above, the project is anticipated to have "***No Impact***" on public services. No mitigation will be required.

2.16 Recreation

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				✓
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. Potential impacts to recreational facilities due to deterioration, construction or expansion of new facilities are not anticipated. The project will involve the replacement of existing culverts and will not result in an increased demand for park resources that could cause deterioration of existing parks or recreational facilities. The project does not include the construction of park resources or recreational facilities or the expansion of such facilities.

Given the above, the project is anticipated to have "***No Impact***" on recreation. No mitigation will be required.

2.17 Transportation

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?				✓
Would the project: b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?				✓
Would the project: c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				✓
Would the project: d) Result in inadequate emergency access?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the Transportation Management Plan (TMP) prepared for this project dated May 12, 2022 (Caltrans 2022m). Although there will be temporary traffic delays on U.S. 101 and State Route (SR) 36 during construction due to ramp and lane closures, there will not be any significant traffic impacts or permanent changes to transportation or traffic provided recommendations and requirements described in the TMP are incorporated into the project. In conformance with Deputy Directive-60, District Lane Closure Review Committee approval is not required for projects with anticipated traffic delays of less than 30 minutes. The project will not increase capacity and is not expected to be traffic inducing; therefore, is consistent with CEQA Guidelines §15064.3, subdivision (b), and an analysis of vehicle miles traveled (VMT) is not warranted. The drainage system improvement project will not result in a change to the geometric design of the roadway such that there will be increased hazards.

The project will generate short-term construction traffic and result in temporary lane and ramp closures. Construction traffic will be scheduled and routed to reduce congestion. Traffic control requirements, regardless of location, include no more than a maximum of two concurrent closures within the project limits. One-way reversing traffic control lane closures will be allowed within the project limits. Lane reduction traffic control may be needed to help facilitate reversing control. During culvert placement, public traffic may be stopped in both directions for periods not to exceed 10 minutes. After each closure, all accumulated traffic must be allowed to pass through the work zone before another closure is made. The construction work zone speed limit shall be reduced when temporary road conditions are in place that impact traffic, even if no active construction activities are occurring. Access to businesses, side roads and residences will also be maintained through the duration of work.

Temporary lane and ramp closures will be coordinated with adjacent projects and special events to minimize cumulative delay. Specifically, the full width of the traveled way must be open for use by public traffic during the following events (actual dates will be verified by the contractor):

- Redwood Coast Music Festival, second weekend in May
  (City of Eureka, PM 74.5 – 80)
- Cal Poly Humboldt Graduation, second weekend in May
  (City of Arcata, PM 85.5 – 89)
- Kinetic Grand Championship Race, last weekend in May
  (City of Arcata to City of Ferndale)
- Humboldt Bay Marathon, second Sunday in August
  (City of Eureka, PM 74.5 – 80)

Transit in Humboldt County is administered through a joint powers authority between Humboldt County and the cities of Arcata, Eureka, Fortuna, Rio Dell and Trinidad. The Humboldt Transit Authority (HTA) provides riders with affordable fixed route and dial-a-ride transportation options that allow access throughout Humboldt County. Services span from Trinidad, south along U.S. Highway101 to Benbow, and east on State Route 299 from Arcata to Willow Creek, including the Arcata–Eureka Airport and the communities of McKinleyville, Eureka, and Fortuna, with Blue Lake Rancheria providing service to Blue Lake (Table 18). Along the project limits, HTA routes have several transit stops.

Service providers that use transportation facilities within the project limits include:

Table 18. Service Providers and Routes in Humboldt County

Service Provider	Route
Arcata and Mad River Transit System	The Orange Route is operated by Arcata and Mad River Transit System. It serves downtown Arcata, Sunny Brae, Greenview Market, Cal Poly Humboldt, Valley West Shopping Center, and Alliance Road.
Blue Lake Rancheria	The Blue Lake Rancheria Tribe operates the Blue Lake Rancheria Transit System, which serves riders throughout the greater communities of Blue Lake, Arcata, McKinleyville and Eureka.
Eureka Transit Service	The Eureka Transit Service (ETS) is the city fixed-route bus system in Eureka, California. ETS operates four weekday routes between downtown Eureka, Bayshore Mall, Henderson Center, Myrtletown, Cutten, and Pine Hill.
Southern Humboldt Intercity	The Southern Humboldt Route is a deviated/fixed route operated by Redwood Transit and runs Monday through Saturday between Eureka and Benbow serving the communities of Garberville, Redway, Phillipsville, South Fork, Myers Flat, Weott, Redcrest, Rio Dell, Fortuna, and Eureka.
Redwood Transit System	Redwood Transit serves the communities of Scotia, Rio Dell, Fortuna, Fields Landing, King Salmon, Eureka, Arcata, McKinleyville, Westhaven, and Trinidad.
Willow Creek	The Willow Creek/Arcata Route is operated by Humboldt Transit Authority and travels between the communities of Arcata and Willow Creek.

HTA will be notified of temporary closures that could potentially affect their routes at least 10 business days prior to the start of work to allow for adjusting bus stop locations within the construction zones.

There are three Park and Ride facilities within the project limits. They are located at PM 59.9 in Fortuna, PM 74.8 in Eureka at Elk River Road, and on both the northbound and southbound sides of the freeway at PM 100.7 in Trinidad. The project will not affect these facilities. Bicycles will be accommodated through construction areas at all times. Emergency response agencies in the project area will be notified of the project construction schedule and will have access to U.S. 101, SR 36, and SR 299 throughout the construction period.

Given the above, the project is anticipated to have "***No Impact***" on transportation systems. No mitigation will be required.

2.18 Tribal Cultural Resources

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k), or				✓
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, as well as the *Historic Property Survey Report* (Caltrans 2022g) and *Archaeological Survey Report* (Caltrans 2022h), both dated October 7, 2022. Potential impacts to cultural resources, including tribal resources are not anticipated. This determination is based on a 2021 Northwest Information Center records search (#21-2042), Native American consultation, past archaeological surveys, and a 2021 updated archaeological survey. Cultural resources were not observed and Native American consultation did not reveal the presence of tribal resources. Historical properties are not present within the construction footprint for any of the work locations. Caltrans has determined the project will have no potential to affect tribal resources, nor historic properties because none are present in any of the proposed work locations for this project.

A list of Native American contacts was compiled from the Caltrans District 1 Native American Coordination Database. The results of a Native American Heritage Commission (NAHC) Sacred Lands Search provided an updated contact list on May 4, 2021. Project notification letters were sent to contacts in the database and on the NAHC list on May 7, 2021, which included the following tribes:

- Bear River Band
- Blue Lake Rancheria
- Cher-Ae Heights Indian Community of the Trinidad Rancheria
- Hoopa Valley Tribe
- Karuk Tribe
- Tsnungwe Tribe
- Wiyot Tribe
- Yurok Tribe

Follow up emails were received from the Wiyot tribe on May 21, 2021. The Wiyot requested a PDF of project plans and plant list and stated concerns about resources known to be present along U.S. 101 for any work locations in Wiyot traditional ancestral areas. PDFs of the project letter, mapping, and plans were provided the THPOs for the tribes with Wiyot members listed above. The plant list was also provided in an email to Adam Canter and Daniel Holsapple (Blue Lake Rancheria).

Follow up phone calls on June 23, 2021, to the tribes that had not responded to the letters were unsuccessful in reaching any tribal representative, and comments have not yet been received. Consultation is ongoing with the Wiyot and Yurok tribes.

Given the above, the project is anticipated to have "***No Impact***" on tribal cultural resources. No mitigation will be required.

2.19 Utilities and Service Systems

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project: a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities—the construction or relocation of which could cause significant environmental effects?				✓
Would the project: b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?				✓
Would the project: c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				✓
Would the project: d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				✓
Would the project: e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. The proposed project will rehabilitate existing culverts and drainage systems to good condition, with no new or expanded drainage systems proposed other than the upsizing of currently undersized culverts. Buried and overhead utilities are present within the project limits. AT&T, PG&E, Frontier Communication, and Caltrans all have utilities at or near work locations. A majority of utilities are either not within the immediate vicinity of proposed work or can be protected in place during construction. Possible conflict between Caltrans-owned electrical utilities, PG&E, AT&T, local cities, and the proposed drainage system are anticipated at PM 61.71, PM 65.91, PM 70.86, PM 71.64, PM 72.05, PM 76.01, PM 76.24, PM 76.96, PM 77.49a, PM 77.49b, PM R96.90, PM R97.13, PM 100.71, and PM 115.25. If a conflict is discovered to accommodate new drainage features, Caltrans' electrical systems will be adjusted. District 1 is working with AT&T to identify obsolete fiber optic lines within the project area.

The project will not result in new demand for water supplies, wastewater treatment, or stormwater drainage; does not propose new or expanded natural gas, electric power, or telecommunications systems; and will not generate excess solid waste or conflict with solid waste regulations.

Given the above, the project is anticipated to have "***No Impact***" on utilities and service systems. No mitigation will be required.

2.20 Wildfire

Question	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near State Responsibility Areas (SRAs) or lands classified as V*ery High* Fire Hazard Severity Zones, would the project: a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				✓
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				✓
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or may result in temporary or ongoing impacts to the environment?				✓
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				✓

Senate Bill 1241 required the Office of Planning and Research, the Natural Resources Agency, and the California Department of Forestry and Fire Protection to develop amendments to the "CEQA Environmental Checklist" for the inclusion of questions related to fire hazard impacts for projects located on lands classified as *Very High* Fire Hazard Severity Zones. The 2018 updates to the CEQA Guidelines expanded this to include projects "near" these *Very High* Fire Hazard Severity Zones.

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. The project limits span Local Responsibility Areas (LRA) and State Responsibility Areas (SRAs) served by CAL FIRE (refer to Section 2.8). For project locations within the SRA, such locations are primarily within the *Moderate* Fire Hazard Severity Zone (FHSZ).

According to the Fire Hazard Severity Zone maps for SRAs, adopted by CAL FIRE in November 2007, there is no work proposed in a *Very High* FHSZ. Within the LRA, the project is primarily within the *Moderate* Fire Hazard Severity Zone (County of Humboldt 2021).

The proposed work will not impair an adopted emergency response plan or emergency evacuation plan, exacerbate wildfire risks, or expose people or structures to significant risks. Emergency response agencies in the project area will be notified of the project construction schedule and will have access to U.S. 101, SR 299, and SR 36 throughout the construction period. Emergency vehicles will be accommodated through any temporary ramp or lane closures. If a wildland fire were to affect the area, work will stop and evacuation routes will be accessible. The standard measures listed in Section 2.8 will further minimize wildfire risk during construction.

Based on the determinations made in the CEQA Environmental Checklist, the project is anticipated to have "***No Impact***" to wildfire. Thus, no mitigation measures are proposed for this project.

2.21 Mandatory Findings of Significance

Does the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?			✓	
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)				✓
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				✓

Discussion of CEQA Environmental Checklist Question 2.21—Mandatory Findings of Significance

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Impacts to environmental resources, such as Biological Resources, Greenhouse Gas Emissions, and Hydrology and Water Quality have been determined to be *Less than Significant*. There will be no impacts to the remaining environmental resources analyzed in the Initial Study. As the analysis in the Initial Study shows, the proposed project will not significantly degrade the quality of the environment, nor will it eliminate examples of California history or prehistory. The project is anticipated to have a "***Less than Significant Impact.***"

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

The project will not result in cumulative impacts. The project will not increase traffic, vehicle miles traveled, or increase capacity of the transportation facility, and will not directly or indirectly induce population growth. The project will therefore have "***No Impacts***" that will be cumulatively considerable.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

As discussed in the Initial Study, the project will have "***No Impact***" either directly or indirectly on human beings.

2.22 Cumulative Impacts

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative impact assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time (CEQA § 15355).

Cumulative impacts to resources may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

Per Section 15130 of CEQA, a Cumulative Impact Analysis (CIA) discussion is only required in "…situations where the cumulative effects are found to be significant." An EIR is required in all situations when a project might result in a "significant" direct, indirect, or cumulative impact on any resource. Given that all impacts resulting from the project will be less than significant, an EIR and CIA were not required for this project.

Chapter 3. Agency and Public Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization and/or mitigation measures and related environmental requirements. Agency and tribal consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings, consultant services, correspondence, and site visits involving Caltrans staff and State Parks. Interagency coordination meetings are anticipated, following adoption of this environmental document, leading up to and through the project's environmental permitting process. This chapter summarizes Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

The following agencies, organizations, and individuals were consulted in the preparation of this environmental document.

Coordination with Resource Agencies

On November 28, 2022, Caltrans staff advised State Parks personnel Rosalind Litzky and Marisa Parish of proposed work on and near Section 4(f) property. State Parks personnel were advised that two TCEs are anticipated for purposes of staging and parking. However, State Parks requested additional information on the proposed scope of work adjacent to Section 4(f) property. After a site visit in January, 2023, it was determined that no State Park properties would be impacted and no Section 4(f) determination would be required. A Right of Entry permit may be required from State Parks depending on the final design of the project. Caltrans will continue to consult with State Parks personnel to determine the need for this permit during the permitting phase of the project.

Caltrans personnel consulted with Caltrans liaisons Mike Kelly of NMFS and Greg Schmidt of USFWS regarding use of the PBO and PLOC, respectively, for this project. Consultations with CDFW, NCRWQCB, the California Coastal Commission, County of Humboldt, and CAL FIRE personnel are planned, which may include site visits with resource agency and Caltrans personnel as necessary.

Coordination with Property Owners

A list of Native American contacts was compiled from the Caltrans District 1 Native American Coordination Database. The results of a Native American Heritage Commission (NAHC) Sacred Lands Search provided an updated contact list on May 4, 2021. Project notification letters were sent to contacts in the database and on the NAHC list on May 7, 2021, to the following tribes:

- Bear River Band of Rohnerville Rancheria (Wiyot)
- Blue Lake Rancheria (Wiyot)
- Cher-Ae Heights Indian Community of the Trinidad Rancheria
- Hoopa Valley Tribe
- Karuk Tribe
- Tsnungwe Tribe
- Wiyot Tribe
- Yurok Tribe

Follow up emails were received from the Wiyot tribes on May 21, 2021. The Wiyot requested a PDF of project plans and plant list and stated concerns about resources known to be present along U.S. 101 for work locations in Wiyot traditional ancestral areas. PDFs of the project letter, mapping, and plans were provided to the three THPOs for the Wiyot tribes listed. The plant list was also provided in an email to Adam Canter and Daniel Holsapple (Blue Lake Rancheria). On June 6, 2021, additional information was sent to the three Wiyot tribes. Follow up phone calls on June 23, 2021, to the tribes that had not responded to the letters were unsuccessful in reaching any tribal representative, and comments have not yet been received. Consultation is ongoing with the Wiyot and Yurok tribes.

Circulation

This draft document is available online at https://dot.ca.gov/caltrans-near-me/district-3/d3-projects/ and at multiple locations for public review for a 30-day comment period.

- Humboldt County Library, 1313 3rd Street, Eureka, CA 95501
- United States Postal Service, 121147 U.S.101, Orick, CA 95555
- Caltrans District 1 Headquarters, 1656 Union Street, Eureka CA 95501

Chapter 4. List of Preparers

The following individuals performed the environmental work and contributed to the preparation of the Initial Study/ Negative Declaration for this project:

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Amanda Haas	Water Quality Coordinator
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Dominic Moore	Environmental Scientist, Biologist
Jason Meyer	Senior Environmental Scientist, Branch Chief E3
Jonathan Lee	Revegetation Specialist
Nick Burke	Landscape Associate
Saeid Zandian	Transportation Engineer, Air Quality and Noise Specialist
Tim Keefe	Senior Environmental Planner, Archaeologist
Tina Fulton	Associate Environmental Planner, Archaeologist

Stantec Consulting Services, Inc.
(Aquatic Resources, Botanical Resources, ESHA Report, Tree Survey)

Sarah Tona	Associate Biologist
Jason Minton	Senior Biologist, Task Manager

GEOCON Consultants, Inc.

(Aerially Deposited Lead and Petroleum Hydrocarbons Site Investigation Report)

Gemma Reblando	Project Geologist
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Appendix A. Project Layouts

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

PRELIMINARY DESIGN FOR REVIEW ONLY

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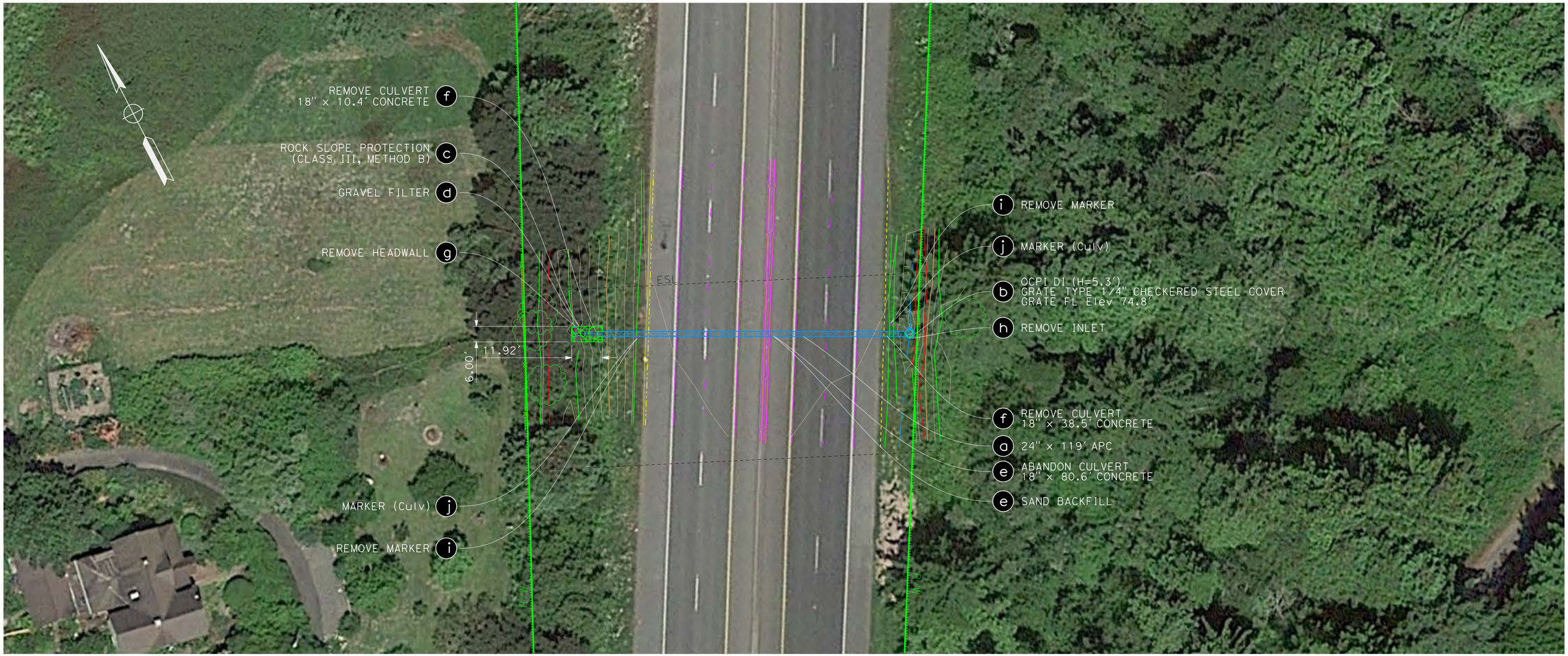
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NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:

- EXIST TRAFFIC STRIPE
- EXIST EDGE OF TRAVELLED WAY
- EXIST RIGHT OF WAY
- EXIST RIGHT OF WAY
- PROPOSED STAGING AREA
- PROPOSED ACCESS ROAD
- TEMPORARY CONSTRUCTION EASEMENT
- ENCROACHMENT
- DRAINAGE EASEMENT
- ENVIRONMENTAL STUDY LIMIT (ESL)
- PARCEL OWNERSHIP



DRAINAGE SYSTEM No. 01

PM 56.75

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DRAINAGE PLAN

SCALE: 1" = 20'

D-1

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DESIGN

Caltrans

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PROJECT NUMBER & PHASE

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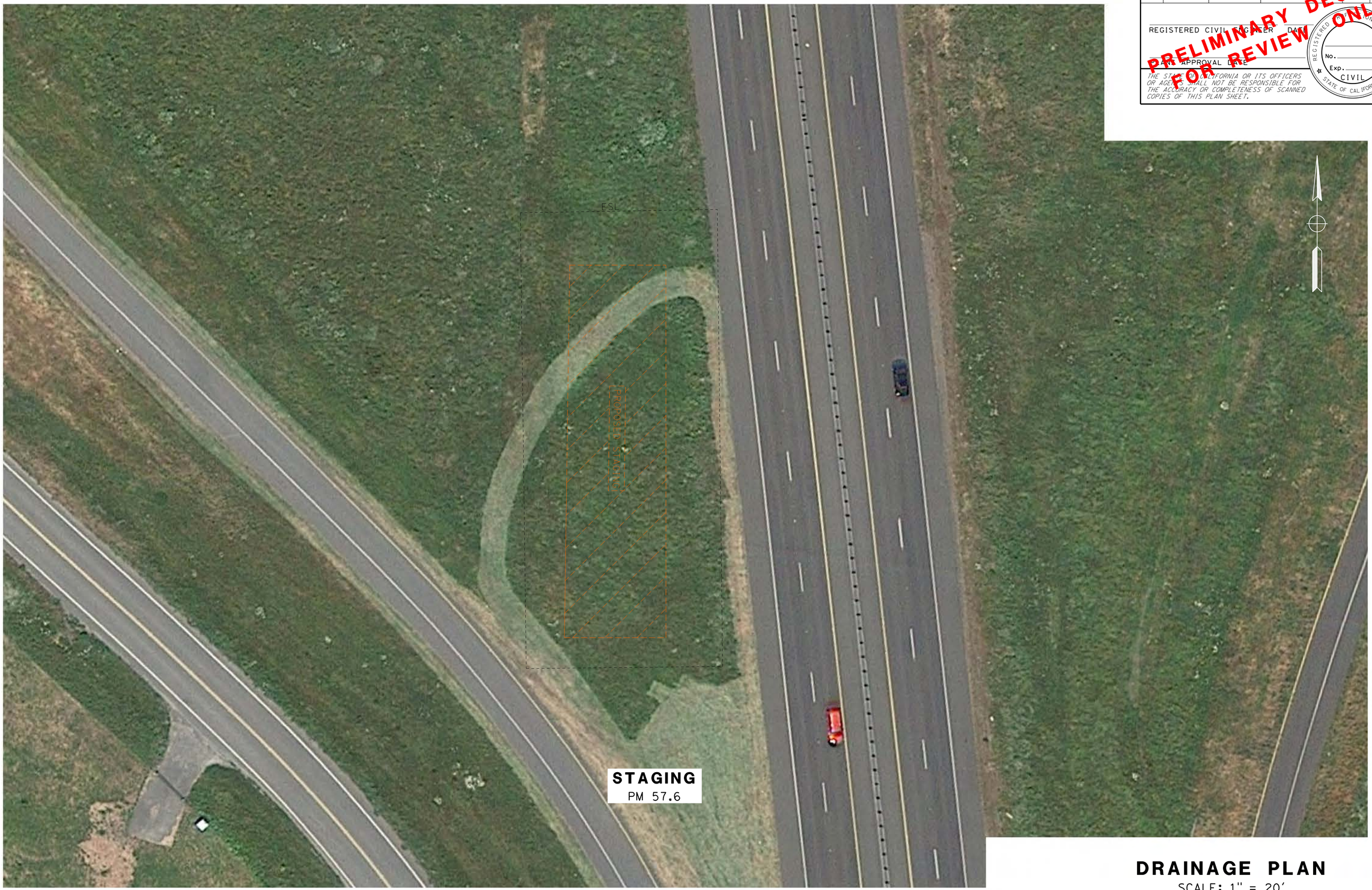
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DRAINAGE PLAN

SCALE: 1" = 20'

D-2

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UNIT

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REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
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Exp.
CIVIL
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DRAINAGE PLAN

SCALE: 1" = 10'

D-3

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UNIT

PROJECT NUMBER & PHASE

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PLANS APPROVAL DATE

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CIVIL
STATE OF CALIFORNIA

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NOTE:

AVOID IMPACT TO CREEK BED FOR FISH PASSAGE.
INSTALL RSP TO REMAIN OUT OF ROHNER CREEK.

PROPOSED STAGING

TEMPORARY ACCESS ROAD

MATCH LINE (D-5)

PG&E
(PRIMARY VOLTAGE OVERHEAD CONDUCTOR DISTRIBUTION LINE 12kV)

AT&T
(BURIED)

35.00'

(e) REMOVE DD 12" x 37.1' CSP

(c) ROCK SLOPE PROTECTION (CLASS III, METHOD B) 23.4 CY

(d) GRAVEL FILTER

(f) REMOVE INLET

(b) G1 DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx

(a) 24" x 11.2' CSP DD

DRAINAGE SYSTEM No. 03

PM 60.68

DRAINAGE PLAN

SCALE: 1" = 10'

D-4

APPROVED FOR DRAINAGE WORK ONLY

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UNIT

PROJECT NUMBER & PHASE

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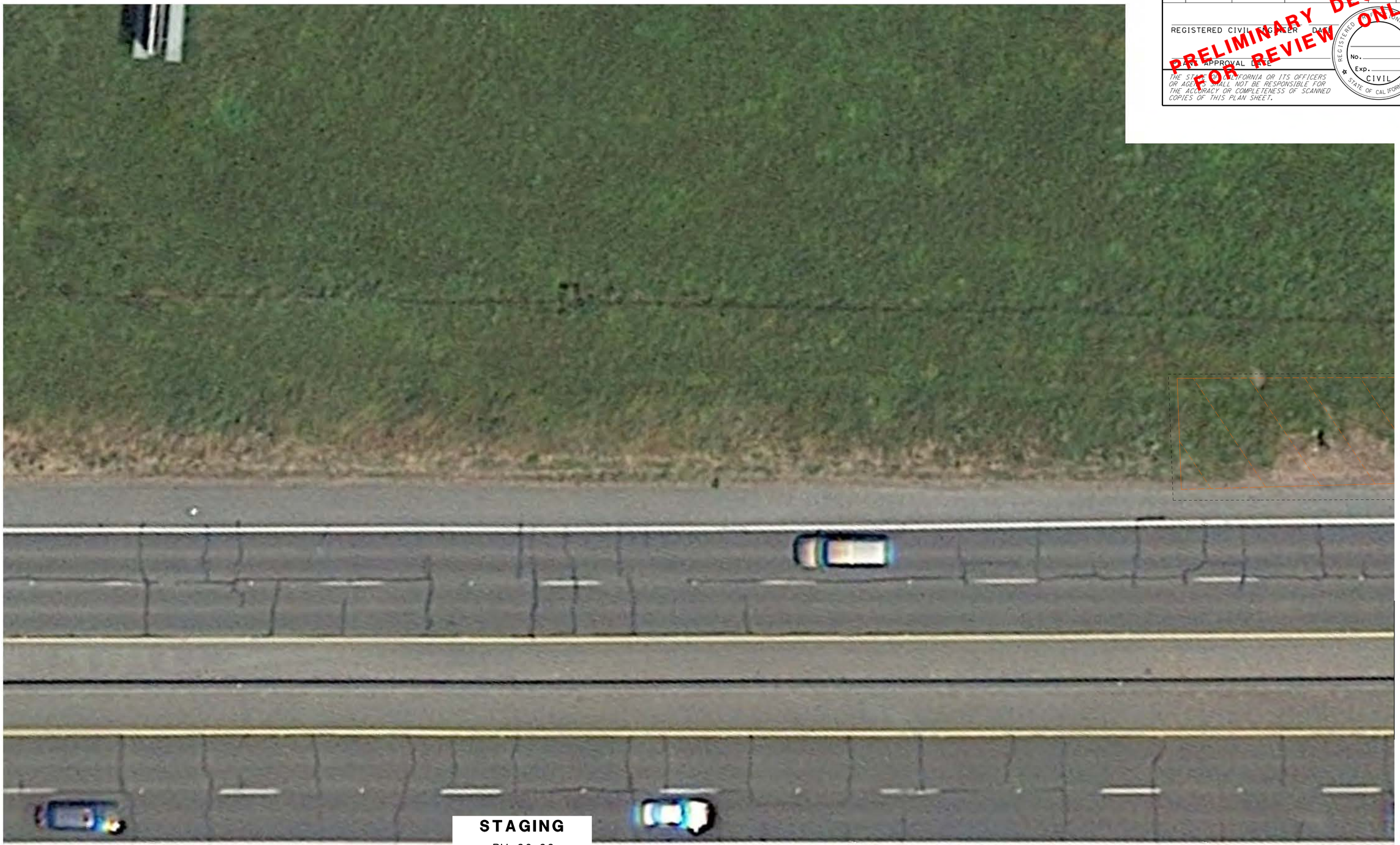
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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MATCH LINE (D-4)

DRAINAGE PLAN

SCALE: 1" = 10'

D-5

APPROVED FOR DRAINAGE WORK ONLY

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

Caltrans

LAST REVISION | DATE PLOTTED => 5/30/2023
TIME PLOTTED => 5:06:38 PM

BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246ia003_DS 3_PM 60.68_Stagging.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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f REMOVE FLARED END SECTION

c 18" STEEL FLARED END SECTION

e REMOVE HEADWALL

b STRUCTURAL CONCRETE, HEADWALL

ESL

ESL

PROPOSED STAGING

PROPOSED STAGING

g DITCH EXCAVATION (21 CY)

e REMOVE HEADWALL

b STRUCTURAL CONCRETE, HEADWALL

d REMOVE CULVERT 18" x 61' CONCRETE

a 24" x 61' APC

STRUCTURAL CONCRETE, HEADWALL b

REMOVE HEADWALL e

EXISTS RSP

DRAINAGE SYSTEM No. 04

PM 61.71

DRAINAGE PLAN

SCALE: 1" = 20'

D-6

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LAST REVISION | DATE PLOTTED => 5/31/2023
TIME PLOTTED => 8:32:55 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246ia004_DS 4_PM 61.71.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REMOVE AC DIKE (j)

REMOVE MARKER (h)

MARKER (Culv) (i)

REMOVE INLET (g)

OMPI w/ SO DI (H=x.x')
GRATE TYPE 1/4" CHECKERED STEEL COVER
GRATE FL Elev xxx.xx (c)

PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA) (k)

PLACE HMA DIKE (TYPE E) (l)

PROPOSED STAGING

ESL

(a) 24" x 46.5' PLASTIC PIPE DD

(f) REMOVE DD 18" x 57' CSP

14.00'

6.00'

(e) GRAVEL FILTER

(d) ROCK SLOPE PROTECTION (CLASS III, METHOD B)

(b) ANCHOR ASSEMBLY

PROPOSED STAGING

DRAINAGE SYSTEM No. 05

PM 65.23

DRAINAGE PLAN

SCALE: 1" = 10'

D-7

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DATE REVISED

LAST REVISION DATE PLOTTED => 5/31/2023
TIME PLOTTED => 8:35:51 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246\a005_DS 5_PM 65.23.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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SAND BACKFILL (e)

ABANDON CULVERT 24" x 239' CONCRETE (e)

REMOVE MARKER (i)

MARKER (Culv) (j)

REMOVE CULVERT 24" x 19' CONCRETE (d)

BACKFILL (g)

TCE

66.66'

8.50'

COUNTY ENCROACHMENT

REMOVE BOX (CONCRETE) (k)

TCE

ROCK SLOPE PROTECTION (CLASS III, METHOD B) (c)

GRAVEL FILTER (d)

REMOVE MARKER (i)

MARKER (Culv) (j)

TEMPORARY ACCESS ROAD

36" x 223.2' WSP (TRENCHLESS) (a)

REMOVE CULVERT 24" x 25.3' CONCRETE (d)

MARKER (Culv) (j)

REMOVE MARKER (i)

PG&E (12kV, sV)

STRUCTURAL CONCRETE, HEADWALL (b)

40.00'

40.00'

(e) REMOVE HEADWALL

JACKING PIT

TEMPORARY ACCESS ROAD

(h) EXCAVATION (415 CY)

DRAINAGE SYSTEM No. 06

PM 65.53

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DRAINAGE PLAN

SCALE: 1" = 20'

D-8

LAST REVISION | DATE PLOTTED => 5/31/2023 | TIME PLOTTED => 8:38:04 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>

DGN FILE => ...\0117000246ia006_DS 6_PM 65.53.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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PRELIMINARY DESIGN FOR REVIEW ONLY

SAND BACKFILL (e)

ABANDON CULVERT 24" x 385' CONCRETE (e)

REMOVE CULVERT 12" x 10.6' HDPE (f)

BACKFILL (h)

REMOVE HEADWALL (g)

TCE

DRAINAGE EASEMENT

REMOVE CULVERT 24" x 9.1' CONCRETE (f)

BACKFILL (h)

TCE

GRAVEL FILTER (d)

ROCK SLOPE PROTECTION (CLASS III, METHOD B) (c)

TEMPORARY ACCESS ROAD

36" x 310' WSP (TRENCHLESS) (a)

REMOVE MARKER (j)

MARKER (Culv) (k)

STRUCTURAL CONCRETE, HEADWALL (b)

9.00'

106.84'

TEMPORARY ACCESS ROAD

(h) BACKFILL

(f) REMOVE CULVERT 24" x 13.5' CONCRETE

(g) REMOVE HEADWALL

(i) EXCAVATION (593 CY)

JACKING PIT

TCE

40.00'

40.00'

DRAINAGE SYSTEM No. 7

PM 65.68

DRAINAGE PLAN

SCALE: 1" = 30'

D-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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DATE PLOTTED => 5/31/2023

TIME PLOTTED => 8:52:53 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>

DGN FILE => ...\0117000246ia007_DS 7_PM 65.68.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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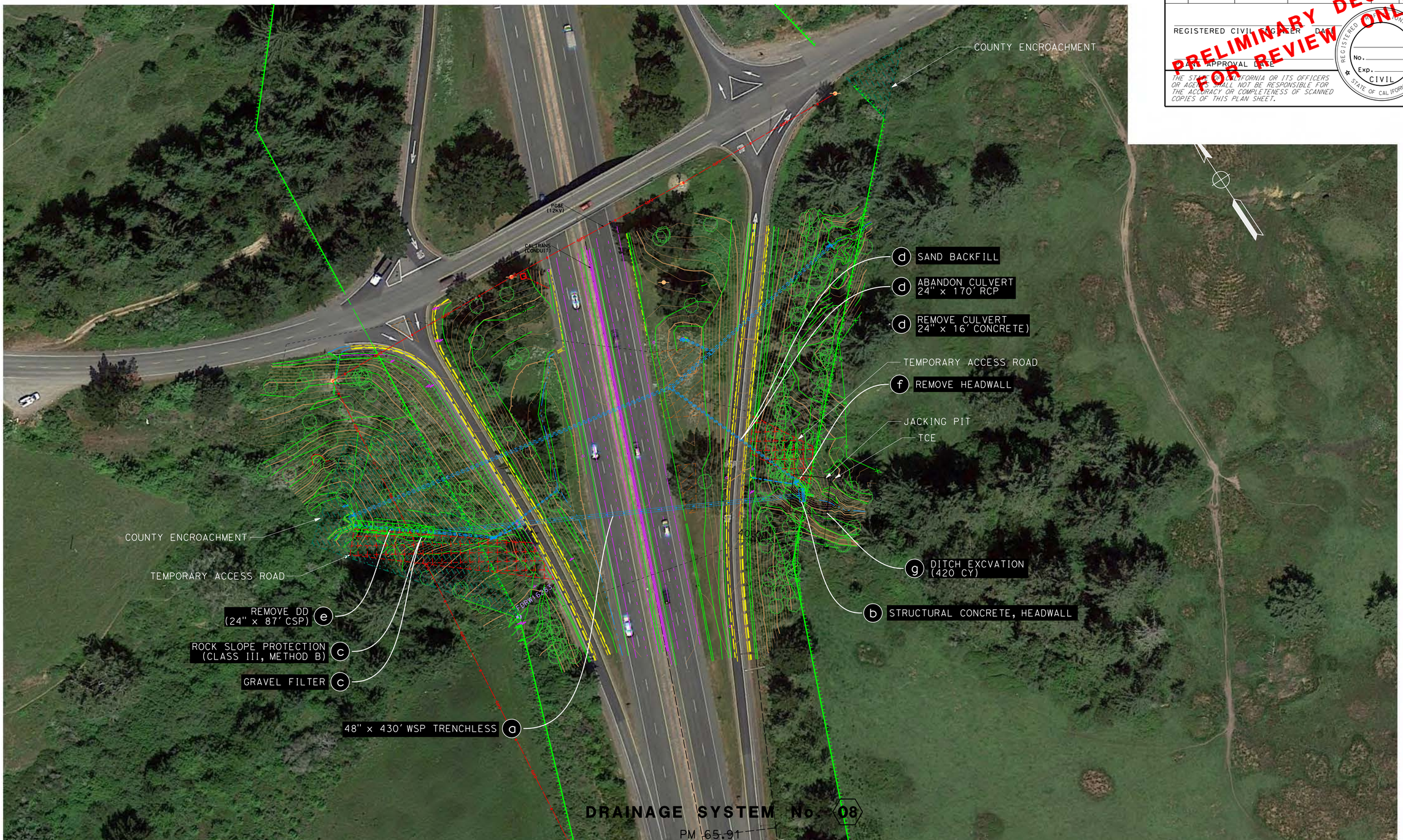
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DRAINAGE PLAN

SCALE: 1" = 50'

D-10

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BORDER LAST REVISED 8/5/2020 | USERNAME => | DGN FILE => ...\0117000246ia008_DS 8_PM 65.91.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT | PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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DRAINAGE PLAN

SCALE: 1" = 10'

D-11

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LAST REVISION | DATE PLOTTED => 5/31/2023 TIME PLOTTED => 9:12:18 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246ia009_DS 9_PM 70.83a_Stagging.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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DRAINAGE PLAN

SCALE: 1" = 10'

D-12

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LAST REVISION | DATE PLOTTED => 5/31/2023
TIME PLOTTED => 9:15:43 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246ia009_DS 9_PM 70.83b_Stagging.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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24" x 70.3' CSP DD (a)

(b) ANCHOR ASSEMBLY

STRUCTURAL CONCRETE, HEADWALL (c)

(f) REMOVE DD 18" x 69.6' CSP

OS (Mod) DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx (d)

(h) REMOVE FES

(e) 24" STEEL FLARED END SECTION

REMOVE INLET (g)

CAL TRANS (CONDUIT)

DRAINAGE SYSTEM No. 09

PM 70.86

DRAINAGE PLAN

SCALE: 1" = 20'

D-13

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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MATCH LINE (D-15)

PG&E (12KV)

AT&T

ESL

4.00'

6.00'

ROCK SLOPE PROTECTION (CLASS III, METHOD B) c

GRAVEL FILTER d

REMOVE DD 18" x 7.9' CSP f

REMOVE MARKER h

MARKER (Culv) i

REMOVE CULVERT 18" x 109.6' CONCRETE e

a 24" x 111.4' APC

b OS (Mod) DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

g REMOVE INLET

h REMOVE MARKER

i MARKER (Culv)

DRAINAGE SYSTEM No. 10

PM 71.15

DRAINAGE PLAN

SCALE: 1" = 10'

D-14

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TIME PLOTTED => 9:26:15 AM

BORDER LAST REVISED 8/5/2020

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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REMOVE CULVERT 18" x 65.8' CONCRETE (e)

24" x 65.8' APC (a)

REMOVE MARKER (g)

MARKER (Culv) (h)

PG&E (12kV)

AT&T

ROCK SLOPE PROTECTION (CLASS III, METHOD B) (c)

GRAVEL FILTER (d)

REMOVE DD 18" x 3' CSP (f)

REMOVE INLET (g)

G4 DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx (b)

MATCH LINE (D-14)

DRAINAGE SYSTEM No. 11

PM 71.16

DRAINAGE PLAN

SCALE: 1" = 10'

D-15

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LAST REVISION | DATE PLOTTED => 5/31/2023
TIME PLOTTED => 9:43:06 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246ia011_DS 11_PM 71.16.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

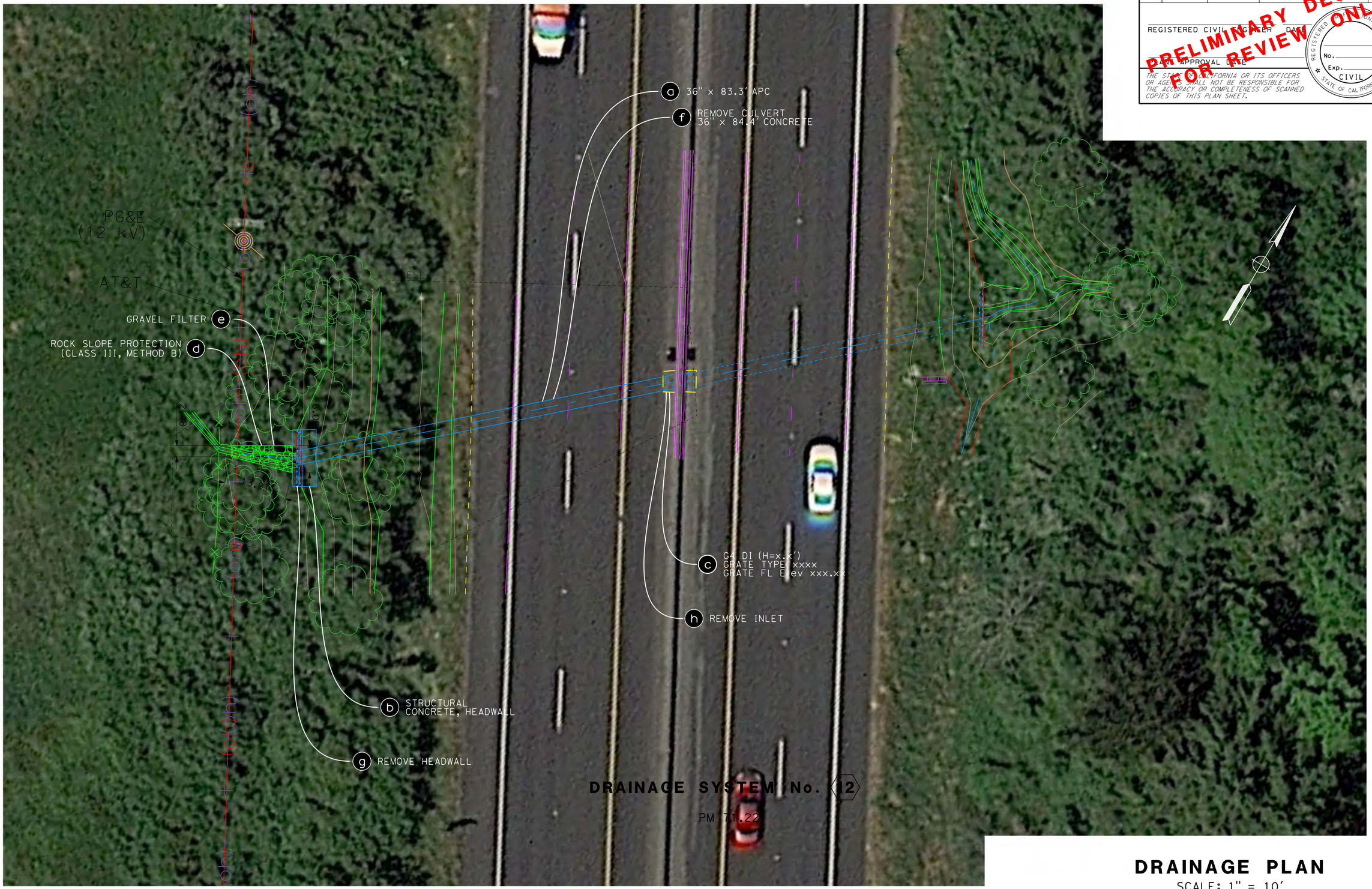
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DRAINAGE PLAN

SCALE: 1" = 10'

D-16

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LAST REVISION | DATE PLOTTED => 5/31/2023 TIME PLOTTED => 9:46:09 AM

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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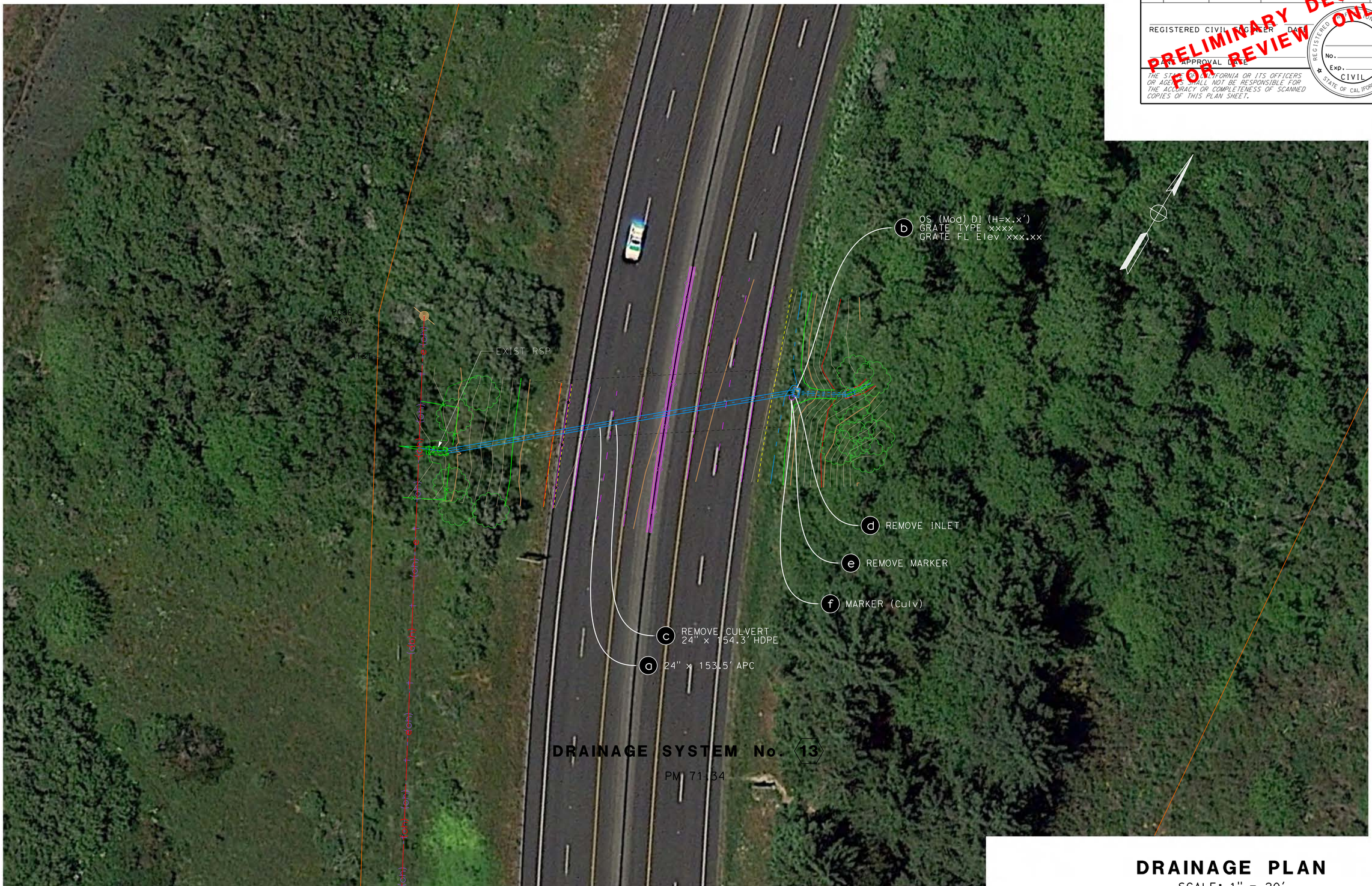
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DRAINAGE PLAN

SCALE: 1" = 20'

D-17

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LAST REVISION | DATE PLOTTED => 5/31/2023
TIME PLOTTED => 9:50:31 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

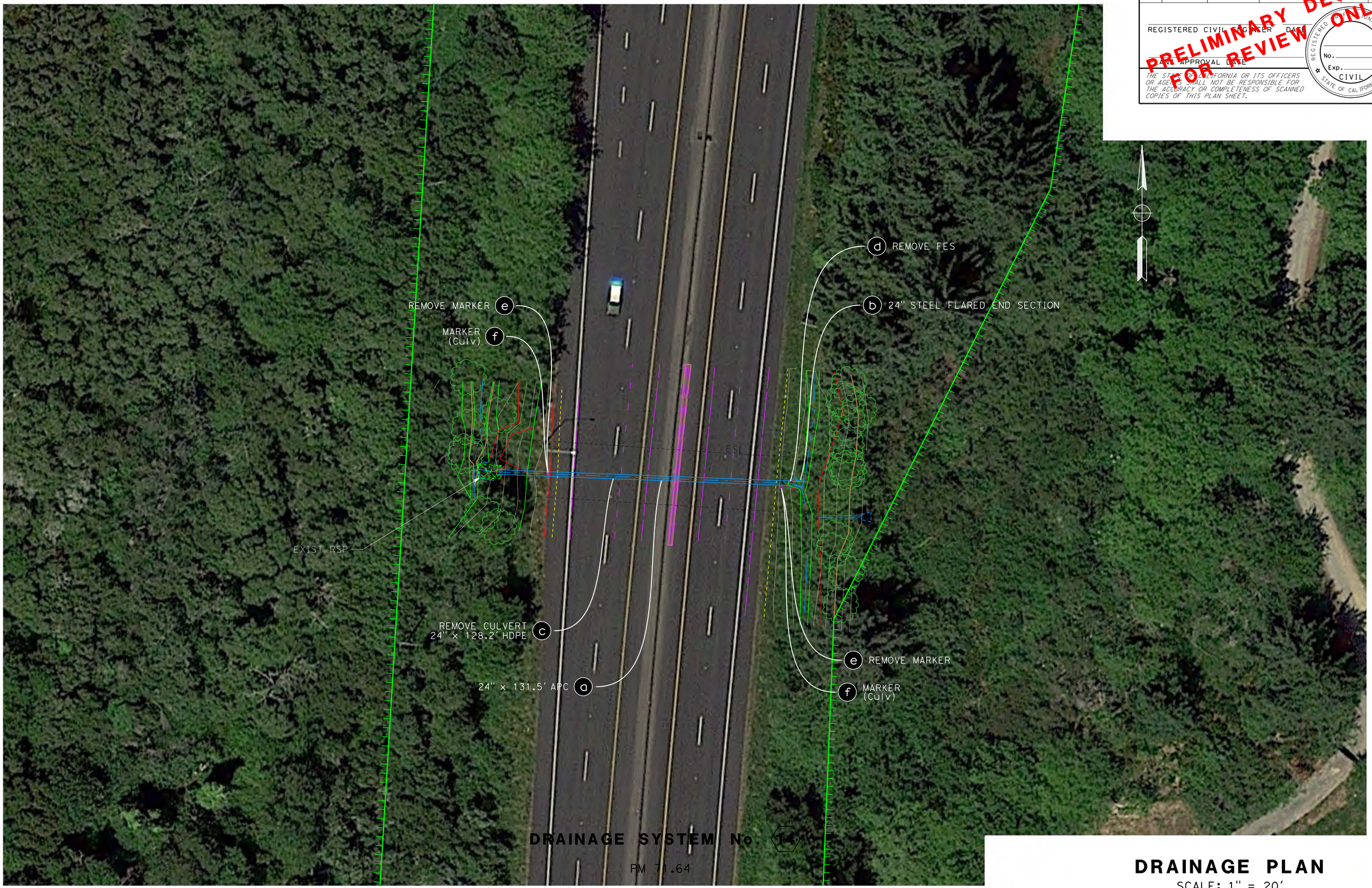
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DRAINAGE SYSTEM No. 14

PM 71.64

DRAINAGE PLAN

SCALE: 1" = 20'

D-18

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LAST REVISION DATE PLOTTED => 5/31/2023
TIME PLOTTED => 9:55:24 AM

BORDER LAST REVISED 8/5/2020

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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NOTE:
RIGHT OF WAY CORRDINATION WITH THE HUMBOLDT TRANSIT AUTHORITY DUPING CLOSURE OF NB OFF RAMP TO ORCHARD Ave.

COUNTY ENCROACHMENT

REMOVE FES (j)
18" STEEL FLARED END SECTION (e)
REMOVE CULVERT 12" x 8' CSP (g)
18" x 7.4' APC (b)
REMOVE INLET (h)
GOL DI (H=x.x') GRATE TYPE xxxx GRATE FL Elev xxx.xx (d)
REMOVE INLET (h)
JUNCTION STRUCTURE (d)
MANHOLE FRAME AND COVER (k)

24" x 22.8' APC (a)
REMOVE CULVERT 18" x 22.8' CONCRETE (f)
REMOVE INLET (h)
GOL DI (H=x.x') GRATE TYPE xxxx GRATE FL Elev xxx.xx (d)
18" x 7.3' APC (b)
REMOVE CULVERT 12" x 8.1' CSP (g)
18" STEEL FLARED END SECTION (e)

DITCH EXCAVATION (11.5 CY) (l)
REMOVE CULVERT 24" x 48" x 174.7' ELLIPTICAL CSP (f)
24" x 48" x 174.7' ELLIPTICAL CSP (c)
G2 DI (H=x.x') GRATE TYPE xxxx GRATE FL Elev xxx.xx (d)
REMOVE INLET (h)
REMOVE CULVERT 24" x 48" x 101.1' ELLIPTICAL CSP (f)
24" x 48" x 101.1' ELLIPTICAL CSP (c)
REMOVE INLET (h)
OS (Mod) DI (H=x.x') GRATE TYPE xxxx GRATE FL Elev xxx.xx (d)
RESET SIGN (i)
RESET SIGN (i)
RESET SIGN (i)
RESET SIGN (i)

FSL

DRAINAGE SYSTEM No. 15 a b c

PM 72.05

DRAINAGE PLAN

SCALE: 1" = 20'

D-19

APPROVED FOR DRAINAGE WORK ONLY

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BORDER LAST REVISED 8/5/2020 | USERNAME => | DGN FILE => ...\0117000246ia015_DS 15_PM 72.05.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT | PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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DRAINAGE PLAN

SCALE: 1" = 10'

D-20

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LAST REVISION DATE PLOTTED => 5/31/2023
TIME PLOTTED => 10:09:34 AM

BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246ia015_DS 15_PM 72.05_Staging.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY

REMOVE MARKER (g)

MARKER (Culv) (h)

REMOVE INLET (f)

OS (Mod) DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx (c)

(e) REMOVE DD
18" x 76.5' CSP

(a) 24" x 77' CSP DD

(b) ANCHOR ASSEMBLY

(a) 24" x 12.6' CSP DD

(d) 24" STEEL FLARED END SECTION

HCSD
(8" SEWER MAIN)

S S S S

DRAINAGE SYSTEM No. 16

PM 72.39

DRAINAGE PLAN

SCALE: 1" = 10'

D-21

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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DRAINAGE PLAN

SCALE: 1" = 20'

D-22

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USERNAME =>
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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NOTE:
CULVERT INLET LOCATED AT PM 75.69

a 24" x 92.7' APC

REMOVE INLET d

REMOVE CULVERT 18"x 55.8' CONCRETE c

24" x 55.8' APC a

REMOVE INLET d

c REMOVE CULVERT 18" x 92.7' CONCRETE

d REMOVE INLET

ESE

GDO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx b

COLD PLANE ASPHALT CONCRETE PAVEMENT (MICRO MILL) e

GO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx b

COLD PLANE ASPHALT CONCRETE PAVEMENT (MICRO MILL) e

TCE

b GO (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

b COLDPLANE ASPHALT PAVEMENT (MICRO MILL)

DRAINAGE SYSTEM No. 17

PM 75.90

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DRAINAGE PLAN

SCALE: 1" = 20'

D-23

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USERNAME =>
DGN FILE => ...\0117000246ia017_DS 17_PM 75.90.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLAN APPROVAL DATE

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d REMOVE INLET

a 24" X 78.1' APC

c REMOVE CULVERT 18" X 78' CONCRETE

d REMOVE INLET

b GO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

ESL

b GO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

DRAINAGE SYSTEM No. 18

PM 76.01

DRAINAGE PLAN

SCALE: 1" = 10'

D-24

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

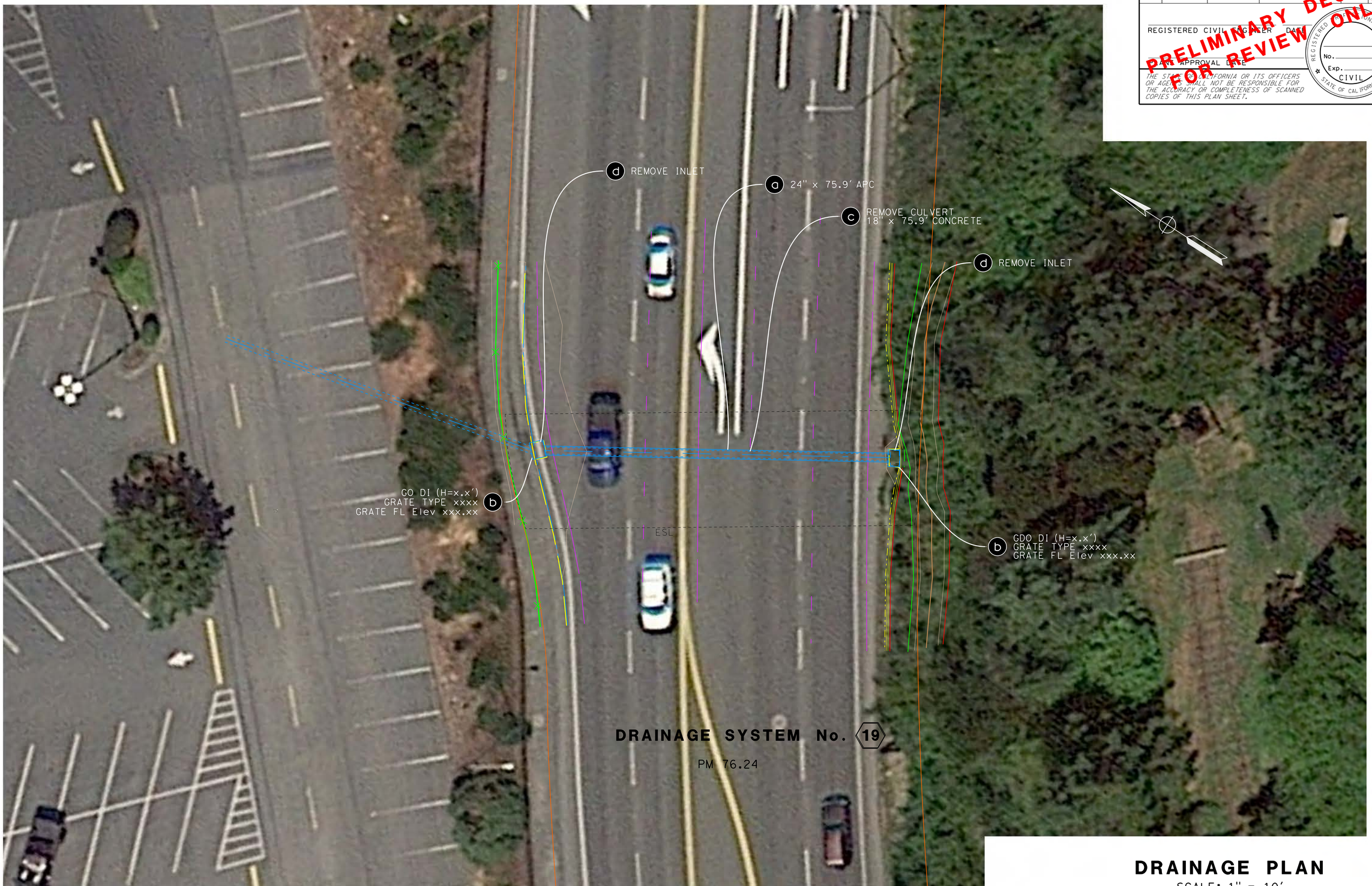
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DRAINAGE PLAN

SCALE: 1" = 10'

DP-25

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USERNAME =>
DGN FILE => ...\0117000246ia019_DS 19_PM 76.24.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT
PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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Exp.
CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN
FOR REVIEW ONLY

CITY ENCROACHMENT

DITCH EXCAVATION (1.4 CY) (f)

24" STEEL FLARED END SECTION (c)

24" x 98.8' APC (a)

REMOVE CULVERT 18" x 107.3' CONCRETE (d)

REMOVE INLET (e)

(b) GO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

DRAINAGE SYSTEM No. 20

PM 76.96

DRAINAGE PLAN

SCALE: 1" = 20'

D-26

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLAN APPROVAL DATE

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NOTE:
INLET LOCATED AT PM 77.41

a 24" x 116.8' APC

b 12" x 20' SLOTTED PLASTIC PIPE

c GO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

d REMOVE CULVERT
24" x 116.8' CONCRETE

e REMOVE INLET

f REMOVE SLOTTED CSP

c GO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

e REMOVE INLET

DEACTIVATED GAS LINE

DRAINAGE SYSTEM No. 21

PM 77.49

DRAINAGE PLAN

SCALE: 1" = 10'

D-27

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLAN APPROVAL DATE

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NOTE:

INLET LOCATED AT PM 77.55

REMOVE I

(d)

TCE

(a) 24" x 20.5' APC

(c) REMOVE CULVERT 18" x 20.5' CONCRETE

CITY ENCROACHMENT

ESL

(d) REMOVE INLET

(b) GO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

(b) GDO DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

STOP

DRAINAGE SYSTEM No. 21

PM 77.49

DRAINAGE PLAN

SCALE: 1" = 10'

D-28

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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PRELIMINARY DESIGN FOR REVIEW ONLY

NOTE:
CULVERT INLET IS LOCATED AT PM 86.23
——irr-c—— UNKNOWN EXISITING CITY UTILITY

a 24" x 52' APC

d REMOVE CULVERT 18" x 62' CONCRETE

e REMOVE INLET

MODIFY JUNCTION c

PIPE RISER g

MANHOLE FRAME AND COVER f

b G1 DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx

CITY OF ARCATA (C.)

CITY OF ARCATA

PG&E 12kV DISTRIBUTION

CALTRANS (CONDUIT)

ESL

DRAINAGE SYSTEM No. 22

PM 86.10

DRAINAGE PLAN

SCALE: 1" = 10'

D-29

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BORDER LAST REVISED 8/5/2020 | USERNAME => | DGN FILE => ...\0117000246ia023_DS 22_PM 86.10.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT | PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY

NOTE:
CULVERT INLET IS LOCATED AT PM 86.62

PIPE RISER (g)

PG&E (12kV DISTRIBUTION)

PG&E (6" STEEL)

MANHOLE FRAME AND COVER (f)

MODIFY JUNCTION (c)

CALTRANS (CONDUIT)

CITY OF ARCATA (8")

CITY OF ARCATA (24")

PG&E (6" STEEL)

PG&E (12kV DISTRIBUTION)

(e) REMOVE CONCRETE

(b) G2 DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx
Conc APRON

(e) REMOVE INLET

(d) REMOVE CULVERT
18" x 81' CONCRETE

(a) 24" x 81' APC

To McKinleyville

To Eureka

ROUTE 101

ROUTE 101

od Blvd

ESL

DRAINAGE SYSTEM No. 22

PM 86.10

DRAINAGE PLAN

SCALE: 1" = 20'

D-30

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE _____

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NOTE:

CULVERT a's INLET IS LOCATED AT PM 87.44

CULVERT b's INLET IS LOCATED AT PM 87.46

b

e REMOVE DD 18" x 45' CSP

d 24" FES

b 24" x 45' CSP DD

To Arcata

AT&T

CITY OF ARCATA (24")

g REMOVE INLET

PG&E

REMOVE INLET g

ROUTE 101

ROUTE 101

ESL

GCP DI (H=x.x') TYPE 36R GRATE GRATE FL Elev xxx.xx c

h HOT MIX ASPHALT DIKE (TYPE A)

c GCP DI (H=x.x') TYPE 36R GRATE GRATE FL Elev xxx.xx Conc APRON

To Eureka

a

f REMOVE CULVERT 18" x 66' CONCRETE

a 24" x 66' APC

DRAINAGE SYSTEM No. 23 a b

PM 87.55

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DRAINAGE PLAN

SCALE: 1" = 20'

D-31

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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PG&E
(12kV DISTRIBUTION)

24" CONCRETE FLARED END SECTION (c)

REMOVE FES (g)

GRAVEL FILTER (e)

ROCK SLOPE PROTECTION (CLASS III, METHOD B) (d)

(a) 24" x 109.3' ARC

(b) G1 DI (H=x.x')
GRATE TYPE xxxx
GRATE FL Elev xxx.xx
Conc APRON

(h) REMOVE INLET

(f) REMOVE CULVERT
18" x 110' CONCRETE

6.00'

14.00'

ROUTE 101

To Arcata

To McKinleyville

DRAINAGE SYSTEM No. 24
PM 87.73

DRAINAGE PLAN
SCALE: 1" = 20'

D-32

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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NOTE:

LOCATED AT DRAINAGE MARKER PM 92.94

REMOVE INLET (d)

REMOVE CULVERT 18" x 92.9' CONCRETE (c)

24" x 92.9' APC (a)

REMOVE INLET (d)

REPLACE APRON (e)

G1 DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx (b)

24" x 105.8' APC (a)

REMOVE CULVERT 18" x 105.9' CONCRETE (c)

REMOVE INLET (d)

REPLACE APRON (e)

REPLACE APRON (e)

G1 DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx (b)

G1 DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.x (b)

ESL

STOP

DRAINAGE SYSTEM No. 25

PM 93.06

DRAINAGE PLAN

SCALE: 1" = 20'

D-33

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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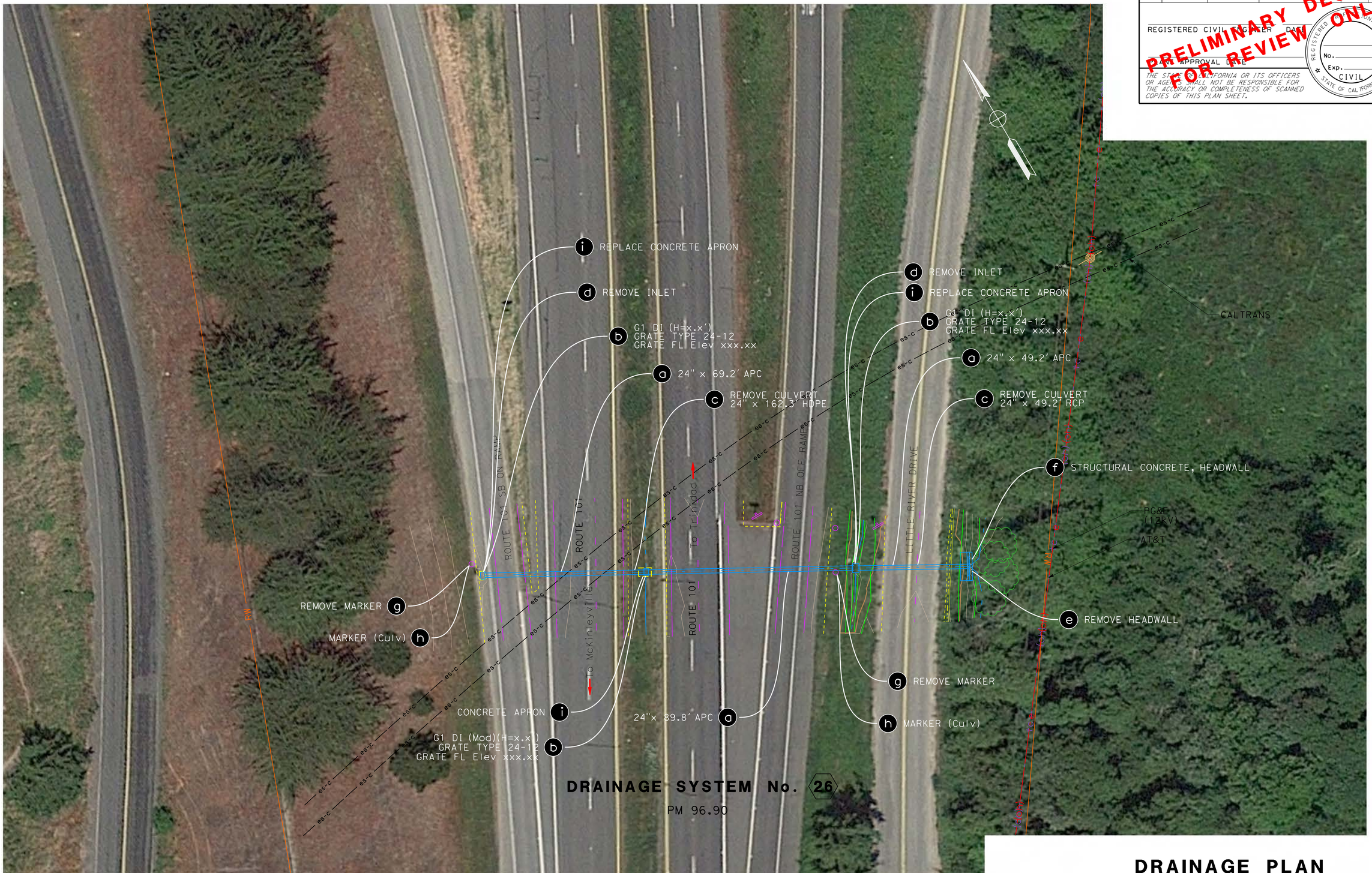
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DRAINAGE PLAN

SCALE: 1" = 20'

D-34

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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G2 DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx

G2 DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx

REMOVE MARKER

MARKER (Culv)

REMOVE INLET

24" x 123.8' APC

REMOVE CULVERT
24" x 123.8' RCP

REMOVE MARKER

MARKER (Culv)

REMOVE CULVERT
24" x 77' RCP

G2 DI (H=3.2')
GRATE TYPE 24-12
GRATE FL Elev 10.27

REMOVE INLET

24" x 77' APC

REMOVE INLET

REMOVE MARKER

MARKER (Culv)

REMOVE MARKER

MARKER (Culv)

AT&T

COUNTY ENCROACHMENT

ROUTE 101 SB OFF RAMP

ROUTE 101

ROUTE 101 NB ON RAMP

To Trinidad

To McKinleyville

ESL

RW

DRAINAGE SYSTEM No. 27

PM 97.13

DRAINAGE PLAN

SCALE: 1" = 20'

D-35

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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MATCH LINE (D-37)

ANCHOR ASSEMBLY (i)

REMOVE DD 18" x 42.7' CSP (j)

24" x [illegible] CSP DD (b)

TEE (e)

24" FES (k)

TCE

COUNTY ENCROACHMENT

DITCH EXCAVATION (4.9 CY) (l)

ROCK SLOPE PROTECTION (CLASS III, METHOD B) (g)

GRAVEL FILTER (h)

ANCHOR ASSEMBLY (i)

ROUTE 101

To Trinidad

To Mckinleyville

ROUTE 101

(b) G1 DI Mod w/ SO (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx

(d) REMOVE INLET

(c) REMOVE CULVERT 24" x 93.6' CONCRETE

(a) 24" x 94.7' APC

(e) 24" x 23' CSP DD

(j) REMOVE DD 24" x 25.8' CSP

DRAINAGE SYSTEM No. 28 (a) (b)

PM 97.92

DRAINAGE PLAN

SCALE: 1" = 20'

D-36

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BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246ia030_DS 29_PM 97.92.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLAN APPROVAL DATE

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NOTE:

RIGHT OF WAY COORDINATION WITH THE HUMBOLDT TRANSIT AUTHORITY DURING CLOSURE OF THE NB OFF RAMP ONTO W. HAVEN Dr.

REMOVE DD 24" x 83.7' CSP (g)

ANCHOR ASSEMBLY (f)

24" x 72' CSP DD (e)

TEE (k)

COUNTY ENCROACHMENT

TCE

POSE (ELECTRIC/CABLE HIGH VOLTAGE BOX)

RW

ROUTE 101

To Trinidad

ROUTE 101 NB OFF RAMP

(d) REMOVE INLET

(b) G1 DI (H=x.x') GRATE TYPE 24-12 GRATE FL Elev xxx.xx

(i) REMOVE MARKER

(j) MARKER (Culv)

(a) 24" x 105' APC

(c) REMOVE CULVERT 24" x 101.8' CONCRETE

To McKinleyville

ROUTE 101

MATCH LINE (D-36)

DRAINAGE SYSTEM No. 29

PM 97.95

DRAINAGE PLAN

SCALE: 1" = 20'

D-37

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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MATCH LINE (D-39)

MAIN STREET

REMOVE INLET (d)

GO DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx (b)

REMOVE CULVERT
18" x 75' CONCRETE (c)

(h) ROCK SLOPE PROTECTION (CLASS III, METHOD B)

(e) GRAVEL FILTER

6.00'

13.21'

FW

(f) STRUCTURAL CONCRETE, HEADWALL

(g) REMOVE HEADWALL

(a) 24" x 75' APC

DRAINAGE SYSTEM No. 30

PM 100.71

DRAINAGE PLAN

SCALE: 1" = 20'

D-38

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TIME PLOTTED => 1:26:24 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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DRAINAGE PLAN

SCALE: 1" = 20'

D-39

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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30" FES (g)

(c) REMOVE CULVERT 30" x 13.1' CSP

(f) ABANDON CULVERT 30" x 176.5' CSP

(a) 30" x 176.2' APC

(d) REMOVE INLET

(b) G2 DI (H=x.x') GRATE TYPE 24-12 GRATE FL Elev xxx.xx

(c) REMOVE CULVERT 30" x 104.3' CSP

(c) 30" x 104.2' APC

(g) 30" FES

(i) REMOVE FES

ROCK SLOPE PROTECTION (CLASS III, METHOD B) (h)

GRAVEL FILTER (e)

ES4

DRAINAGE SYSTEM No. 31

PM 105.05

DRAINAGE PLAN

SCALE: 1" = 20'

D-40

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DGN FILE => ...\0117000246ia033_DS 32_PM 105.05.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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a 24" x 615' APC

c REMOVE CULVERT 18" x 615' CSP

f REMOVE MARKER

i PLACE HMA DIKE

g MARKER (Culv)

b CO DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx

d REMOVE INLET

PLACE HMA DIKE i

CO DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx b

REMOVE INLET d

REPLACE APRON e

f REMOVE MARKER

g MARKER (Culv)

ROUTE 101 NB OFF RAMP

To Trinidad

ROUTE 101

To Orick

PCSL

RW

e REPLACE APRON

h RESET SIGN

h RESET SIGN

h RESET SIGN

b OCPI DI (H=xx)
GRATE TYPE 1/4" CHECKERED STEEL COVER
GRATE FL Elev xxx.xx

DRAINAGE SYSTEM No. 32

PM 106.08

DRAINAGE PLAN

SCALE: 1" = 50'

D-41

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BORDER LAST REVISED 8/5/2020

USERNAME =>

DGN FILE => ...\0117000246ia034_DS 33_PM 106.08.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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DRAINAGE PLAN

SCALE: 1" = 20'

D-42

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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ANCHOR ASSMEBLY (c)

REMOVE CULVERT 30" x 4.2' CONCRETE (b)

ROCK SLOPE PROTECTION (CLASS III, METHOD B) (e)

GRAVEL FILTER (f)

REMOVE CULVERT 30" x 9.2' CONCRETE (b)

REMOVE BOX (CONCRETE) (j)

30" x 99.6' CSP DD (h)

30" x 104' APC (a)

ABANDON CULVERT 30" x 174.7' CONCRETE (g)

REMOVE MARKER (k)

MARKER (Culv) (l)

REMOVE CULVERT 30" x 17.4' CONCRETE (b)

STRUCTURAL CONCRETE, HEADWALL (d)

REMOVE HEADWALL (i)

To Orick

To Trinidad

ROUTE 101

RW

RW

DRAINAGE SYSTEM No. 33

PM 106.92

DRAINAGE PLAN

SCALE: 1" = 20'

D-43

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DGN FILE => ...\0117000246ia035_DS 34_PM 106.92.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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DRAINAGE PLAN

SCALE: 1" = 20'

D-44

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

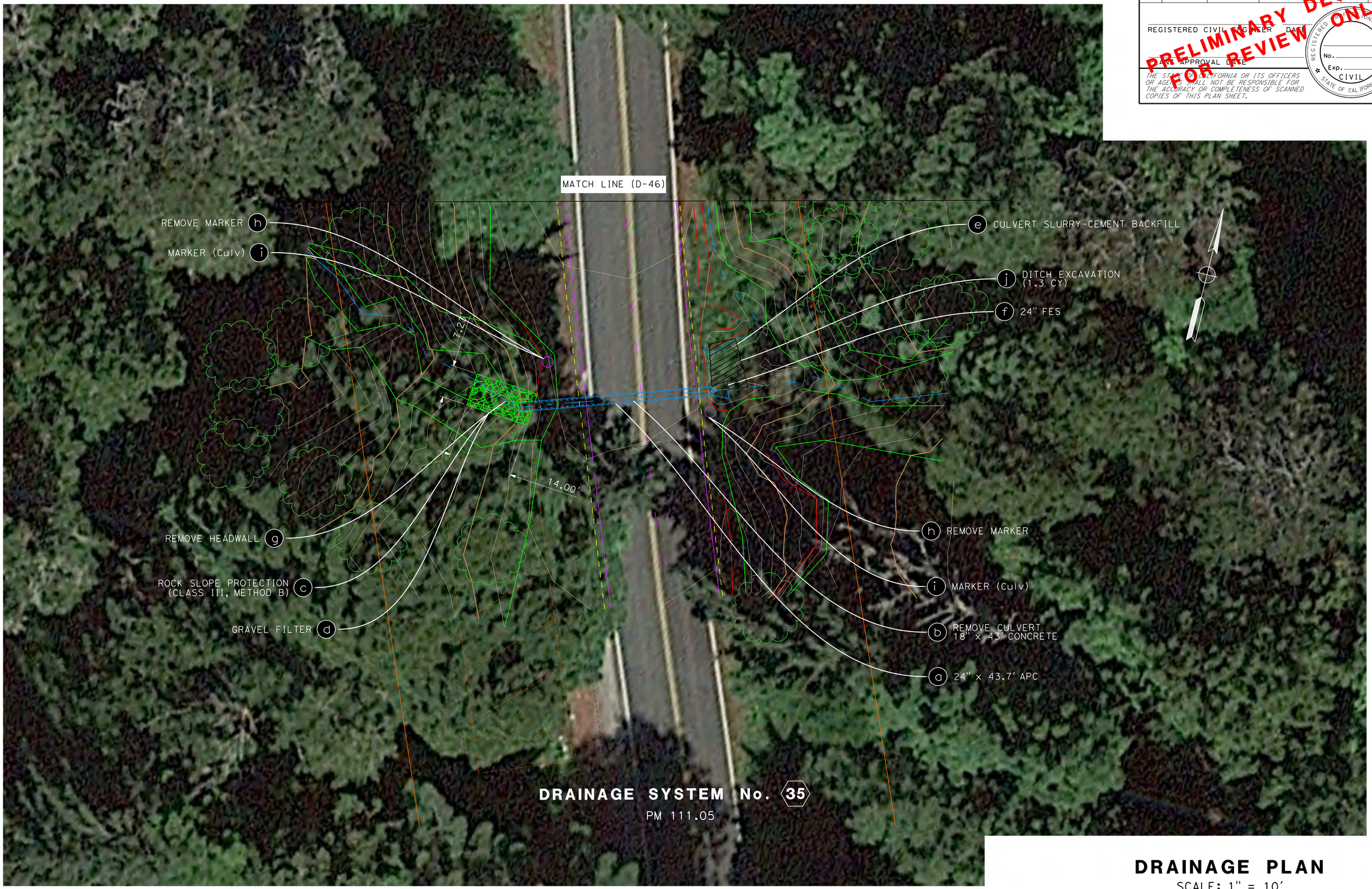
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DRAINAGE PLAN

SCALE: 1" = 10'

D-45

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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REMOVE MARKER (h)

MARKER (Culv) (i)

REMOVE DD 18" x 13.5' CSP (f)

GRAVEL FILTER (d)

ROCK SLOPE PROTECTION (CLASS III, METHOD B) (c)

REMOVE HEADWALL (g)

(a) 24" x 57.2' APC

(e) REMOVE CULVERT 18" x 46.7' CSP

(b) 24" FES

6.00'

14.00'

(h) REMOVE MARKER

(i) MARKER (Culv)

MATCH LINE (D-45)

DRAINAGE SYSTEM No. 36

PM 111.07

DRAINAGE PLAN

SCALE: 1" = 10'

D-46

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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MATCH LINE (D-48)

STAGING AREA
PM 113.87

DRAINAGE PLAN

SCALE: 1" = 30'

D-47

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

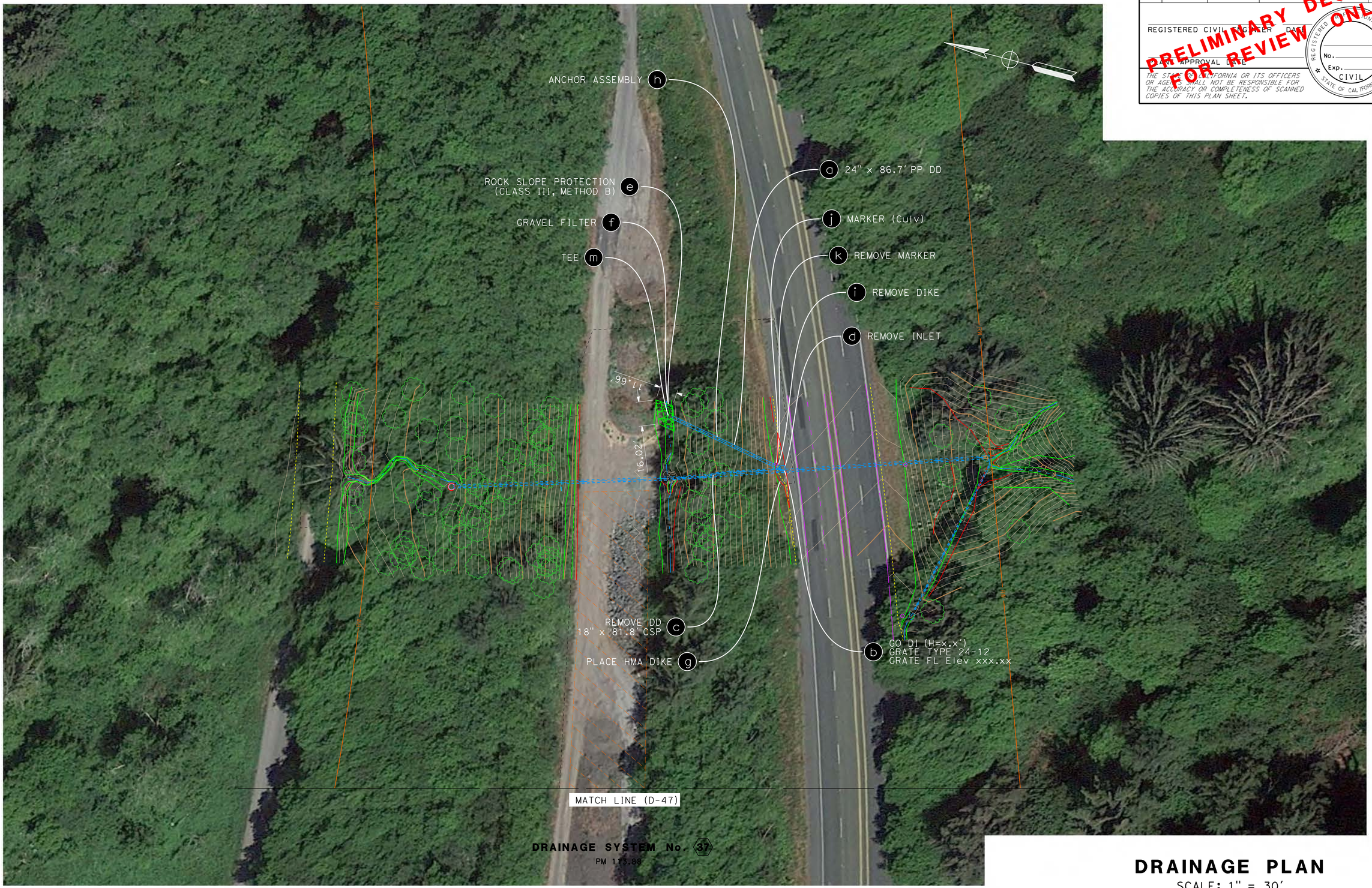
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DRAINAGE SYSTEM No. 37

PM 113.88

DRAINAGE PLAN

SCALE: 1" = 30'

D-48

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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RIGHT OF ENTRY

ESL

ESL

PM

6.00'

14.00'

ROUTE 101

To Orick

RIGHT OF ENTRY

ROCK SLOPE PROTECTION (CLASS III, METHOD B) d

GRAVEL FILTER e

24" FES c

MARKER (Culv) h

REMOVE MARKER g

24" x 140.5' PP a

RIGHT OF ENTRY

To Klamath

PM

f STRUCTURAL CONCRETE, HEADWALL

g REMOVE MARKER

h MARKER (Culv)

b REMOVE CULVERT 24" x 140.2' CONCRETE

DRAINAGE SYSTEM No. 38

PM 115.25

DRAINAGE PLAN

SCALE: 1" = 20'

D-49

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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DRAINAGE PLAN

SCALE: 1" = 10'

D-50

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BORDER LAST REVISED 8/5/2020
USERNAME =>
DGN FILE => ...\0117000246ia041_DS 40_PM 115.66_Stagging.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT
PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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DRAINAGE SYSTEM No. 39

PM 115.66

DRAINAGE PLAN

SCALE: 1" = 10'

D-51

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

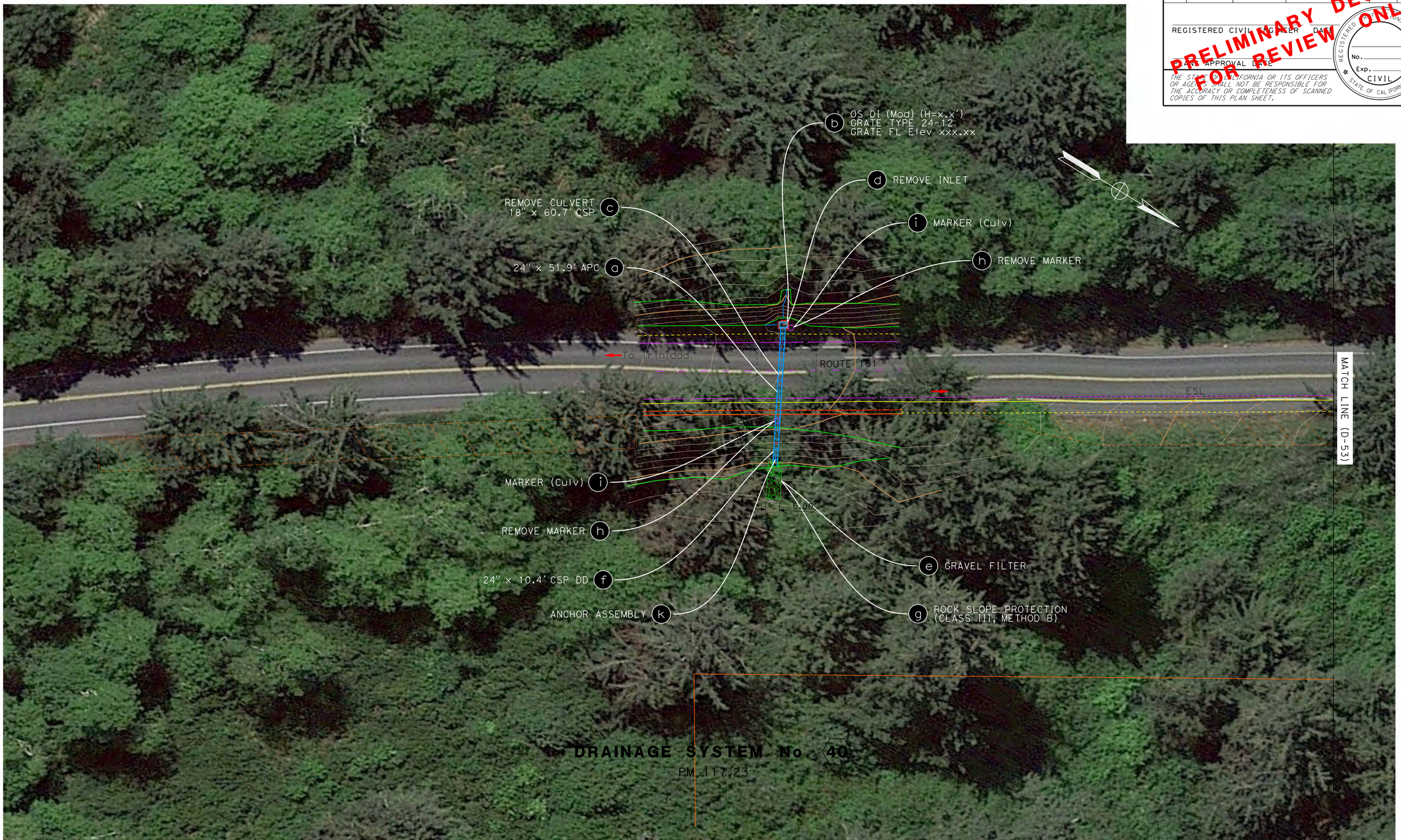
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DRAINAGE SYSTEM No. 40

PM 117.23

DRAINAGE PLAN

SCALE: 1" = 20'

D-52

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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DRAINAGE SYSTEM No. 42

PM 117.31

DRAINAGE SYSTEM No. 41

PM 117.30

ROUTE 101

To Trinidad

a 24" x 58.2' APC

c ABANDON CULVERT 18" x 33' CSP

f REMOVE MARKER

g MARKER (Culv)

i RESET SIGN

REMOVE CULVERT 18" x 25.3' CSP d

REMOVE INLET e

OS DI (Mod) (H=x.x') GRATE TYPE 24-12 GRATE FL Elev xxx.xx b

CONCRETE APRON h

e PAVED GUTTER FLARE

a 24" x 46.5' OVERSIDE DRAIN APC

b REMOVE OVERSIDE DRAIN 12" x 12.7' CSP

c PLACE HMA DIKE

d REMOVE HMA DIKE

MATCH LINE (D-52)

DRAINAGE PLAN

SCALE: 1" = 20'

D-53

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LAST REVISION | DATE PLOTTED => 5/31/2023
TIME PLOTTED => 2:53:09 PM

BORDER LAST REVISED 8/5/2020

USERNAME =>
DGN FILE => ...\0117000246ia043_DS 42-43_PM 117.30-117.31.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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DRAINAGE PLAN

SCALE: 1" = 10'

D-54

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LAST REVISION | DATE PLOTTED => 5/31/2023 TIME PLOTTED => 2:58:53 PM

BORDER LAST REVISED 8/5/2020

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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PRELIMINARY DESIGN FOR REVIEW ONLY



DRAINAGE SYSTEM No. 44

PM 117.43

APPROVED FOR DRAINAGE WORK ONLY

DRAINAGE PLAN

SCALE: 1" = 10'

D-55

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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DATE PLOTTED => 5/31/2023

TIME PLOTTED => 3:02:28 PM

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USERNAME =>

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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No.
Exp.
CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY

REMOVE CULVERT 18" x 77.5' CSP (f)

REMOVE MARKER (i)

MARKER (Culv) (j)

REMOVE INLET (d)

REMOVE MARKER (i)

MARKER (Culv) (j)

(a) 24" x 79.9' APC

(g) REMOVE DD 18" x 20.4' CSP

(h) 24" x 18.1' CSP DD

6.00'

16.00'

G1 DI (Mod) (H=x.x')
GRATE TYPE 24-12 (b)
GRATE FL Elev xxx.xx

TO TRAFFIC

(f) ROCK SLOPE PROTECTION FABRIC (CLASS 8)

(e) GRAVEL FILTER

DRAINAGE SYSTEM No. 45

PM 117.55

DRAINAGE PLAN

SCALE: 1" = 20'

D-56

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CALCULATED-DESIGNED BY

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FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

Caltrans

LAST REVISION | DATE PLOTTED => 5/31/2023
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BORDER LAST REVISED 8/5/2020

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY

ABANDON CULVERT 18" x 83.7' CSP (g)
24" x 85' APC (a)
REMOVE MARKER (j)
MARKER (Culv) (k)
REMOVE HEADWALL (i)
STRUCTURAL CONCRETE, HEADWALL (d)
24" x 49.4' CSP DD (h)
ANCHOR ASSEMBLY (c)
ROCK SLOPE PROTECTION (CLASS III, METHOD B) (e)
ROCK SLOPE PROTECTION FABRIC (CLASS 8) (f)
REMOVE CULVERT 18" x 23.9' CSP (b)
RESET SIGN (l)
REMOVE CULVERT 18" x 21.2' CSP (b)

ROUTE 101
To Orick
To Trinidad
16.00'
16.00'
ESL

DRAINAGE SYSTEM No. 46

PM 117.89

DRAINAGE PLAN

SCALE: 1" = 20'

D-57

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FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN

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TIME PLOTTED => 3:09:56 PM

BORDER LAST REVISED 8/5/2020

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLAN APPROVAL DATE

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Exp.
CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN
FOR REVIEW ONLY

REMOVE CULVERT
18" x 74.7' CSP (c)

24" x 75.6' APC (a)

REMOVE INLET (d)

G1 DI (H=x.x')
GRATE TYPE 24-12
GRATE FL Elev xxx.xx (b)

DITCH EXCAVATION
(0.3 CY) (e)

MATCH LINE (D-60)

DRAINAGE SYSTEM No. 47

PM 122.05

DRAINAGE PLAN

SCALE: 1" = 10'

D-59

APPROVED FOR DRAINAGE WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN
FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED

LAST REVISION
DATE PLOTTED => 5/31/2023
TIME PLOTTED => 3:17:50 PM

BORDER LAST REVISED 8/5/2020

USERNAME =>
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

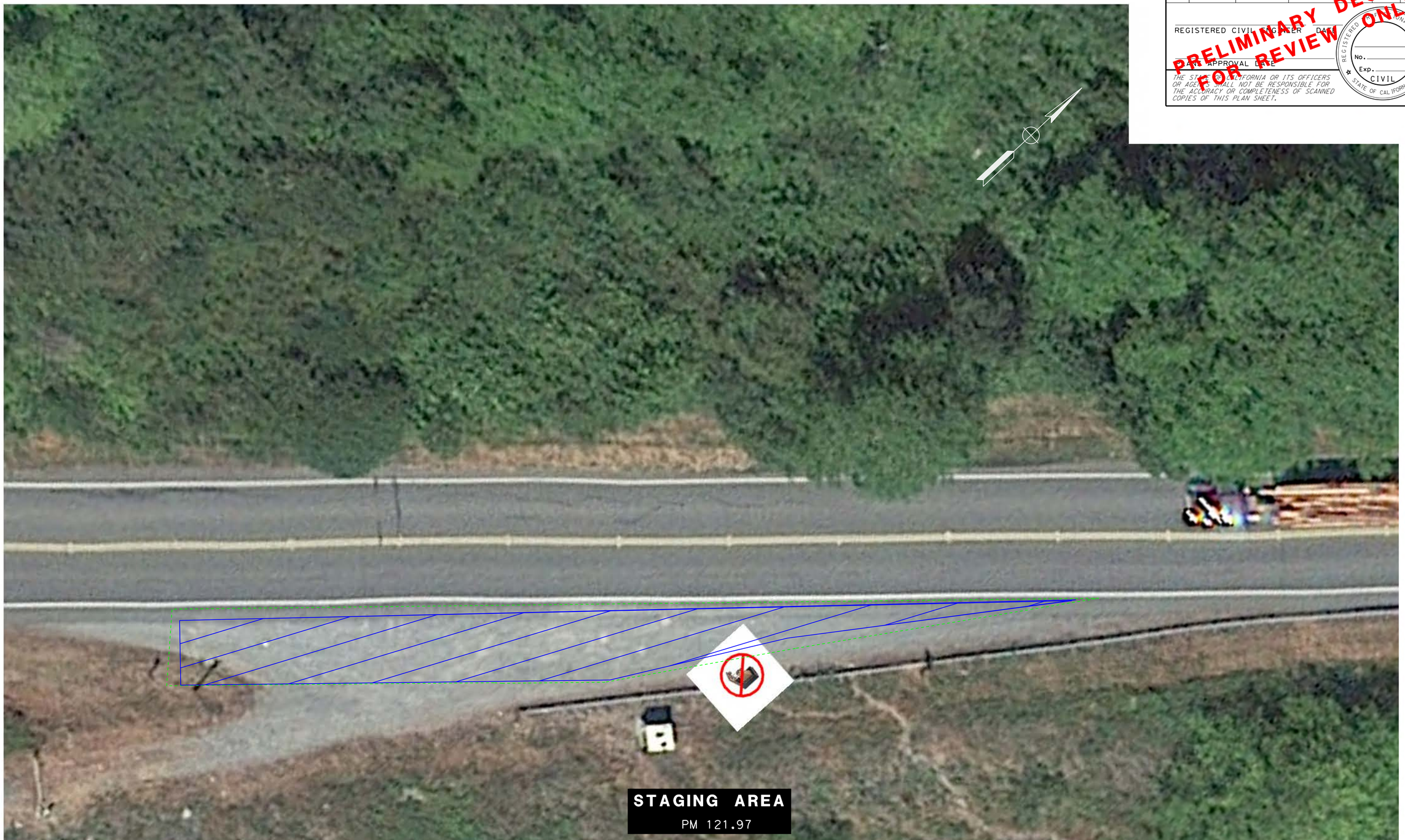
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FHWA APPROVAL DATE

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No.
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CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY



DRAINAGE PLAN

SCALE: 1" = 10'

D-58

APPROVED FOR DRAINAGE WORK ONLY

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Caltrans

DESIGN

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BORDER LAST REVISED 8/5/2020

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLAN APPROVAL DATE

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CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY



DRAINAGE PLAN

SCALE: 1" = 10'

D-60

APPROVED FOR DRAINAGE WORK ONLY

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FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

Caltrans

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY

c REMOVE CULVERT 2' x 2' x 14.9' RCB

a 30" x 86.1' APC

e ABANDON CULVERT 2' x 2' x 71.3' RCB

g ROCK SLOPE PROTECTION FABRIC (CLASS 8)

f GRAVEL FILTER

G1 DI (Mod) (H=x.x')
GRATE TYPE 24-12 b
GRATE FL Elev xxx.xx

ESL

REMOVE INLET d

REMOVE MARKER h

MARKER (Culv) i

TCE

DRAINAGE EASEMENT

i MARKER (Culv)

h REMOVE MARKER

DRAINAGE SYSTEM No. 48

PM 122.21

APPROVED FOR DRAINAGE WORK ONLY

DRAINAGE PLAN

SCALE: 1" = 10'

D-61

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DESIGN

Caltrans

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

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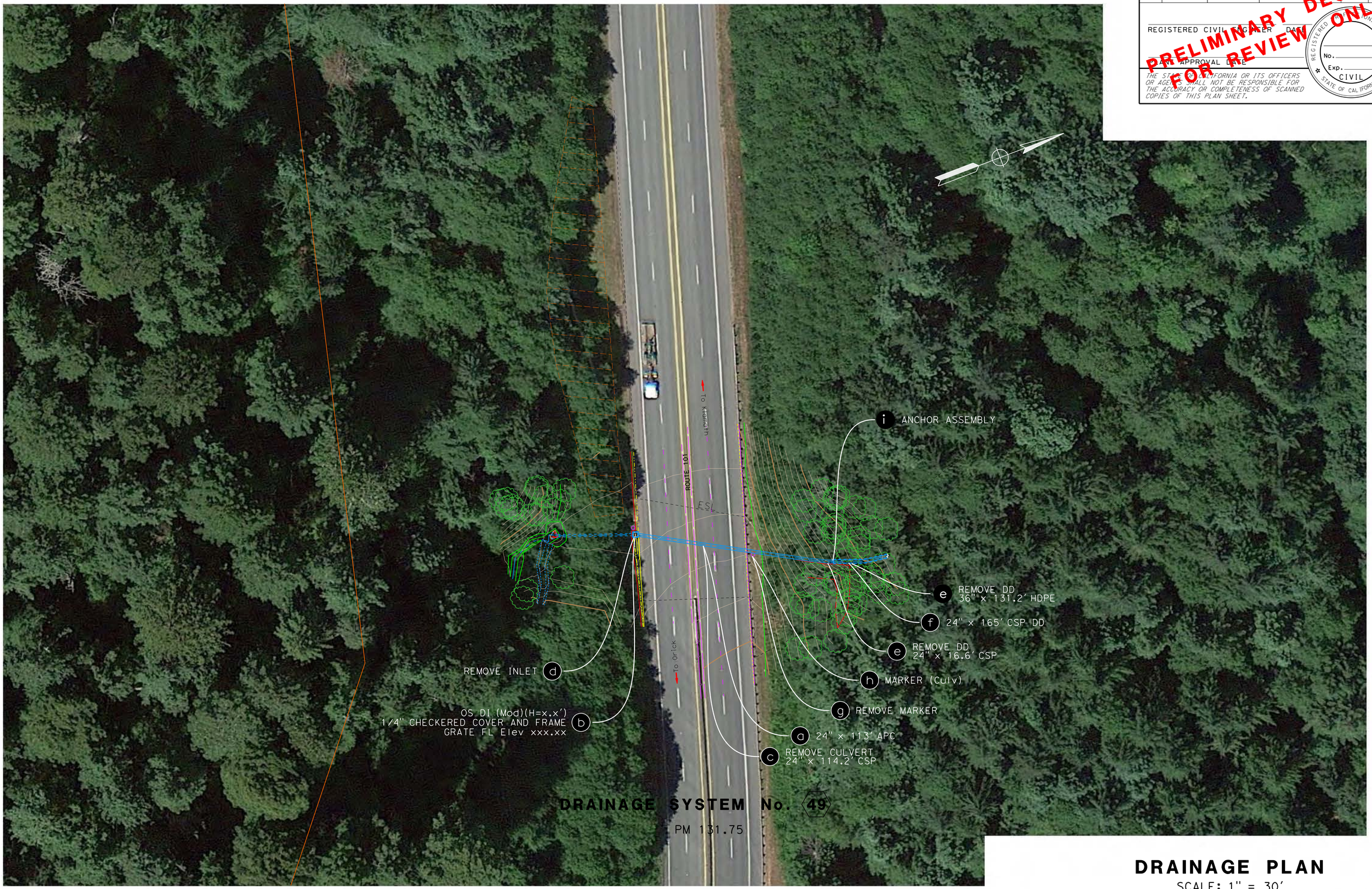
REGISTERED CIVIL ENGINEER DATE

PLAN APPROVAL DATE

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PRELIMINARY DESIGN FOR REVIEW ONLY



DRAINAGE PLAN

SCALE: 1" = 30'

D-62

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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BORDER LAST REVISED 8/5/2020

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLAN APPROVAL DATE

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CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY

MATCH LINE (D-64)

STAGING AREA
PM 136.22

DRAINAGE PLAN

SCALE: 1" = 20'

D-63

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
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Exp.
CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN FOR REVIEW ONLY

REMOVE DD 24" x 19.2' CSP (g)

REMOVE DD 24" x 20.2' CSP (g)

REMOVE DD 24" x 132.3' CSP (g)

REMOVE DD 24" x 148.4' CSP (f)

(e) PLACE HMA DIKE

(d) REMOVE HMA DIKE

90.3'

ANCHOR ASSEMBLY (b)

24" x 323.3' HDPE DD (a)

IMPORTED BORROW (267.50 CY) (c)

DRAINAGE SYSTEM No. 50

PM 136.23

MATCH LINE (D-63)

DRAINAGE PLAN

SCALE: 1" = 20'

D-64

APPROVED FOR DRAINAGE WORK ONLY

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FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

Caltrans

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BORDER LAST REVISED 8/5/2020

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

DATE APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA

PRELIMINARY DESIGN
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a 24" x 253' HDPE DD

b REMOVE DD 12" x 253' CSP

d ANCHOR ASSEMBLY

f MARKER (Culv)

e REMOVE MARKER

C PLACE HMA DIKE

To Klamath

To Orick

ROUTE 101

DRAINAGE SYSTEM No. 51
PM 136.39

DRAINAGE PLAN

SCALE: 1" = 20'

D-65

APPROVED FOR DRAINAGE WORK ONLY

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

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TIME PLOTTED => 3:31:44 PM

BORDER LAST REVISED 8/5/2020

USERNAME =>
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT

PROJECT NUMBER & PHASE

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Appendix B. Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
FAX (916) 653-5776
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

November 2019

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures "*No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.*"

Related federal statutes, remedies, and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, or obtain more information regarding Title VI, please contact the Title VI Branch Manager at (916) 324-8379 or visit the following web page: https://dot.ca.gov/programs/business-and-economic-opportunity/title-vi.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at Title.VI@dot.ca.gov.

Toks Omishakin
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

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Appendix C. USFWS, NMFS, CNDDB, and CNPS Species List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To:
Project Code: 2023-0053057
Project Name: 0H650 HUM-101 Drainage North

March 07, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

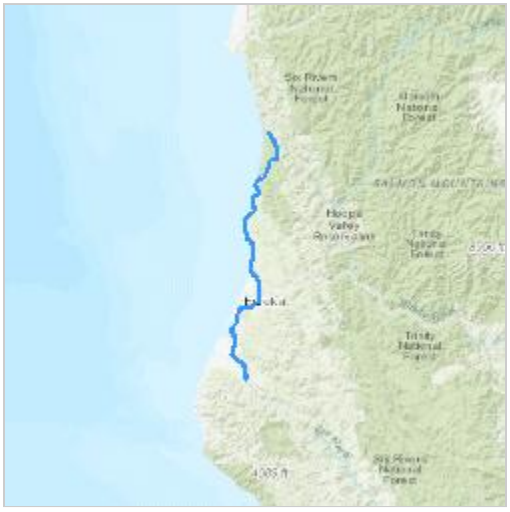
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

PROJECT SUMMARY

Project Code: 2023-0053057
Project Name: 0H650 HUM-101 Drainage North
Project Type: Road/Hwy - Maintenance/Modification
Project Description: The California Department of Transportation (Caltrans) is proposing a Drainage System Restoration project in Humboldt County on U.S. 101 from post miles 56.60 to 137.10 (Figure 1). The proposed project would repair drainage systems that are in poor condition at approximately 55 post mile (PM) locations. Additionally, the project would construct two new Transportation Management System (TMS) elements, repair 20 TMS elements, and replace three lighting assets.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.99931295887913,-124.11272115697895,14z



Counties: Del Norte and Humboldt counties, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* There is **proposed** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9081	Threatened

BIRDS

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

REPTILES

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened

FISHES

NAME	STATUS
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Beach Layia *Layia carnosa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6728	Threatened
Western Lily *Lilium occidentale* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/998	Endangered

CRITICAL HABITATS

There are 4 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* https://ecos.fws.gov/ecp/species/4467#crithab	Final
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* https://ecos.fws.gov/ecp/species/9081#crithab	Proposed
Tidewater Goby *Eucyclogobius newberryi* https://ecos.fws.gov/ecp/species/57#crithab	Final
Western Snowy Plover *Charadrius nivosus nivosus* https://ecos.fws.gov/ecp/species/8035#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
HUMBOLDT BAY NATIONAL WILDLIFE REFUGE https://www.fws.gov/refuges/profiles/index.cfm?id=81590	3,540.64

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird *Selasphorus sasin* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Sep 30

NAME	BREEDING SEASON
Black Oystercatcher *Haematopus bachmani* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Swift *Cypseloides niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Turnstone *Arenaria melanocephala* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Cassin's Auklet *Ptychoramphus aleuticus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6967	Breeds Mar 21 to Sep 21
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere

NAME	BREEDING SEASON
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Rufous Hummingbird *selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds Jun 1 to Aug 10
Tufted Puffin *Fratercula cirrhata* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/430	Breeds May 5 to Oct 5
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit *Chamaea fasciata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

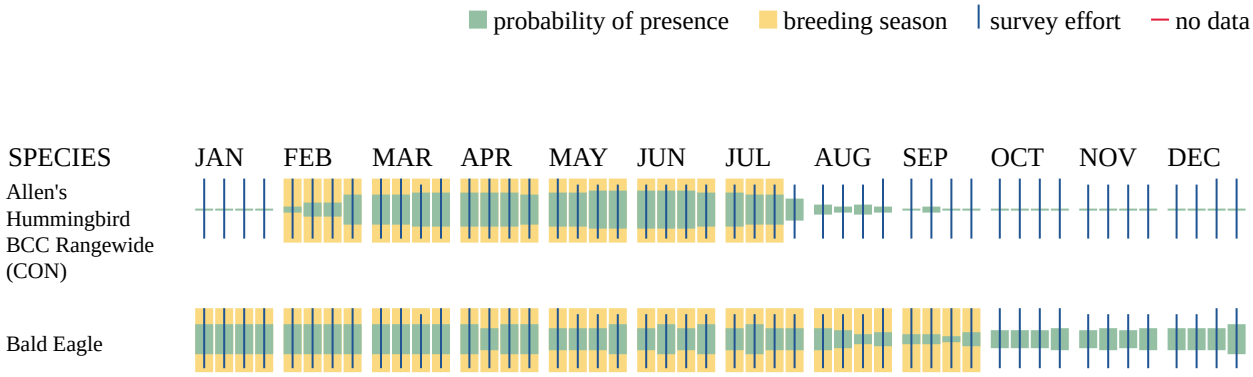
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

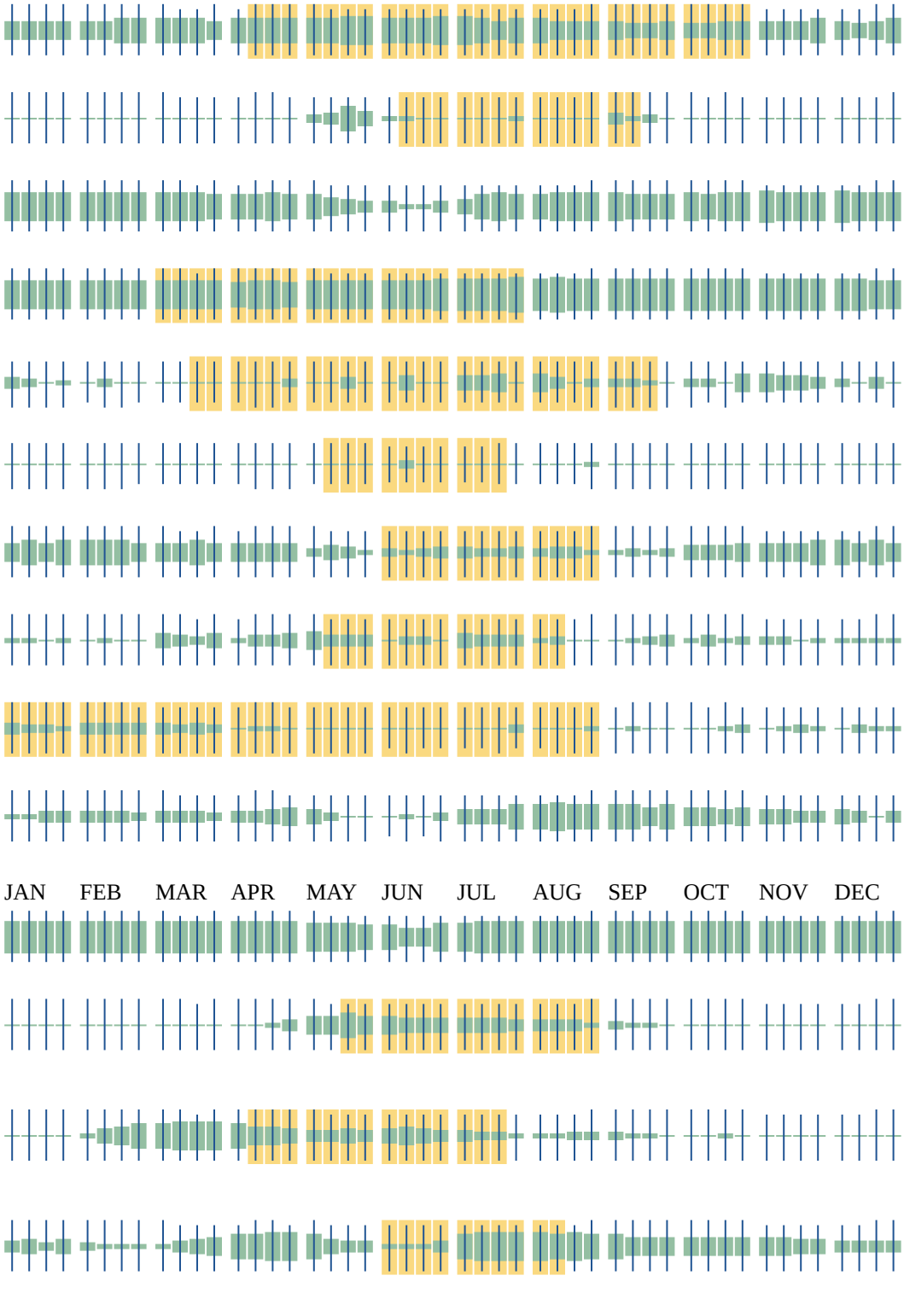
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

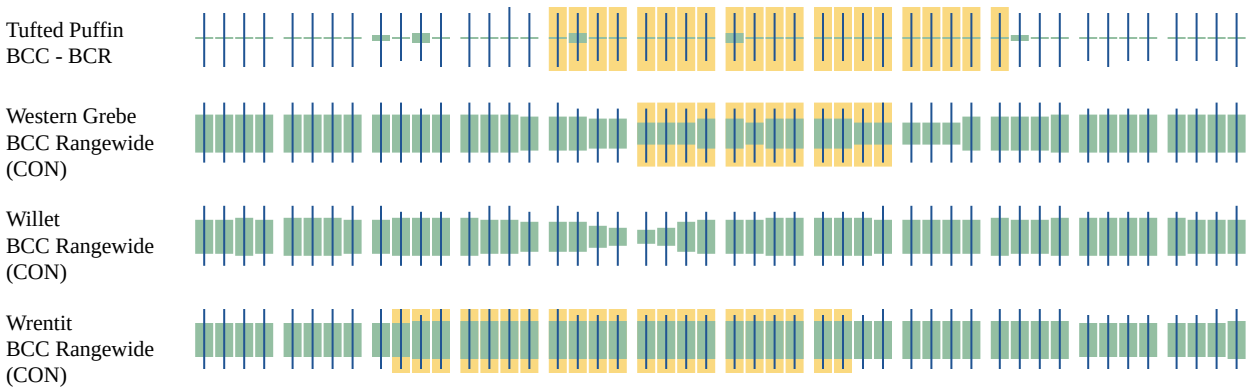
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Non-BCC Vulnerable





Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides

birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPAC USER CONTACT INFORMATION

Agency: California Department of Transportation District 1
Name: Dominic Moore
Address: 1656 Union St,
City: Eureka
State: CA
Zip: 95501
Email dominic.moore@dot.ca.gov
Phone: 7078155961

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Ferndale (4012453) OR Fortuna (4012452) OR Hydesville (4012451) OR Capetown (4012443) OR Taylor Peak (4012442) OR Scotia (4012441) OR McWhinney Creek (4012461) OR Fields Landing (4012462) OR Cannibal Island (4012463) OR Eureka (4012472) OR Arcata South (4012471) OR Korbel (4012378) OR Blue Lake (4012388) OR Arcata North (4012481) OR Tyee City (4012482) OR Panther Creek (4112318) OR Crannell (4112411) OR Trinidad (4112412) OR Rodgers Peak (4112421) OR Bald Hills (4112328) OR Holter Ridge (4112338) OR Orick (4112431) OR Ah Pah Ridge (4112348) OR Blue Creek Mtn. (4112347) OR Fern Canyon (4112441) OR Requa (4112451) OR Klamath Glen (4112358) OR Summit Valley (4112357) OR French Camp Ridge (4112327) OR Johnsons (4112337))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abronia umbellata var. breviflora pink sand-verbena	PDNYC010N4	None	None	G4G5T2	S2	1B.1
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Accipiter striatus sharp-shinned hawk	ABNKC12020	None	None	G5	S4	WL
Acipenser medirostris pop. 1 green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Ancotrema voyanum hooded lancetooth	IMGAS36130	None	None	G1G2	S1S2	
Anodonta californiensis California floater	IMBIV04220	None	None	G3Q	S2?	
Anomobryum julaceum slender silver moss	NBMUS80010	None	None	G5?	S2	4.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Aplodontia rufa humboldtiana Humboldt mountain beaver	AMAFA01017	None	None	G5TNR	SNR	
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Arborimus albipes white-footed vole	AMAFF23010	None	None	G3G4	S2	SSC
Arborimus pomo Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ascaphus truei Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	PDFAB0F7B2	None	None	G2T2	S2	1B.2
Astragalus umbraticus Bald Mountain milk-vetch	PDFAB0F990	None	None	G4	S2	2B.2
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
Bonasa umbellus ruffed grouse	ABNLC11010	None	None	G5	S3S4	WL
Brachyramphus marmoratus marbled murrelet	ABNNN06010	Threatened	Endangered	G3	S2	
Calamagrostis crassiglumis Thurber's reed grass	PMPOA17070	None	None	G3Q	S2	2B.1
Calamagrostis foliosa leafy reed grass	PMPOA170C0	None	Rare	G3	S3	4.2
Cardamine angulata seaside bittercress	PDBRA0K010	None	None	G4G5	S3	2B.1
Carex arcta northern clustered sedge	PMCYP030X0	None	None	G5	S1	2B.2
Carex lenticularis var. limnophila lagoon sedge	PMCYP037A7	None	None	G5T5	S1	2B.2
Carex leptalea bristle-stalked sedge	PMCYP037E0	None	None	G5	S1	2B.2
Carex lyngbyei Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
Carex praticola northern meadow sedge	PMCYP03B20	None	None	G5	S2	2B.2
Carex saliniformis deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
Carex viridula ssp. viridula green yellow sedge	PMCYP03EM5	None	None	G5T5	S2	2B.3
Castilleja ambigua var. humboldtiensis Humboldt Bay owl's-clover	PDSCR0D402	None	None	G4T2	S2	1B.2
Castilleja litoralis Oregon coast paintbrush	PDSCR0D012	None	None	G3	S3	2B.2
Castilleja mendocinensis Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Cerorhinca monocerata rhinoceros auklet	ABNNN11010	None	None	G5	S3	WL
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Clarkia amoena ssp. whitneyi Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coastal Terrace Prairie Coastal Terrace Prairie	CTT41100CA	None	None	G2	S2.1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Collinsia corymbosa round-headed collinsia	PDSCR0H060	None	None	G1	S1	1B.2
Coptis laciniata Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Cottus klamathensis polyporus Lower Klamath marbled sculpin	AFC4E02153	None	None	G4T2T4	S2S4	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Discelium nudum naked flag moss	NBMUS2E010	None	None	G4G5	S1	2B.2
Downingia willamettensis Cascade downingia	PDCAM060E0	None	None	G4	S2	2B.2
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Empetrum nigrum black crowberry	PDEMP03020	None	None	G5	S1?	2B.2
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Entosphenus tridentatus Pacific lamprey	AFBAA02100	None	None	G4	S3	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eriogonum nudum var. paralinum Del Norte buckwheat	PDPGN08498	None	None	G5T2	S1	2B.2
Erysimum menziesii Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
Erythronium oregonum giant fawn lily	PMLIL0U0C0	None	None	G5	S2	2B.2
Erythronium revolutum coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	
Eumetopias jubatus Steller sea lion	AMAJC03010	Delisted	None	G3	S2	
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fissidens pauperculus minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
Fratercula cirrhata tufted puffin	ABNNN12010	None	None	G5	S1S2	SSC
Gilia capitata ssp. pacifica Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
Gilia millefoliata dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S2	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T3	S3	1B.2
Hydrobates furcatus fork-tailed storm-petrel	ABNDC04010	None	None	G5	S1	SSC
Iliamna latibracteata California globe mallow	PDMAL0K040	None	None	G2G3	S2	1B.2
Juga orickensis redwood juga	IMGASK4190	None	None	G2	S1S3	
Juncus nevadensis var. inventus Sierra rush	PMJUN011Z5	None	None	G5T3T4	S1	2B.2
Kopsiopsis hookeri small groundcone	PDORO01010	None	None	G4?	S1S2	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lampetra richardsoni western brook lamprey	AFBAA02180	None	None	G4G5	S3S4	SSC
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G3G4	S3S4	
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lasthenia californica ssp. macrantha perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
Lathyrus japonicus seaside pea	PDFAB250C0	None	None	G5	S2	2B.1
Lathyrus palustris marsh pea	PDFAB250P0	None	None	G5	S2	2B.2
Layia carnosa beach layia	PDAST5N010	Threatened	Endangered	G2	S2	1B.1
Lilium occidentale western lily	PMLIL1A0G0	Endangered	Endangered	G1G2	S1	1B.1
Limnephilus atercus Fort Dick limnephilus caddisfly	IITRI15020	None	None	G3G4	S1S2	
Lomatium martindalei Coast Range lomatium	PDAPI1B140	None	None	G5	S2	2B.3
Lycopodiella inundata inundated bog-clubmoss	PPLYC03060	None	None	G5	S1	2B.2
Lycopodium clavatum running-pine	PPLYC01080	None	None	G5	S3	4.1
Margaritifera falcata western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
Martes caurina humboldtensis Humboldt marten	AMAJF01012	Threatened	Endangered	G4G5T1	S1	SSC
Mitellastra caulescens leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
Moneses uniflora woodnymph	PDPYR02010	None	None	G5	S2	2B.2
Monotropa uniflora ghost-pipe	PDMON03030	None	None	G5	S2	2B.2
Montia howellii Howell's montia	PDPOR05070	None	None	G3G4	S2	2B.2
Myotis evotis long-eared myotis	AMACC01070	None	None	G5	S3	
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Coastal Salt Marsh						
Northern Foredune Grassland	CTT21211CA	None	None	G1	S1.1	
Northern Foredune Grassland						
Nycticorax nycticorax	ABNGA11010	None	None	G5	S4	
black-crowned night heron						
Oenothera wolfii	PDONA0C1K0	None	None	G2	S1	1B.1
Wolf's evening-primrose						
Oncorhynchus clarkii clarkii	AFCHA0208A	None	None	G5T4	S3	SSC
coast cutthroat trout						
Oncorhynchus kisutch pop. 2	AFCHA02032	Threatened	Threatened	G5T2Q	S2	
coho salmon - southern Oregon / northern California ESU						
Oncorhynchus mykiss irideus pop. 48	AFCHA0213P	Threatened	Endangered	G5T2Q	S2	
steelhead - northern California DPS summer-run						
Oncorhynchus mykiss irideus pop. 49	AFCHA0213Q	Threatened	None	G5T3Q	S3	
steelhead - northern California DPS winter-run						
Packera bolanderi var. bolanderi	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
seacoast ragwort						
Pandion haliaetus	ABNKC01010	None	None	G5	S4	WL
osprey						
Pekania pennanti	AMAJF01020	None	None	G5	S2S3	SSC
Fisher						
Pinguicula macroceras	PDLNT01040	None	None	G4	S2	2B.2
horned butterwort						
Piperia candida	PMORC1X050	None	None	G3?	S3	1B.2
white-flowered rein orchid						
Platismatia lacunosa	NLLEC2Q010	None	None	G4	S1	2B.3
crinkled rag lichen						
Plethodon elongatus	AAAAD12050	None	None	G4	S3	WL
Del Norte salamander						
Polemonium carneum	PDPLM0E050	None	None	G3G4	S2	2B.2
Oregon polemonium						
Pomatiopsis chacei	IMGASJ9030	None	None	G1	S2	
marsh walker						
Ptilidium californicum	NBHEP2U010	None	None	G4G5	S3S4	4.3
Pacific fuzzwort						
Puccinellia pumila	PMPOA531L0	None	None	G5	SH	2B.2
dwarf alkali grass						
Rallus obsoletus obsoletus	ABNME05011	Endangered	Endangered	G3T1	S1	FP
California Ridgway's rail						
Rana aurora	AAABH01021	None	None	G4	S3	SSC
northern red-legged frog						

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rana boylii pop. 1 foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	G3T4	S4	SSC
Rhyacotriton variegatus southern torrent salamander	AAAAJ01020	None	None	G3?	S2S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Romanzoffia tracyi Tracy's romanzoffia	PDHYD0E030	None	None	G4	S2	2B.3
Sanicula tracyi Tracy's sanicle	PDAPI1Z0K0	None	None	G4	S4	4.2
Scaphinotus behrensi Behrens' snail-eating beetle	IICOL4L070	None	None	G2G4	S2S4	
Sedum citrinum Blue Creek stonecrop	PDCRA0A200	None	None	G2	S2	1B.2
Sedum flavidum pale yellow stonecrop	PDCRA0A0L2	None	None	G3	S3	4.3
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Sidalcea malviflora ssp. patula Siskiyou checkerbloom	PDMAL110F9	None	None	G5T2	S2	1B.2
Sidalcea oregana ssp. eximia coast checkerbloom	PDMAL110K9	None	None	G5T1	S1	1B.2
Silene scouleri ssp. scouleri Scouler's catchfly	PDCAR0U1MC	None	None	G5T4T5	S2S3	2B.2
Silene serpentinicola serpentine catchfly	PDCAR0U2B0	None	None	G3	S3	1B.2
Sisyrinchium hitchcockii Hitchcock's blue-eyed grass	PMIRI0D0S0	None	None	G1G2	S1	1B.1
Sitka Spruce Forest Sitka Spruce Forest	CTT82110CA	None	None	G1	S1.1	
Spergularia canadensis var. occidentalis western sand-spurrey	PDCAR0W032	None	None	G5T4	S1	2B.1
Sphagnum Bog Sphagnum Bog	CTT51110CA	None	None	G3	S1.2	
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Sulcaria spiralifera twisted horsehair lichen	NLT0042560	None	None	G3G4	S2	1B.2
Thaleichthys pacificus eulachon	AFCHB04010	Threatened	None	G5	S1	
Thermopsis robusta robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Trichodon cylindricus cylindrical trichodon	NBMUS7N020	None	None	G4G5	S2	2B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
Usnea longissima Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
Viola palustris alpine marsh violet	PDVIO041G0	None	None	G5	S1S2	2B.2

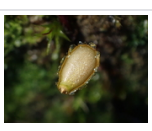
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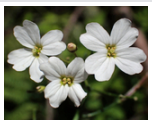
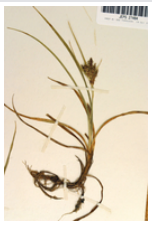
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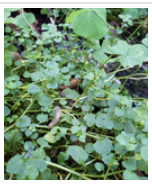
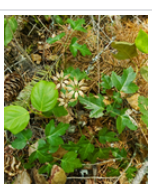
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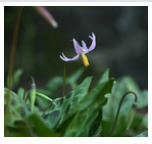
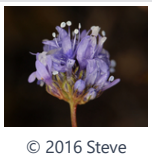
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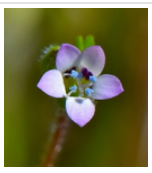
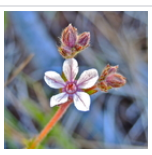
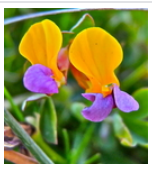
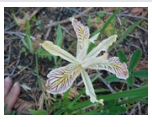
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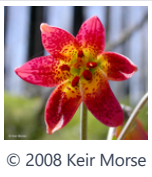
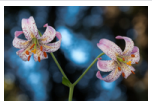
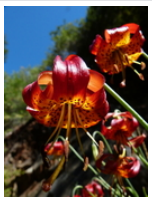
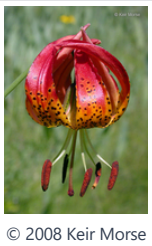
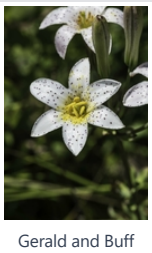
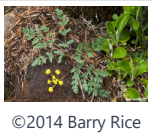
▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Abronia umbellata var. *breviflora*	pink sand-verbena	Nyctaginaceae	annual herb	Jun-Oct	None	None	G4G5T2	S2	1B.1		1988-01-01	 ©2021 Scot Loring
Allium siskiyouense	Siskiyou onion	Alliaceae	perennial bulbiferous herb	(Apr)May-Jul	None	None	G4	S4	4.3		1974-01-01	 John Doyen 2019
Angelica lucida	sea-watch	Apiaceae	perennial herb	Apr-Sep	None	None	G5	S3	4.2		2001-01-01	 © 2022 Stillwater Sciences
Anomobryum julaceum	slender silver moss	Bryaceae	moss		None	None	G5?	S2	4.2		2001-01-01	 © 2013 Scot Loring
Antennaria suffrutescens	evergreen everlasting	Asteraceae	perennial stoloniferous herb	Jan-Jul	None	None	G4	S3	4.3		1974-01-01	 ©1995 Saint Mary's College of California
Arctostaphylos hispidula	Howell's manzanita	Ericaceae	perennial evergreen shrub	Mar-Apr	None	None	G4	S3	4.2		1974-01-01	 © 2006 Steve Matson
Arnica cernua	serpentine arnica	Asteraceae	perennial rhizomatous herb	Apr-Jul	None	None	G5	S4	4.3		1974-01-01	 © 2021 Scot Loring
Arnica spathulata	Klamath arnica	Asteraceae	perennial rhizomatous herb	May-Aug	None	None	G3?	S3	4.3		1974-01-01	 ©2007 Keir Morse
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	Fabaceae	perennial herb	(Apr)Jun-Oct	None	None	G2T2	S2	1B.2	Yes	2001-01-01	 ©2009 Neal Kramer
Astragalus rattanii var. *rattanii*	Rattan's milk-vetch	Fabaceae	perennial herb	Apr-Jul	None	None	G4T4	S4	4.3	Yes	1988-01-01	No Photo Available
Astragalus umbraticus	Bald Mountain milk-vetch	Fabaceae	perennial herb	May-Aug	None	None	G4	S2	2B.2		1974-01-01	 ©2013 Scot Loring
Buxbaumia viridis	green shield-moss	Buxbaumiaceae	moss		None	None	G3G4	S2	2B.2		2011-03-23	 © 2021 Scot Loring

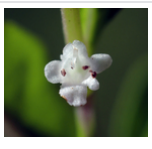
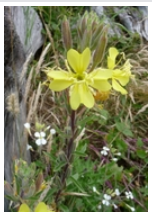
Calamagrostis bolanderi	Bolander's reed grass	Poaceae	perennial rhizomatous herb	May-Aug	None	None	G4	S4	4.2	Yes	1974-01-01	 ©2009 Zoya Akulova
Calamagrostis crassiglumis	Thurber's reed grass	Poaceae	perennial rhizomatous herb	May-Aug	None	None	G3Q	S2	2B.1		1980-01-01	No Photo Available
Calamagrostis foliosa	leafy reed grass	Poaceae	perennial herb	May-Sep	None	CR	G3	S3	4.2	Yes	1980-01-01	 ©2011 Zoya Akulova
Callitropsis nootkatensis	Alaska cedar	Cupressaceae	perennial evergreen tree		None	None	G4G5	S3	4.3		1980-01-01	 © 2021 Scot Loring
Cardamine angulata	seaside bittercress	Brassicaceae	perennial herb	(Jan)Mar-Jul	None	None	G4G5	S3	2B.2		2012-04-10	 © 2021 Scot Loring
Carex arcta	northern clustered sedge	Cyperaceae	perennial herb	Jun-Sep	None	None	G5	S1	2B.2		2001-01-01	 © 2006 Dean Wm. Taylor
Carex buxbaumii	Buxbaum's sedge	Cyperaceae	perennial rhizomatous herb	Mar-Aug	None	None	G5	S3	4.2		2001-01-01	 © 2008 Dean Wm. Taylor, Ph.D.
Carex lenticularis var. *limnophila*	lagoon sedge	Cyperaceae	perennial herb	Jun-Aug	None	None	G5T5	S1	2B.2		2005-01-01	 ©2003 Steve Matson
Carex leptalea	bristle-stalked sedge	Cyperaceae	perennial rhizomatous herb	Mar-Jul	None	None	G5	S1	2B.2		1994-01-01	 © 2003 Steve Matson
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	None	None	G5	S3	2B.2		2001-01-01	 ©2017 Steve Matson
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	May-Jul	None	None	G5	S2	2B.2		1984-01-01	 ©2013 Scot Loring
Carex saliniformis	deceiving sedge	Cyperaceae	perennial rhizomatous herb	(May)Jun(Jul)	None	None	G2	S2	1B.2	Yes	2001-01-01	 ©2003 Steve Matson

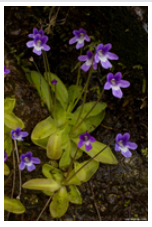
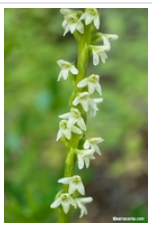
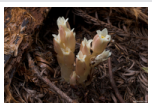
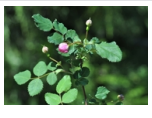
Carex scabriuscula	Siskiyou sedge	Cyperaceae	perennial rhizomatous herb	May-Jul	None	None	G3G4	S4	4.2		1980-01-01	 ©2009 Julie Kierstead Nelson
Carex serpenticola	serpentine sedge	Cyperaceae	perennial rhizomatous herb	Mar-May	None	None	G4	S3	2B.3		2001-01-01	 ©2005 Norman Jensen
Carex viridula ssp. *viridula*	green yellow sedge	Cyperaceae	perennial herb	(Jun)Jul-Sep(Nov)	None	None	G5T5	S2	2B.3		2001-01-01	 © 2015 Dana York
Castilleja ambigua var. *humboldtiensis*	Humboldt Bay owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	Apr-Aug	None	None	G4T2	S2	1B.2	Yes	1974-01-01	 ©2017 Steve Matson
Castilleja brevilobata	short-lobed paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jul	None	None	G4	S3	4.2		1974-01-01	 © 2021 Scot Loring
Castilleja litoralis	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Jun	None	None	G3	S3	2B.2		2001-01-01	 ©2010 Dana York
Castilleja mendocinensis	Mendocino Coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Aug	None	None	G2	S2	1B.2		1974-01-01	 ©2015 John Doyen
Chloropyron maritimum ssp. *palustre*	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	G4?T2	S2	1B.2		1974-01-01	 ©2017 John Doyen
Chrysosplenium glechomifolium	Pacific golden saxifrage	Saxifragaceae	perennial herb	Feb-Jun	None	None	G5?	S3	4.3		2015-10-15	 © 2021 Scot Loring
Clarkia amoena ssp. *whitneyi*	Whitney's farewell-to-spring	Onagraceae	annual herb	Jun-Aug	None	None	G5T1	S1	1B.1	Yes	1980-01-01	No Photo Available
Collinsia corymbosa	round-headed collinsia	Plantaginaceae	annual herb	Apr-Jun	None	None	G1	S1	1B.2	Yes	1994-01-01	 ©2007 Steve Matson
Collomia tracyi	Tracy's collomia	Polemoniaceae	annual herb	Jun-Jul	None	None	G4	S4	4.3	Yes	1974-01-01	 ©2018 Julie Kierstead Nelson
Coptis laciniata	Oregon goldthread	Ranunculaceae	perennial rhizomatous herb	(Feb)Mar-May(Sep-Nov)	None	None	G4?	S3?	4.2		2006-10-16	 © 2021 Scot Loring

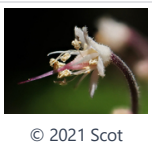
Cypripedium californicum	California lady's-slipper	Orchidaceae	perennial rhizomatous herb	Apr-Aug(Sep)	None	None	G3	S4	4.2		1980-01-01	 © 2012 Barry Rice
Darlingtonia californica	California pitcherplant	Sarraceniaceae	perennial rhizomatous herb (carnivorous)	Apr-Aug	None	None	G4	S4	4.2		1980-01-01	 © 2021 Scot Loring
Dicentra formosa ssp. *oregana*	Oregon bleeding heart	Papaveraceae	perennial herb	Apr-May	None	None	G5T4	S3	4.2		1974-01-01	 ©2008 Keir Morse
Discelium nudum	naked flag moss	Disceliaceae	ephemeral moss		None	None	G4G5	S1	2B.2		2001-01-01	No Photo Available
Downingia willamettensis	Cascade downingia	Campanulaceae	annual herb	Jun-Jul(Sep)	None	None	G4	S2	2B.2		2018-09-20	No Photo Available
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3		1980-01-01	 ©2018 Ron Vanderhoff
Empetrum nigrum	black crowberry	Empetraceae	perennial evergreen shrub	Apr-Jun	None	None	G5	S1?	2B.2		1974-01-01	 ©2015 Dana York
Epilobium septentrionale	Humboldt County fuchsia	Onagraceae	perennial herb	Jul-Sep	None	None	G4	S4	4.3	Yes	1974-01-01	 Image by BLM,Arcata Field Office
Eriogonum nudum var. *paralinum*	Del Norte buckwheat	Polygonaceae	perennial herb	Jun-Sep	None	None	G5T2	S1	2B.2		1994-01-01	No Photo Available
Erysimum menziesii	Menzies' wallflower	Brassicaceae	perennial herb	Mar-Sep	FE	CE	G1	S1	1B.1	Yes	1974-01-01	 ©2007 Steve Matson
Erythronium oregonum	giant fawn lily	Liliaceae	perennial herb	Mar-Jun(Jul)	None	None	G5	S2	2B.2		2007-07-23	 ©2021 Scot Loring
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	G4G5	S3	2B.2		2001-01-01	 ©2007 Steve Matson
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss		None	None	G3?	S2	1B.2		2001-01-01	 ©2021 Scot Loring
Fritillaria purdyi	Purdy's fritillary	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G4	S4	4.3		1974-01-01	 Aaron Schusteff, 2004
Gilia capitata ssp. *pacifica*	Pacific gilia	Polemoniaceae	annual herb	Apr-Aug	None	None	G5T3	S2	1B.2		2001-01-01	 © 2016 Steve Matson

Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2		2001-01-01	 © 2017 John Doyen
Glehnia littoralis ssp. *leiocarpa*	American glehnia	Apiaceae	perennial herb	May-Aug	None	None	G5T5	S2S3	4.2		2001-01-01	 ©2017 Steve Matson
Hemizonia congesta ssp. *tracyi*	Tracy's tarplant	Asteraceae	annual herb	(Mar-Apr)May-Oct	None	None	G5T4	S4	4.3	Yes	1974-01-01	 © 2016 Steve Matson
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	Asteraceae	annual herb	Mar-Jun	None	None	G4T3	S3	1B.2		1994-01-01	 © 2006 Doreen L. Smith
Horkelia sericata	silky horkelia	Rosaceae	perennial herb	Jun-Aug	None	None	G3G4	S3	4.3		1974-01-01	 © 2015 John Doyen
Hosackia gracilis	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	None	None	G3G4	S3	4.2		2004-01-01	 © 2015 John Doyen
Iliamna latibracteata	California globe mallow	Malvaceae	perennial herb	Jun-Aug	None	None	G2G3	S2	1B.2		1974-01-01	 ©2013 Scot Loring
Iris innominata	Del Norte County iris	Iridaceae	perennial rhizomatous herb	May-Jun	None	None	G4G5	S3	4.3		1974-01-01	 © 2016 Dana York
Iris thompsonii	Thompson's iris	Iridaceae	perennial rhizomatous herb	(Mar-Apr)May-Jun(Jul-Aug)	None	None	G3	S3	4.3		2021-07-24	 © 2017 Steve Matson
Juncus nevadensis var. *inventus*	Sierra rush	Juncaceae	perennial rhizomatous herb	Jul-Nov	None	None	G5T3T4	S1	2B.2		2009-06-08	No Photo Available
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	Apr-Aug	None	None	G4?	S1S2	2B.3		1994-01-01	 ©2016 Vernon Smith
Lasthenia californica ssp. *macrantha*	perennial goldfields	Asteraceae	perennial herb	Jan-Nov	None	None	G3T2	S2	1B.2	Yes	2001-01-01	 © 2013 John Doyen
Lathyrus delnorticus	Del Norte pea	Fabaceae	perennial herb	Jun-Jul	None	None	G4	S3	4.3		1974-01-01	 © 2016 Keir Morse
Lathyrus glandulosus	sticky pea	Fabaceae	perennial rhizomatous herb	Apr-Jun	None	None	G3	S3	4.3	Yes	1988-01-01	 2015 Barrett Jeffery

Lathyrus japonicus	seaside pea	Fabaceae	perennial rhizomatous herb	May-Aug	None	None	G5	S2	2B.1		2001-01-01	 ©2021 Scot Loring
Lathyrus palustris	marsh pea	Fabaceae	perennial herb	Mar-Aug	None	None	G5	S2	2B.2		1994-01-01	 © 2016 Keir Morse
Layia carnosa	beach layia	Asteraceae	annual herb	Mar-Jul	FT	CE	G2	S2	1B.1		1988-01-01	 © 2007 Aaron Schusteff
Leptosiphon aureus	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G4?	S4?	4.2	Yes	1994-01-01	 © 2007 Len Blumin
Lilium bolanderi	Bolander's lily	Liliaceae	perennial bulbiferous herb	Jun-Jul	None	None	G4	S3S4	4.2		1974-01-01	 © 2008 Keir Morse
Lilium kelloggii	Kellogg's lily	Liliaceae	perennial bulbiferous herb	(Feb)May-Aug	None	None	G3	S3	4.3		1974-01-01	 © 2019 Spencer Riffle
Lilium occidentale	western lily	Liliaceae	perennial bulbiferous herb	Jun-Jul	FE	CE	G1G2	S1	1B.1		1974-01-01	 © 2018 Jason Matthias Mills
Lilium pardalinum ssp. *vollmeri*	Vollmer's lily	Liliaceae	perennial bulbiferous herb	(Jun)Jul-Aug	None	None	G5T4	S3	4.3		1974-01-01	 © 2008 Keir Morse
Lilium rubescens	redwood lily	Liliaceae	perennial bulbiferous herb	(Mar)Apr-Aug(Sep)	None	None	G3	S3	4.2	Yes	1974-01-01	 Gerald and Buff Corsi © 2022 California Academy of Sciences
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	Feb-Jul	None	None	G5	S4	4.2		1974-01-01	 ©2013 Dr. Amadej Trnkoczy 0000 0000 0513 2468
Lomatium martindalei	Coast Range lomatium	Apiaceae	perennial herb	May-Jun(Aug)	None	None	G5	S2	2B.3		1980-01-01	 ©2014 Barry Rice
Lomatium tracyi	Tracy's lomatium	Apiaceae	perennial herb	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	 ©2018 Julie Kierstead Nelson

Lupinus tracyi	Tracy's lupine	Fabaceae	perennial herb	(May)Jun-Jul	None	None	G4	S3	4.3	1974-01-01	 ©2003 Norman Jensen
Lycopodiella inundata	inundated bog-clubmoss	Lycopodiaceae	perennial rhizomatous herb	Jun-Sep	None	None	G5	S1	2B.2	1980-01-01	 © 2021 Scot Loring
Lycopodium clavatum	running-pine	Lycopodiaceae	perennial rhizomatous herb	Jun-Aug(Sep)	None	None	G5	S3	4.1	1974-01-01	 © 2021 Scot Loring
Lycopus uniflorus	northern bugleweed	Lamiaceae	perennial herb	Jul-Sep	None	None	G5	S4	4.3	1980-01-01	 © 2021 Scot Loring
Micranthes marshallii	Marshall's saxifrage	Saxifragaceae	perennial rhizomatous herb	Mar-Aug	None	None	G5	S3	4.3	2016-07-06	 2017 Barrett Jeffery
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	(Mar)Apr-Oct	None	None	G5	S4	4.2	2001-01-01	 © 2014 Dana York
Moneses uniflora	woodnymph	Ericaceae	perennial rhizomatous herb	May-Aug	None	None	G5	S2	2B.2	2001-01-01	 ©2021 Scot Loring
Monotropa uniflora	ghost-pipe	Ericaceae	perennial herb (achlorophyllous)	Jun-Aug(Sep)	None	None	G5	S2	2B.2	1974-01-01	 © 2021 Scot Loring
Montia howellii	Howell's montia	Montiaceae	annual herb	(Feb)Mar-May	None	None	G3G4	S2	2B.2	1994-01-01	 © 2004 Dean Wm. Taylor
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	perennial herb	May-Oct	None	None	G2	S1	1B.1	1980-01-01	 ©2017 Dana York
Oxalis suksdorfii	Suksdorf's wood-sorrel	Oxalidaceae	perennial rhizomatous herb	May-Aug	None	None	G4	S3	4.3	2001-01-01	 ©2021 Scot Loring
Packera bolanderi var. *bolanderi*	seacoast ragwort	Asteraceae	perennial rhizomatous herb	(Jan-Apr)May-Jul(Aug)	None	None	G4T4	S2S3	2B.2	2001-01-01	 © 2021 Scot Loring
Packera macounii	Siskiyou Mountains ragwort	Asteraceae	perennial herb	Jun-Jul	None	None	G5?	S3	4.3	1984-01-01	 ©2015 John Doyen

Pinguicula macroceras	horned butterwort	Lentibulariaceae	perennial herb (carnivorous)	Apr-Jun	None	None	G4	S2	2B.2		1974-01-01	 ©2009 Barry Rice
Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	(Mar-Apr)May-Sep	None	None	G3?	S3	1B.2		1994-01-01	 ©2016 Barry Rice
Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	(Mar-Apr)May-Aug	None	None	G4G5	S4	4.2		1974-01-01	 ©2009 Barry Rice
Platismatia lacunosa	crinkled rag lichen	Parmeliaceae	foliose lichen (epiphytic)		None	None	G4	S1	2B.3		2022-09-28	 © 2014 Chris Wagner
Pleuropogon refractus	nodding semaphore grass	Poaceae	perennial rhizomatous herb	(Feb-Mar)Apr-Aug	None	None	G4	S4	4.2		1974-01-01	 ©2004 Dean Wm. Taylor
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	Apr-Sep	None	None	G3G4	S2	2B.2		2008-11-03	 ©2018 John Doyen
Ptilidium californicum	Pacific fuzzwort	Ptilidiaceae	liverwort	May-Aug	None	None	G4G5	S3S4	4.3		2011-03-23	 © 2021 Scot Loring
Puccinellia pumila	dwarf alkali grass	Poaceae	perennial herb	Jul	None	None	G5	SH	2B.2		1988-01-01	No Photo Available
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	Mar-Jul(Aug)	None	None	G5?	S3	4.3		1974-01-01	 ©2010 Dana York
Ribes roezlii var. *amictum*	hoary gooseberry	Grossulariaceae	perennial deciduous shrub	Mar-Apr	None	None	G5T4	S4	4.3	Yes	2001-01-01	 ©1973 Dean Wm. Taylor
Romanzoffia tracyi	Tracy's romanzoffia	Hydrophyllaceae	perennial herb	Mar-May	None	None	G4	S2	2B.3		2001-01-01	 ©2017 Steve Matson
Rosa gymnocarpa var. *serpentina*	Gasquet rose	Rosaceae	perennial rhizomatous shrub	Apr-Jun(Aug)	None	None	G5T3T4	S2	1B.3		2011-11-30	 Dean Wm. Taylor, 2020
Sanicula tracyi	Tracy's sanicle	Apiaceae	perennial herb	Apr-Jul	None	None	G4	S4	4.2	Yes	1974-01-01	 ©2014 Zoya Akulova

Sedum citrinum	Blue Creek stonecrop	Crassulaceae	perennial herb	Jun	None	None	G2	S2	1B.2	Yes	2015-04-20	 ©2014 Peter Zika
Sedum flavidum	pale yellow stonecrop	Crassulaceae	perennial herb	May-Jul	None	None	G3	S3	4.3	Yes	1980-01-01	 ©2012 Julie Kierstead Nelson
Sedum laxum ssp. *heckneri*	Heckner's stonecrop	Crassulaceae	perennial herb	Jun-Jul	None	None	G5T4Q	S4	4.3		1980-01-01	 © 2010 Susan Erwin
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	(Mar)Apr-Aug	None	None	G3	S3	4.2		1994-01-01	 ©2005 Dean Wm. Taylor
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	(Mar)May-Aug	None	None	G5T2	S2	1B.2		1994-01-01	 ©2004 Dean Wm. Taylor
Sidalcea oregana ssp. *eximia*	coast checkerbloom	Malvaceae	perennial herb	Jun-Aug	None	None	G5T1	S1	1B.2	Yes	1994-01-01	No Photo Available
Silene scouleri ssp. *scouleri*	Scouler's catchfly	Caryophyllaceae	perennial herb	(Mar-May)Jun-Aug(Sep)	None	None	G5T4T5	S2S3	2B.2		2017-12-13	 ©2015 Vernon Smith
Silene serpentinicola	serpentine catchfly	Caryophyllaceae	perennial rhizomatous herb	May-Jul	None	None	G3	S3	1B.2		2005-01-01	 ©2008 Norman Jensen
Sisyrinchium hitchcockii	Hitchcock's blue-eyed grass	Iridaceae	perennial rhizomatous herb	Jun	None	None	G1G2	S1	1B.1		2004-01-01	 ©2009 Dana York
Spergularia canadensis var. *occidentalis*	western sand-spurrey	Caryophyllaceae	annual herb	Jun-Aug	None	None	G5T4	S1	2B.1		2001-01-01	No Photo Available
Sulcaria spiralifera	twisted horsehair lichen	Parmeliaceae	fruticose lichen (epiphytic)		None	None	G3G4	S2	1B.2		2014-03-01	 © 2021 Scot Loring
Thermopsis robusta	robust false lupine	Fabaceae	perennial rhizomatous herb	May-Jul	None	None	G2	S2	1B.2	Yes	1994-01-01	 ©2018 Hayley Ross
Tiarella trifoliata var. *trifoliata*	trifoliate laceflower	Saxifragaceae	perennial rhizomatous herb	(May)Jun-Aug	None	None	G5T5	S2S3	3.2		1980-01-01	 © 2021 Scot Loring
Trichodon cylindricus	cylindrical trichodon	Ditrichaceae	moss		None	None	G4G5	S2	2B.2		2001-01-01	No Photo Available

Triquetrella californica	coastal triquetrella	Pottiaceae	moss		None	None	G2	S2	1B.2	2001-01-01	No Photo Available
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)		None	None	G4	S4	4.2	2014-03-01	 © 2021 Scot Loring
Veratrum insolitum	Siskiyou false-hellebore	Melanthiaceae	perennial herb	Jun-Aug	None	None	G3	S4	4.3	1974-01-01	 ©2008 Keir Morse
Viola palustris	alpine marsh violet	Violaceae	perennial rhizomatous herb	Mar-Aug	None	None	G5	S1S2	2B.2	1994-01-01	 ©2021 Scot Loring

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