HUM-36 THREE BRIDGES PROJECT

HUMBOLDT COUNTY, CALIFORNIA

DISTRICT 1 – HUM – 36 (Post Miles 11.46 to 34.52)
0C500/ 0112000292

INITIAL STUDY

with Mitigated Negative Declaration and Final Section 4(f) *de minimis* Determination

Prepared by the
State of California Department of Transportation

June 2021

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General Information about this Document

What's in this document?

The California Department of Transportation (Caltrans) has prepared this Initial Study with Mitigated Negative Declaration (IS/MND) which examines the potential environmental effects of a proposed project on State Route 36 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, minimization, and/or mitigation measures.

The IS/MND circulated to the public between June 26, 2020, and August 3, 2020. Comments received during this period are included in Appendix I.

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 Caltrans District 1 Office. This document may be downloaded at the following websites:

- https://dot.ca.gov/caltrans-near-me/district-3/d3-programs/d3-environmental-planning/d3-environmental-docs
- https://ceqanet.opr.ca.gov/

For individuals with sensory disabilities, this document is 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: Jason Meyer, North Region Environmental-District 1, 1656 Union Street, Eureka, CA 95501; (707) 572-7039Voice, or use the California Relay Service TTY number, 711 or 1-800-735-2929.

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HUM-36 THREE BRIDGES PROJECT

Replace two bridges and upgrade bridge rails and widen at one bridge on State Route 36 in Humboldt County, from post miles 11.46 to 34.52 near Bridgeville, California

INITIAL STUDY

With Mitigated Negative Declaration and Final Section 4(f) *de minimis* Determination

Submitted Pursuant to: Division 13, California Public Resources Code

THE STATE OF CALIFORNIA

Department of Transportation

06/10/21

Date of Approval

Brandon Larsen

Brandon Larsen, Office Chief
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California Department of Transportation
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Mitigated Negative Declaration

Pursuant to: Division 13, California Public Resources Code

SCH Number: 2020060581

Project Description

The California Department of Transportation (Caltrans) proposes to upgrade bridge rails and shoulder widths at three bridges on State Route (SR) 36 in Humboldt County. To achieve this, the existing bridges would be either replaced or widened. These three bridges are Hely Creek Bridge, Little Larabee Creek Bridge and Butte Creek Bridge located at Post Miles (PMs) 11.46, 25.27, and 34.52, respectively. The existing bridges at Hely Creek and Butte Creek would be replaced, and the bridge at Little Larabee Creek would be widened.

Determination

This Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an MND for this project. This does not mean that Caltrans' decision regarding the project is final. This MND is subject to change based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project and, following public review, has determined from this study that the proposed project would not have a significant impact on the environment for the following reasons:

- The project would have *No Effect* with regard to Agricultural and Forest Resources, Air Quality, Energy, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, Utilities and Service Systems, and Wildfire.
- The project would have *Less than Significant Impacts* with regard to Aesthetics, Biological Resources, Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, and Tribal Cultural Resources.
- With the following mitigation measures incorporated, the project would have *Less than Significant Impact* with regard to Biological Resources.
    - Mitigation for permanent impacts to wetlands and waters would be implemented.

Brandon Larsen

Brandon Larsen, Office Chief
North Region Environmental-District 1
California Department of Transportation

06/10/21
Date

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List of Abbreviated Terms

Abbreviation	Description
AB	Assembly Bill
AC(s)	Activity Center(s)
ACHP	Advisory Council on Historic Preservation
ADI	Area of Direct Impact
ADL	Aerially Deposited Lead
ADT	Average Daily Traffic
AE	Agricultural Exclusive (zoning)
APE	Area of Potential Effect
ARB	Air Resources Board
ARPA	Archaeological Resources Protection Act
ARZ	Absorber Root Zone
BMPs	Best Management Practices
BSA	Biological Study Area
CAFE	Corporate Average Fuel Economy
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CC (Chinook salmon)	California Coastal Evolutionarily Significant Unit of Chinook salmon
CCR	California Code of Regulations
CD	Consistency Determination
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
Cfs	cubic feet per second
CH4	methane
CIA	Cumulative Impact Analysis
CIDH	Cast-in-Drilled-Hole
CIP	Cast-in-Place
CL2AB	Class 2 Aggregate Base
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CRZ	Critical Root Zone

Abbreviation	Description
CSP	Corrugated Steel Pipe
CTP	California Transportation Plan
CWA	Clean Water Act
dB	decibel
DBH	Diameter at Breast Height
DED	Draft Environmental Document
Department	Caltrans
DO	dissolved oxygen
DPS	Distinct Population Segment
DWQ	Department of Water Quality
DWR	Department of Water Resources
ECL	Environmental Construction Liaison
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EO	Executive Order
EPIC	Environmental Protection Information Center
ESA	Environmentally Sensitive Area
ESL	Environmental Study Limits
ESU	Evolutionarily Significant Unit
FED	Final Environmental Document
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FYLF	Foothill yellow-legged frog
GHG	greenhouse gas
GWP	Global Warming Potential
HCAOG	Humboldt County Association of Governments
H_2S	hydrogen sulfide
HFC	hydrofluorocarbons
HRC	Humboldt Redwood Company
H&SC	Health & Safety Code
HU	Hydrologic Unit
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ISA	Initial Site Assessment
ITP	Incidental Take Permit
LCFS	Low Carbon Fuel Standard
LWD	large woody debris
MAMU	Marbled murrelet
MBTA	Migratory Bird Treaty Act
MGS	Midwest Guardrail System

Abbreviation	Description
mg/L	milligrams per liter
MLD	Most Likely Descendent
MMTC0_2e	million metric tons of carbon dioxide equivalent
MND	Mitigated Negative Declaration
MPO	Metropolitan Planning Organization
MS4s	Municipal Separate Storm Sewer Systems
MSA	Magnuson-Stevens Fishery Conservation and Management Act
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Repatriation Act
NAHC	Native American Heritage Commission
NC (steelhead)	Northern California Distinct Population Segment of steelhead
ND	Negative Declaration
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIS	New Impervious Surface
NMFS	National Marine Fisheries Service
NNI	Net New Impervious (area)
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NRLF	Northern red-legged frog
NSO	Northern spotted owl
O_3	ozone
OHWM	Ordinary High-Water Mark
PA	Programmatic Agreement
PDT	Project Development Team
PEM1	Palustrine Emergent Wetlands
PFMC	Pacific Fishery Management Council
PM(s)	post mile(s)
PRC	Public Resources Code
PSSR	Project Scope Summary Report
RCP	Representative Concentration Pathways
RD	Roadside Ditch
RHZ	Root Health Zone
RIS	Replaced impervious surface
RMS	Root Mean Square
RSP	Rock Slope Protection

Abbreviation	Description
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board
SCS	Sustainable Communities Strategy
SEL	Sound Exposure Level
SF_6	sulfur hexafluoride
SHOPP	State Highway Operation and Protection Program
SHPO	State Historic Preservation Officer
SHS	State Highway System
SLR	Sea-Level Rise
SNC(s)	Sensitive Natural Community (Communities)
SONCC	Southern Oregon/Northern California Coast (coho salmon)
SR	State Route
SRA	State Responsibility Area
SRZ	Structural Root Zone
SSC	Species of Special Concern
SSP	Standard Special Provision
STRAIN	Structure Replacement and Improvement Needs
STV	Sonoma tree vole
SWPPP	Stormwater Pollution Prevention Plan
TMDLs	Total Maximum Daily Loads
THPO	Tribal Historic Preservation Officer
THVF	Temporary High Visibility Fence
TMP	Transportation Management Plan
TPZ	Timber Production Zone
TWW	Treated Wood Waste
U	Unclassified (zoning)
U.S. or US	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDOT	U.S. Department of Transportation
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Resource Program
USGS	U.S. Geological Survey
VMT	Vehicle Miles Traveled
WD	Wetland Ditch
WIFL	Little willow flycatcher
WPCP	Water Pollution Control Program
WPT	Western pond turtle
WQOs	Water Quality Objectives
WSP	Western snowy plover

Abbreviation	Description
WSRA	Wild and Scenic Rivers Act
YBCU	Western yellow-billed cuckoo

Chapter 1. Proposed Project

1.1. Project History

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

In 1984, Caltrans prepared a *Structure Replacement and Improvement Needs (STRAIN) Report* which recommended replacement of the railings on Hely Creek Bridge, Little Larabee Creek Bridge, and Butte Creek Bridge on State Route (SR) 36 in Humboldt County.

The existing shoulders on these bridges did not meet current design standards so widening of all three bridges was also recommended. The *Advance Planning Study* (completed March 2015) and *Project Scope* Summary *Report* (PSSR) (approved June 9, 2015) concluded that widening the Hely Creek Bridge and the Butte Creek Bridge for barrier upgrades was not feasible. Because of the existing bridge type and design of the Hely Creek Bridge, the existing structure cannot be widened; therefore, requires replacing. The Butte Creek Bridge was built in 1937 and is beginning to show signs of deterioration due to its age; therefore, this bridge is also proposed to be replaced. The existing structure at Little Larabee Creek can be widened.

The PSSR was approved in 2015 for programming in the 2016 State Highway Operation and Protection Program (SHOPP) and funding through the Bridge Rail Replacement and Upgrade Program.

1.2. Project Description

Caltrans proposes to upgrade bridge rails and shoulder widths of three bridges on State Route SR 36 in Humboldt County. To achieve this, the existing structures would either be replaced or widened. The Hely Creek Bridge and Butte Creek Bridge would be replaced, and the existing Little Larabee Creek Bridge would be widened. Work would occur at the following locations:

- Hely Creek Bridge (Bridge No. 04-0092) at post mile (PM) 11.46
- Little Larabee Creek Bridge (Bridge No. 04-0102) at PM 25.27
- Butte Creek Bridge (Bridge No. 04-0116) at PM 34.52

Project locations are shown on the vicinity map in Figure 1.

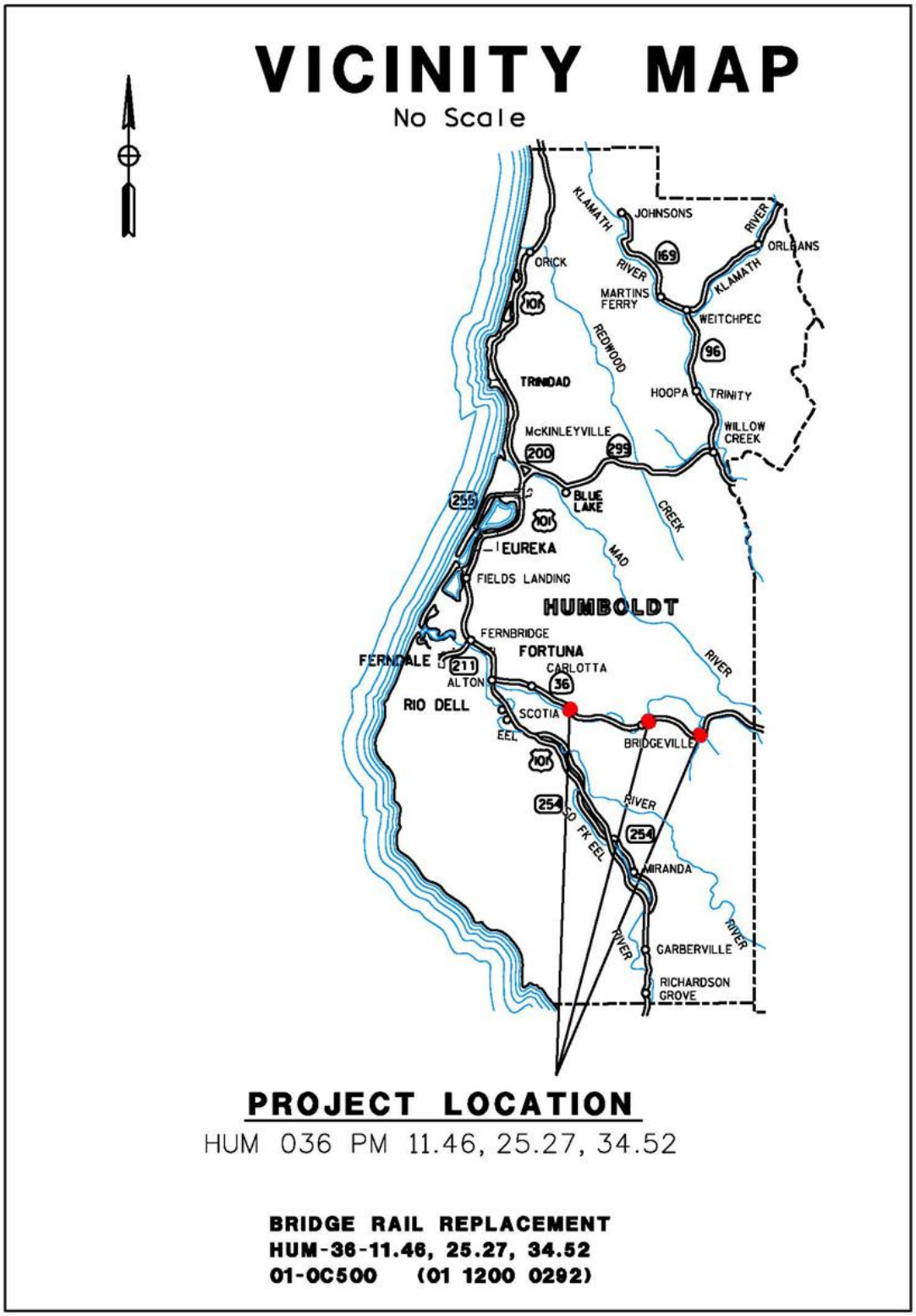

Figure 1. Project Vicinity Map

Project Objective (Purpose and Need)

The purpose of the proposed project is to upgrade bridge rails to meet current design standards and improve shoulder widths.

The project is needed because the railings on all three bridges were identified in the 1984 STRAIN Report requiring replacement. In addition, the existing shoulder widths range between one and four feet and do not provide sufficient area for disabled vehicles to pull aside nor do they provide area for collision-avoiding evasive maneuvers. Existing shoulders are inadequate for passage of nonmotorized users such as bicyclists.

Proposed Project

The project proposes to upgrade bridge rails and shoulder widths and would replace the existing bridges at Hely Creek and Butte Creek and widen the existing structure at Little Larabee Creek.

Widening, replacement, and rail upgrades for the bridges would be completed using the half-width construction method. Typical equipment used for the construction of the proposed project would include cranes, backhoe, excavator, hydraulic jack-hammer for backhoe (for bridge/abutment removal work), drill rig (for Cast-in-Drilled-Hole [CIDH] piles), hammer rig (for driven H-Piles), paving equipment/spreader, compaction equipment (rollers, vibrators, smoothing rollers), concrete pouring/pumping truck, dump trucks, concrete mixer trucks, flatbed delivery trucks, forklifts, and work trucks.

The proposed work and construction scenario at each bridge is discussed below and is depicted on the Project Layouts in Appendix A.

Hely Creek Bridge Replacement

The existing bridge at Hely Creek is a single span, reinforced concrete structure on spread footings. The existing 25-foot-wide by 41-foot-long bridge would be replaced by a 36-foot-wide by 75-foot-long structure. Because the new bridge would be longer, grading of the banks of Hely Creek would be needed to provide a stable transition to the finished grade of the embankment. Slight bank shaving and slight channel realignment is proposed in the northwest quadrant of the bridge, in the vicinity of the proposed access road. The creek would be graded to realign the thalweg (lowest elevation of the creek) away from the eastern bridge abutment where there is localized scour and bank instability. The channel thalweg would be shifted approximately 10 feet to the west to flow under the center of the bridge. The length of the proposed realignment is approximately 55 feet. Large woody debris

(LWD) rootwad revetment would be placed at the northeast quadrant of the bridge to help maintain the new alignment of the channel and provide habitat and embankment protection.

Bridge lanes would be widened from 11.5 feet to 12 feet, and bridge and approach shoulders, currently 1 foot wide, would be widened to 4 feet. ST-75 bridge rail, or a similar type of see-through steel barrier, would be installed along the edges of the bridge. The centerline would shift to the north, which would require realignment and widening of the roadway approaches. Shoulder backing would be placed adjacent to the widened approach shoulders. Existing metal beam guardrail would be upgraded to current standards and concrete vegetation control would be installed below the guardrail. The roadway would transition to the new structure over approximately 300 feet; however, on the west side of the bridge, widening of the eastbound shoulder and Midwest Guardrail System (MGS) installation would not begin until station 102+76, approximately 100 feet from the bridge, to avoid a large diameter redwood tree. Guardrail retaining wall would be added along the highway northwest of the bridge at 15 feet from the edge of pavement. The existing drainage pattern at the site would be maintained; however, existing roadside ditches would be shifted to accommodate shoulder widening. Two bioswales would be created adjacent to the shoulders of the bridge for treatment of stormwater runoff. Additionally, new striping, pavement delineation, and signage would be installed.

Work would occur within the existing Caltrans right of way and on adjacent private and public property. Temporary construction and permanent right of way acquisition would be required. The construction scenario includes the following order of work:

Preconstruction and Site Preparation

- Vegetation and tree removal would be required to facilitate access and construction, including a radius around proposed crane pads to allow for swinging of the crane boom, as shown on the Project Layouts in Appendix A. Prior to the start of construction, the contractor would clear and grub vegetation between September 16 to January 31, outside of the bird nesting season. If project timing misses this work window, a biologist would survey and certify that birds are not nesting in the areas to be cleared prior to vegetation removal.
- Traffic would be directed to one traveling lane, with a temporary barrier rail isolating the work area from traffic. Eastbound and westbound traffic would be controlled using a temporary signal system. Trenching may be required to route power to the temporary traffic signal.

- Best Management Practices (BMP's), such as stormwater control and temporary high visibility fencing (THVF) around environmentally sensitive areas (ESAs), would be installed prior to beginning construction work. See Standard Measures and Best Management Practices (Section 1.4.) for measures that would be implemented. BMP's would be maintained and modified as needed.
- Work areas would be cleared and grubbed. Equipment would be staged in the existing pullout (along the eastbound lane to the west of the bridge, accessed from the highway) or adjacent to the eastbound lane (just east of the bridge, accessed from the highway).
- Two temporary stabilized access roads would be created, with a minimum width of 12 feet, to accommodate equipment needed for foundation construction (e.g., cranes, excavators). Class 2 Aggregate Base (CL2AB) is proposed for temporary access road fills. For stability and ease of removal at the end of the project, a geo-fabric would be used as the bottom layer (also protecting the existing ground). Where temporary shoring is needed, 3-foot-tall temporary K-rail would be utilized and backfilled to a depth of 2 feet with CL2AB, in multiple layers up to 6 feet in height.
- Hely Creek would need to be temporarily dewatered during construction. A cofferdam would be installed upstream of the work area and water would flow downstream of the work area through a diversion pipe using a gravity system.
- A debris containment system would be installed prior to construction to ensure construction debris does not enter the stream channel.

Construction Stage 1

To limit traffic delays, the Hely Creek Bridge would be built by half-width construction, consisting of two stages. Construction is anticipated to take two seasons, with the westbound half being completed one year, the eastbound in another. During Stage 1, traffic would be directed to the eastbound lane. Demolition of the existing bridge westbound lane would occur once traffic has been switched to the eastbound lane. Foundations systems for the bridge structure would be installed for the westbound half of the bridge being widened, followed by construction of the bridge deck. The sequence of work would be as follows:

- The existing westbound bridge rail and approximately 5 feet of the westbound edge of the bridge would be removed.

- The east abutment and spread footing would be removed, requiring excavation to a depth of approximately 12 feet. Where in conflict with the proposed new abutment, the existing spread footing would be removed to a minimum of 5 feet below the original grade. Removal of existing bridge and abutments would be done with a jackhammer and backhoe or stripping excavation.
- Shoring would be placed adjacent to the removed abutment to stabilize the existing bridge on the east side and allow the abutment to be graded.
- Two crane pads would be constructed, approximately 30 feet wide by 30 feet long, one near each end of the bridge. Crane pads would be constructed using lumber and base rock and would be graded for a flat surface.
- Twelve 24-inch diameter Cast-in-Drilled-Hole (CIDH) piles at 40-foot length, or twelve 14 x 117 (14-inch flanges and 117 lb./ft) driven steel H-piles would be installed. Permanent piles would be located along the centerline of the abutments. A diaphragm abutment is anticipated with an approximate 6 piles at each abutment, evenly spaced. Spread footings may also be considered.
- Abutment Construction: Due to the presence of redwood trees adjacent to the west side of the bridge, each abutment would be constructed differently.
    - *East Abutment:* The East abutment would be shifted to the east to maintain creek width. New abutment piles would be placed, and a new abutment formed and poured.
    - *West Abutment:* The toe of the existing abutment may be excavated and removed. A new abutment would then be formed and poured in front of the existing abutment. The existing abutment would be left in place, except for the top portion of the abutment, and wing walls would be removed to be below the roadway grade section.

  New wing walls would be constructed, approximately 25 feet beyond each abutment. No rock slope protection (RSP) would be added at the abutments.

- Bridge Span Construction: To construct the bridge span, two methods are under consideration: cast-in-place, reinforced concrete box girder, or pre-cast/post-stressed "I" girder.
    - *Cast-in-Place:* Falsework would be constructed to enable the construction of the new half of the bridge span, approximately 16.5 feet wide. Temporary falsework piles may be installed. The soffit and stem would be poured, then cured, followed by construction of the bridge deck and back walls and a 10-day cure period. Temporary falsework would be removed after curing.
    - *Pre-Cast:* Pre-cast girders would be erected using a crane, followed by construction of the bridge deck and overhangs, Temporary falsework piles are not anticipated for this option.

  Under both scenarios, completion of the bridge span would be followed by backfilling the structure, constructing approach slabs, and installing bridge barrier rails.

Construction Stage 2

This stage would be similar to Stage 1, with removal of the remainder of the existing structure on the eastbound side, and its replacement with an approximately 16.5-foot-wide new bridge span and an approximately 3-foot-wide closure pour between the two new halves of the bridge.

Grading and Realignment of Hely Creek

After completion of the structural work under the bridge, portions of the bed, bank, and channel of Hely Creek would be graded. Roughly 3,500 square feet of engineered streambed material would be placed below ordinary high water to realign the creek. Engineered streambed material is determined from channel characteristics and would simulate the existing channel material at the site with the intent to maintain the existing characteristics of the channel. Grading work and large woody debris (LWD) installation would occur during the dry season work window and while the stream is dewatered.

Guardrail

Existing metal beam guardrail would be upgraded to current standards, installed by driven-post method.

Drainage

The existing culvert crossing at Redwood House Road would be cleaned out to improve flow. The existing vegetated swale between the culvert crossing and creek would be regraded as needed to maintain existing flow patterns.

Grading, Paving and Shoulder Backing

New sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer would be needed to construct the realigned roadway approaches and transitions. Imported borrow material may be needed to construct the widened bridge and roadway approaches.

Grading, in preparation of base preparation and asphalt concrete paving, would be completed using graders, spreaders, and compactors as needed with delivery trucks arriving to deliver hot mix asphalt on paving days. The new roadway would be restriped. Approximately 3 feet of shoulder backing would be installed after paving is complete.

Site Cleanup and Revegetation

After completion, all materials used for temporary access roads, dewatering, and falsework would be removed from the site. The site would then be restored to a natural setting by regrading and revegetating with native plants, as required by the final approved revegetation and erosion control plans.

Scheduling and Environmental Work Windows

Construction is anticipated to be begin in 2022 and continue through 2023. For pre-cast construction, Stage 1 would occur approximately June through September of the first year, and Stage 2 would be completed June through October of the following year, over 405 working days. For cast-in-place construction, Stage 1 of construction would occur approximately June through October of the first year, and Stage 2 would be completed June through December of the following year, over 450 working days.

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. Any night work would be subject to the county noise limitation of 86 decibels (dB) at 49 feet (15 meters).

All work within the bed, bank, and channel would be restricted to June 15 to October 15 of the construction season, including any associated access road development and gravel pad, trestles, or cofferdam installation.

Little Larabee Creek Bridge Widening

The existing bridge at Little Larabee Creek is a four-span, reinforced concrete structure. This bridge would be widened an equal amount on either side. The existing 30.5- by 180-foot bridge would be widened to a 44- by 180-foot structure. Bridge lanes would be widened from 11.5 feet to 12 feet, and bridge and approach shoulders, currently 3.75 feet wide, would be widened to 8 feet on the bridge and 4 feet along the approach. ST-75 Bridge Rail, or a similar type of see-through steel barrier, would be installed along the edges of the bridge. The existing centerline would remain the same; however, the roadway approaches would be widened to match the new bridge width. The roadway would transition to the new structure over approximately 230 feet. Shoulder backing would be placed adjacent to the widened approach shoulders. A soldier beam and lagging retaining wall would be constructed on the eastern side of the bridge along the westbound shoulder near PM 25.24. The retaining wall would be 232 feet long, and up to approximately 10 feet tall. Another soldier pile retaining wall would be constructed at PM 25.25 on the southwest side of the bridge. This retaining wall would be 100 feet in length with a height of 10-12 feet tall. Existing guardrail would be upgraded to current Midwest Guardrail System (MGS) standards. Concrete vegetation control would be installed below the guardrail. The existing drainage pattern at this site would be maintained; however, roadside ditches would be shifted to accommodate shoulder widening. A drainage ditch, protected with railing, would be added atop the proposed retaining wall at PM 25.24. In addition, an existing 24-inch corrugated steel pipe (CSP) culvert, overside drain, and drainage inlet at PM 25.36 would be replaced. Permanent stormwater treatment (in the form of bioswales and a biostrip) would be created adjacent to the shoulders west and east of the bridge. New striping, pavement delineation, and signage would be installed.

An adjacent project to improve the water supply to the Caltrans Maintenance Facility nearby would require this project to protect in-place conduit and pull boxes along the northerly side of the bridge and a utility cabinet on the bridge would need to be relocated. Existing overhead utility lines would be adjusted to avoid conflict during construction, in coordination with AT&T and PG&E. Work would occur within the existing Caltrans right of way and on adjacent private property. Temporary construction easements would be required. The construction scenario includes the following order of work:

Preconstruction and Site Preparation

- Vegetation and tree removal would be required to facilitate access and construction, including a radius around proposed crane pads to allow for swinging of the crane boom. Prior to the start of construction, the contractor would clear and grub vegetation between September 16 to January 31, outside of the bird nesting season. If project timing misses this work window, a biologist would survey and certify that birds are not nesting in the areas to be cleared prior to vegetation removal.
- Traffic would be directed to one traveling lane, with a temporary barrier rail isolating the work area from traffic. Or, two temporary barriers could be placed to allow widening on both sides of the bridge at the same time. East and westbound traffic would be controlled using a temporary signal system. Trenching, to a depth of approximately 5 feet, would be required to route power to the temporary traffic signal.
- BMP's would be installed prior to beginning construction work.
- The site would be cleared and grubbed. Equipment would be staged in graveled pullouts near the bridge: one to the west of the bridge, adjacent to the westbound shoulder, and one to the east of the bridge along the eastbound shoulder.
- Two temporary stabilized access roads would be created, with a minimum width of 12-feet, to accommodate equipment needed for foundation construction. An existing abutment from an old bridge would be removed for construction of the access road on the southeast side of the bridge. CL2AB is proposed for temporary access road fills. For stability and ease of removal at the end of the project, geo-fabric would be used as the bottom layer (also protecting the existing ground). Where temporary shoring is needed, 3-foot-tall temporary K-rail would be utilized and backfilled to a depth of 2 feet with CL2AB, in multiple layers up to 6 feet in height.
- Little Larabee Creek would need to be temporarily dewatered during construction. A cofferdam would be installed upstream of the work area and water would flow downstream of the work area through a diversion pipe, using a gravity system.
- A debris containment system would be installed prior to construction to ensure construction debris does not enter the stream channel.

Bridge Widening Construction

The Little Larabee Creek Bridge would be widened an equal amount on either side. Additional supports would be required adjacent to the existing bridge to support the additional width and to limit the impacts to the traveling public during construction. The bridge would be widened on one side at a time. The sequence of work would be as follows:

- Once the work area has been isolated from traffic, the existing bridge rails and approximately 4 feet of width from the outer edges of the bridge would be removed.
- This bridge has two abutments, Abutments 1 and 5, and three piers, Piers 2, 3, and 4. Each side of Abutments 1 and 5 would be excavated to a depth of approximately 9 feet.
- Two crane pads would be constructed, approximately 30 feet wide by 30 feet long, one near each end of the bridge. Crane pads would be constructed with lumber and base rock and would be graded for a flat surface.
- Pile driving: The new bridge foundations would likely be built to match the existing foundations. The existing bridge has spread footings at Pier 2 and Pier 3 and driven steel 10BP42 piles at Abutment 1, Pier 4, and Abutment 5. Driven H-piles, driven concrete piles, or CIDH piles could be used. Permanent piles would be located along the centerline of the abutments for the widenings and evenly spaced around the footings for the widened supports. The widened supports would match the locations of the existing supports. A diaphragm type abutment is anticipated. Temporary falsework piles are not anticipated. The following scenario is under consideration.

  The abutments and Pier 4 would require approximately sixteen new 14 x 117 (14-inch flanges and 117 lb./ft) driven steel H-piles (30-foot length) to be placed, as follows:

  - Abutments 1 and 5: Two piles at each of the four abutment segments, for a total of eight.
  - Pier 4: Four piles at each of the two columns, for a total of eight.
- Following pile installation, the abutments would be formed and poured. New wing walls would be constructed approximately 25 feet beyond each abutment. No RSP would be placed adjacent to the east abutment. The existing RSP next to the west abutment would be repaired and replaced. Planting or willow staking would be incorporated into the RSP as feasible.

- Under the bridge structure, three sets of columns would be constructed—one on either side of Piers 2, 3, and 4, for a total of 6 new columns. These columns would be constructed to match the existing columns; therefore, the following scenario is under consideration: The columns at Piers 2 and 3 would likely be constructed on spread footings, while the columns at Pier 4 would be constructed on piles. Piers 2 and 3 are located within Little Larabee Creek. When the new abutments and columns have cured, the structure would be backfilled.
- Falsework would be placed for construction of the girder and diaphragms and additional 10 feet of bridge deck. A new barrier rail would be installed, and the falsework would be removed. This would be followed by a 3-foot-wide closure pour between the new section of the bridge and existing structure, then a polyester concrete overlay of the new bridge deck.

Retaining Walls

A soldier pile retaining wall, to be constructed from the top down, would be installed on the eastern side of the bridge along the westbound shoulder near PM 25.24. The retaining wall would be 232 feet long and 8 to 10 feet tall. Another soldier pile retaining wall would be constructed at PM 25.25 on the southwest side of the bridge, with a length of 100 feet and a height of 10 to 12 feet. The construction of the retaining walls would require drilled holes with H-pile or other steel sections at 24 inches in diameter and 30 feet in length, spaced 8 feet apart. This would be followed by soldier pile installation, backfill and timber lagging, and anchor stud installation. Concrete facing would be applied, and concrete barrier, cable railing and concrete gutter would be installed. These retaining walls would be constructed concurrently with bridge widening within each stage.

Guardrail Installation

Following construction of the bridge, existing metal beam guardrail would be upgraded to current standards, installed by driven-post method.

Drainage

Roadside drainage ditches would be graded to perpetuate the existing drainage pattern and match the new width of the roadway. A drainage gutter, protected with railing, would be added atop the proposed retaining wall. In addition, an existing 24-inch diameter, 65-foot-long CSP culvert, 20-foot-long overside drain, and drainage inlet at PM 25.36 would be removed and replaced. The culvert would be replaced in-kind, using the cut-and-cover method.

Grading, Paving and Shoulder Backing

New sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer would be needed to construct the realigned roadway approaches and transitions. Imported borrow material may be needed to construct the widened bridge and roadway approaches.

Grading, in preparation of base preparation and asphalt concrete paving, would be completed using graders, spreaders, and compactors as needed with delivery trucks arriving to deliver hot mix asphalt on paving days. The new roadway would be restriped. Approximately 3 feet of shoulder backing would be installed after paving is complete.

Site Cleanup and Revegetation

After completion, all materials used for temporary access roads, dewatering, and falsework would be removed from the site. The site would then be restored to a natural setting by regrading and revegetating with native plants, as required by the final approved revegetation and erosion control plans.

Scheduling and Environmental Work Windows

Construction is anticipated to begin in 2022 and continue through 2023. Bridge widening is anticipated to occur June through January, over approximately 206 working days. The retaining walls would be constructed June through September—over 118 working days for the wall at PM 25.24 and 60 working days for the wall at PM 25.25.

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. Any night work would be subject to the county noise limitation of 86 decibels (dB) at 49 feet (15 meters).

All work within the bed, bank, and channel would be restricted to June 15 to October 15 of the construction season, including any associated access road development and gravel pad, trestles, or cofferdam installation.

Butte Creek Bridge Replacement

The existing bridge at Butte Creek is a two-span, reinforced concrete structure. The new structure would cross the creek in one span; therefore, the middle pier wall would be removed. The existing 30.5-foot by 114-foot bridge would be replaced by a 44- by 137-foot structure. Bridge lanes would be widened from 11 feet to 12 feet, and bridge and approach shoulders, currently 4.25 feet, would be widened to 8 feet on the bridge and 4 feet along the bridge approach. ST-75 Bridge Rail, or a similar type of see-through steel barrier, would be installed along the edges of the bridge. The existing centerline would remain the same; however, the roadway approaches would be widened to match the new bridge width. Shoulder backing would be placed adjacent to the widened approach shoulders. The roadway would transition to the new structure over approximately 300 feet. New sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer would be needed to construct the realigned roadway approaches and transitions. Imported borrow material may be needed to construct the widened bridge and roadway approaches. Existing guardrail would be upgraded to current standards. Concrete vegetation control would be installed below the guardrail.

The current drainage pattern at the site would be maintained; however, roadside ditches would be shifted to accommodate shoulder widening. In addition, several other drainage issues would be addressed:

- The drainage system at PM 34.59 would be replaced, including a 24-inch diameter, 60-foot length corrugated steel pipe and drainage inlet.
- On the westbound side, the drainage ditch near a driveway at PM 34.50 would be regraded, and a rock energy dissipater, approximately 24 square feet, would be placed at the outlet of the driveway culvert.
- A deteriorating drainage ditch near PM 34.5, on the opposite side of the road from the driveway, would be reconstructed to perpetuate existing drainage patterns. An approximately 110-foot-long bioswale with a down drain is proposed for this area. RSP is proposed at the outlet of the down drain, with an area of 20 square feet.
- Additional bioswales and biostrips would be created adjacent to the shoulders east and west of the bridge to provide permanent treatment of stormwater.

New striping, pavement delineation, and signage would be installed. An existing utility pole east of the bridge at PM 34.56 would be relocated within the project limits. An existing fiber optic line and overhead electrical line would be relocated to avoid conflict during construction, in coordination with AT&T and PG&E. Work would occur within the existing Caltrans right of way and on adjacent private property. Temporary construction easements would be required. The construction scenario includes the following order of work.

Preconstruction and Site Preparation

- Vegetation and tree removal would be required to facilitate access and construction, including a radius around proposed crane pads to allow for swinging of the crane boom. Prior to the start of construction, the contractor would clear and grub vegetation between September 16 to January 31, outside of the bird nesting season. If project timing misses this work window, a biologist would survey and certify that birds are not nesting in the areas to be cleared prior to vegetation removal.
- Traffic would be directed to one traveling lane, with a temporary barrier rail isolating the work area from traffic. East and westbound traffic would be controlled using a temporary signal system. Trenching, to a depth of approximately 5 feet, would be required to route power to the temporary traffic signal.
- BMP's would be installed prior to beginning construction work.
- The site would be cleared and grubbed. Equipment would be staged to the west of the bridge, within Caltrans right of way on either side of the road.
- Two stabilized access roads would be created, with a minimum width of 12 feet to accommodate equipment needed for foundation construction. CL2AB is proposed for temporary access road fills. For stability and ease of removal at the end of the project, geo-fabric would be used as the bottom layer (also protecting the existing ground). Where temporary shoring is needed, 3-foot-tall temporary K-rail would be utilized and backfilled to a depth of 2 feet with CL2AB, in multiple layers up to 6 feet in height.
- Butte Creek would need to be temporarily dewatered during construction. A cofferdam would be installed upstream of the work area and water would flow downstream of the work area through a diversion pipe, using a gravity system.
- A debris containment system would be installed prior to construction to ensure construction debris does not enter the stream channel.

Construction Stage 1

The Butte Creek Bridge would be built by half-width construction, consisting of two stages, to limit traffic delays. Construction is anticipated to take two seasons, with the eastbound half being completed one year, the westbound in another. During Stage 1, traffic would be directed to the westbound lane. Demolition of the existing bridge structures would occur once traffic has been switched to one lane. Foundations systems for the bridge structure would be installed for the westbound half of the bridge being widened, followed by construction of the bridge deck. The sequence of work would be as follows:

- The existing eastbound bridge rail and approximately 17.5 feet of the eastbound edge of the bridge would be removed.
- The abutments and associated piles would require excavation, to a depth of approximately 15 feet. Excavation through rock may be required at Abutment 2. The existing abutment piles would be removed to a minimum of 5 feet below the original grade. The existing pier wall would also be removed. Removal of existing bridge and abutments would be done with a jackhammer and backhoe or stripping excavation.
- Shoring would be placed adjacent to the removed abutment to stabilize the existing bridge on the east side and allow the abutment to be graded.
- Two crane pads would be constructed, approximately 30 feet wide by 30 feet long, one near each end of the bridge. Crane pads would be constructed with lumber and base rock and would be graded for a flat surface.
- Abutment 1 would be constructed on 24-inch diameter CIDH piles at 30-foot length, or 14x117 driven steel H-piles. 24-inch CIDH piles or Spread footing are under consideration for Abutment 2. Permanent piles would be located along the centerline of the footings at the abutments. A seat type abutment is assumed with an approximate 12 piles at each abutment, evenly spaced. No permanent piles would be placed in Butte Creek.
- Once abutment piles are in place, the abutments would be formed and poured. New wing walls would be constructed approximately 25 feet beyond each abutment. No RSP would be added to the banks adjacent to the abutments.
- Bridge Span Construction: To construct the bridge span, two methods are under consideration: cast-in-place, reinforced concrete box girder or pre-cast/post-stressed Bulb Tee girder.

- Cast-in-Place: Falsework would be constructed to enable the construction of the new half of the bridge span, approximately 20.5 feet wide. Temporary falsework piles may be installed. The soffit and stem are poured, then cured, followed by construction of the bridge deck and back walls and a 10-day cure period. Temporary falsework would be removed after curing.
- Pre-Cast: Pre-cast girders would be erected using a crane, followed by construction of the bridge deck and overhangs. Temporary falsework piles are not anticipated under this option.

Under both scenarios, completion of the bridge span would be followed by backfilling the structure, constructing approach slabs, and installing bridge barrier rails.

Construction Stage 2

This stage would be similar to Stage 1, with removal of the remainder of the existing structure on the westbound side, and its replacement with an approximately 20.5-foot-wide new bridge span. This would be followed with an approximately 3-foot-wide closure pour between the two new halves of the bridge.

Guardrail Installation

Following construction of the bridge, existing metal beam guardrail would be upgraded to current standards, installed by driven-post method.

Drainage

Roadside drainage ditches would be graded to perpetuate the existing drainage pattern and match the new width of the roadway.

At PM 34.59, the existing drainage inlet and 24-inch diameter, 60-foot-long CSP culvert would be replaced in-kind by cut-and-cover.

The existing lined drainage channel at the outlet of the small culvert crossing under the driveway would be removed and replaced with a vegetated swale, including 1.6 cubic yards of rock (spread across 30 square feet) as an energy dissipator.

A 110-foot-long bioswale with trapezoidal channel (6-foot bottom channel width and 4:1 side slopes) would be created in the southwestern portion of the project area. The bioswale would have a down drain and RSP placed at the outlet.

Grading, Paving and Shoulder Backing

New sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer would be needed to construct the realigned roadway approaches and transitions. Imported borrow material may be needed to construct the widened bridge and roadway approaches.

Grading, in preparation of base preparation and asphalt concrete paving, would be completed using graders, spreaders, and compactors as needed with delivery trucks arriving to deliver hot mix asphalt on paving days. The new roadway would be restriped. Approximately 3 feet of shoulder backing would be installed after paving is complete.

Site Cleanup and Revegetation

After completion, all materials used for temporary access roads, dewatering, and falsework would be removed from the site. The site would then be restored to a natural setting by regrading and revegetating with native plants, as required by the final approved revegetation and erosion control plans.

Scheduling and Environmental Work Windows

Construction is anticipated to begin in 2022 and continue through 2023. For pre-cast construction, Stage 1 would occur approximately June through October of the first year and Stage 2 would be completed June through December of the following year, over 451 working days. For cast-in-place construction, Stage 1 of construction would occur approximately June through October of the first year and Stage 2 would be completed June through January of the following year, over 475 working days.

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. Any night work would be subject to the county noise limitation of 86 decibels (dB) at 49 feet (15 meters).

All work within the bed, bank, and channel of the project area would be restricted to June 15 to October 15 of the construction season, including any associated access road development and gravel pad, trestles, or cofferdam installation. Between February 1 and September 15, noise restrictions for NSO would be observed.

No-Build Alternative

This alternative would maintain the facility in its current condition and would not meet the purpose and need of the project. For each of the potential impact areas 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 would occur, nor would the proposed improvements be implemented. The No-Build alternative is not discussed further in this document.

Alternatives Considered but Eliminated from Further Consideration

At Hely Creek and Butte Creek, several variations of the bridge dimensions were considered in the planning of the proposed project.

Hely Creek

The 2015 PSSR recommended 8-foot-wide shoulders and 12-foot-wide travel lanes at all bridge locations. After further evaluation, the Project Development Team selected 4-foot-wide shoulders at the Hely Creek Bridge to avoid impacts to a cluster of redwood trees that are immediately adjacent to the existing abutment on the west side of the bridge.

Earlier in the development of the project, the Hely Creek Bridge was designed with a length of 50 feet. On June 13, 2019, Caltrans met with California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS) at the site of the three bridges. CDFW and NMFS expressed a preference for a longer structure that avoids abutment construction within Hely Creek and maintains the existing creek alignment. Caltrans has considered the redwood tree cluster adjacent to the western abutment and preserving the function and value of Hely Creek for the construction of the bridge. To minimize impacts to the adjacent trees, the new west abutment would be constructed in front of the existing one. Portions of the existing abutment would be left in place to avoid excavating the roots of the trees. The east abutment would be shifted to the east to maintain the width of Hely Creek.

During Section 4(f) coordination with the County of Humboldt, the County inquired about potentially shifting the bridge alignment to the north to avoid large diameter redwood trees within Van Duzen County Park. Caltrans explored a northern alignment in the early phase of the project and rejected it because the centerline radius would be too tight to allow maneuverability of the truck turns without veering out of lanes. The proposed centerline radius at Hely Creek is 504 feet which allows the design vehicle to stay completely in the lane through the turn. The existing radius is 490 feet and the increased curve would accommodate the widening without impacting the cluster of redwood trees near the west abutment on the south side of the bridge. Although getting trucks safely through the project area was considered, the controlling factor for the proposed design alignment is the half-width construction scenario, discussed in the project description above. The first half of the bridge would be constructed as close as possible to the existing bridge, while keeping one lane of traffic on the existing bridge in order to keep the highway open during construction. Additionally, shifting the alignment north would still result in impacts to several large diameter redwood trees. The construction of a new alignment would create new disturbance in currently undisturbed areas and the footprint would still encompass the existing bridge alignment for demolition and associated construction access. Caltrans has coordinated with the County of Humboldt in examining ways to avoid impacts to large diameter redwood trees.

More information about coordination with agencies is provided in Chapter 3. Agency and Public Coordination.

Butte Creek

Previous designs of the Butte Creek Bridge proposed a length of 134 feet, 6-inches, and a total width of 34 feet–11.5 inches. This design was rejected because it did not allow for 8-foot-wide shoulders. The currently proposed design would allow for the shoulders to be widened to 8-feet, which would better serve the purpose and need of the project.

General Plan Description, Zoning, and Surrounding Land Uses

The project and surrounding lands are within Humboldt County and subject to the 2017 *Humboldt County General Plan* (Humboldt County 2017). At Hely Creek, the project area is zoned “TPZ” for timber production zone, and surrounding land use designations include timberland and public land. At Little Larabee Creek, the project area is zoned “U” for unclassified, and surrounding land use designations include residential agriculture and agricultural grazing. At Butte Creek, the project area is zoned “AE” for Agricultural

Exclusive and "TPZ" for timber production zone. Surrounding land use designations include residential agriculture and agricultural grazing. The project would not change the existing land use or zoning designations in the project area.

1.3. Permits and Approvals Needed

The following permits, consultations, and approvals would be required.

Table 1. Agency Approvals

Agency	Permit/Approval	Status
California Department of Fish and Wildlife	1602 Agreement for Streambed Alteration	Obtain after Final Environmental Document (FED) approval.
California Department of Fish and Wildlife	Section 2080.1 Consistency Determination for Threatened and Endangered Species	Obtain after NMFS Section 7 consultation and FED approval.
National Marine Fisheries Service	Section 7 Formal Consultation for Coho Salmon, Chinook Salmon, Steelhead and their Designated Critical Habitat, and Essential Fish Habitat Assessment for Pacific Coast Salmon (Biological Opinion)	Formal consultation was initiated on April 19, 2021. Biological Opinion to be obtained after FED approval.
Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification	Obtain after FED approval.
U.S. Army Corps of Engineers	Section 404 authorization (Nationwide Permit 14) for work in Waters of the United States	Obtain after FED approval.
U.S. Army Corps of Engineers	Jurisdictional Determination	Obtain after FED approval and concurrently with a 404 permit.
U.S. Fish and Wildlife Service	Section 7 Formal Consultation for Marbled Murrelet and Northern Spotted Owl	Complete
Van Duzen County Park	Section 4(f) Letter of Concurrence	Complete

For projects that have federal funds involved, Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 prohibits the Federal Transit Administration and other USDOT agencies from using land from publicly owned parks, recreation areas (including recreational trails), wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all possible planning to minimize harm to the property resulting from such a use. This project has federal funds and would require the temporary and permanent use of a Section 4(f) resource. See Appendix D for more information.

Projects affecting Wild and Scenic Rivers are subject to the National Wild and Scenic Rivers Act (16 United States Code [USC] 1271) and the California Wild and Scenic Rivers Act (WSRA) (CA Public Resources Code [PRC] Section 5093.50 et seq.). Due to the project proximity to the Van Duzen River, Caltrans consulted with the California Natural Resources Agency and the National Park Service and determined that the National and California WSRA are not applicable to the project.

1.4. Standard Measures and Best Management Practices Included in All Alternatives

Aesthetics/Visual Resources

AR-1: Aesthetic treatment to the bridge railings, cable barriers, vegetation control mat and rail element walls would be included, such as colors/ stains to blend in with the surrounding environment.

AR-2: 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-3: Where feasible, construction lighting would be limited to within the area of work.

AR-4: 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 one week 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. A Bird Exclusion Plan would be prepared by a qualified biologist prior to construction. Exclusion devices would be designed so they would not trap or entangle birds or bats. Exclusion devices would be installed outside of the breeding season (September 16 through January 31) to eliminate the re-occupancy of existing structures by migratory bird species that may attempt to nest on the structure during construction. On structures or parts of a structure where it is not feasible to install bird exclusion devices, partially constructed and unoccupied nests within the construction area would be removed and disposed of on a regular basis throughout the breeding season (February 1 through September 15 with biologist discretion) to prevent their occupation. Nest removal would be repeated weekly under guidance of a qualified biologist to ensure nests are inactive prior to removal.

C. Pre-construction surveys for active raptor nests within one-quarter mile of the construction area would be conducted by a qualified biologist within one week 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.

D. A Bat Exclusion Plan would be prepared by a qualified biologist prior to construction. Exclusion devices would be designed so they would not trap or entangle bats or birds. The Bat Exclusion Plan would include guidelines for appropriate date of exclusion and temperature parameters based on bridge type, geographic location, and species present. At the direction of a qualified biologist, exclusion devices would be installed after the maternity season but before hibernation. If overlapping resources are present (e.g., nesting birds), coordination between the Bat Exclusion Plan and any other relevant plans would occur. Measures would be monitored by a qualified biologist.

E. 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.

F. Hydroacoustic monitoring would occur during activities such as impact pile driving, hoe ramming or jackhammering, which could potentially produce impulsive sound waves that may affect listed fish species. Hydroacoustic monitoring would comply with the terms and conditions of federal and state Endangered Species Act consultations.

   The Hydroacoustic Monitoring Plan would describe the monitoring methodology, frequency of monitoring, positions that hydrophones would be deployed, techniques for gathering and analyzing data, quality control measures, and reporting protocols.

G. A qualified biologist would monitor in-stream construction activities that could potentially impact sensitive biological receptors. The biological monitor would be present during activities such as installation and removal of dewatering or diversion systems, bridge demolition, pile-driving and hoe-ramming, and drilling for bridge

foundations to ensure adherence to permit conditions. In-water work restrictions would be implemented.

H. 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**.

I. 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.

J. Protocol surveys would be performed for Western pond turtle (*Emys marmorata*) and Pacific fisher (*Pekania pennanti*) during the breeding season for each construction season (every year of construction). If species are discovered during construction, work would stop in the area of discovery and coordination with the appropriate resource agencies would occur.

K. 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 fish species.

L. To protect nesting or roosting northern spotted owl and marbled murrelet, suitable northern spotted owl or marbled murrelet nesting trees would be removed between September 16 and January 31. No construction activities generating noise levels greater than 90 decibels (dB) (with the exception of backup alarms) or activities generating sound levels 20 or more dB above ambient sound levels would occur until after July 9. Between August 6 and September 15, work that generates noise levels 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. Noise-related work windows would be lifted between September 16 and January 31. Further, no construction activities would occur within a visual line-of-sight of 131

feet or less from any known active nest locations for northern spotted owl or marbled murrelet.

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)* for all field gear and equipment in contact with water.

BR-4: Plant Species, Sensitive Natural Communities, and Large Diameter Trees

A. Seasonally appropriate, pre-construction surveys for sensitive plant species would be completed (or updated) 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 2018b).

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, Temporary High Visibility Fencing (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. If rare plants occur within the project footprint, seeds would be collected and/or individual plants would be transplanted (by a botanist familiar with the species) outside of the project footprint where impacts are not anticipated.

D. Where feasible, the structural root zone would be identified around each large-diameter tree (>2-foot 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. BMPs would be used to minimize soil compaction on access roads, work areas, and temporary access roads, where feasible, including use of rubberized track vehicles, rubber mats, and soil decompaction methods (soil tilling) to return access roads to pre-project conditions.

G. No fill that is of a greater density than existing surface soils would be placed against the trunks of existing large diameter trees.

H. A certified arborist or licensed forester monitor would be on-site during construction to monitor activities that could impact large diameter tree roots and advise on appropriate best management practices (BMPs) to be implemented, such as which roots to cut cleanly and placement of appropriate fill against trunks.

I. After completion, 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. The contractor would be required to prepare and submit a Temporary Creek Diversion System Plan to Caltrans for approval prior to any creek diversion. 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-2**). Water generated from the diversion operations would be 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-2L**). 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-4** for Temporary High Visibility Fencing (THVF) information.

Cultural Resources

CR-1: An Environmentally Sensitive Area (ESA) Action Plan would be implemented to protect cultural resources during construction. ESA's would be off limits to construction personnel and equipment.

CR-2: Monitoring of the ESA fencing and protection measures would be conducted during ground disturbing activities at Little Larabee Creek Bridge and Butte Creek Bridge locations. Native American monitoring and prehistoric archaeological monitoring would consist of visual inspection on foot around the project limits during construction, by either a Caltrans-appointed archaeological monitor, or a Caltrans Archaeological monitor and a Bear River Band of Rohnerville Rancheria-appointed monitor.

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 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 and Seismic/Topography, and Paleontology

GS-1: The project would be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and BMPs. New earthen slopes should be revegetated to reduce erosion potential.

GS-2: In the unlikely event that paleontological resources (fossils) are encountered during project excavations, 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.

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).

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-3: Pedestrian and bicycle access would be maintained on State Route 36 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 "Residue Containing Lead from Paint and Thermoplastic".

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

Hydrology and Floodplain

HF-1: No new structures would be placed which would result in a substantial backflow during a flood event.

HF-2: Existing bridge pilings would be removed to 5 feet below bed of channel, which would reduce resistance and blockage of water moving downstream in a flood event.

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 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 State Route 36 throughout the construction period.

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

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 2012-0011-DWQ) as amended by subsequent orders, which became effective July 1, 2013, for projects that result in a land disturbance of one acre or more, and the Construction General Permit (Order 2009-0009-DWQ).

Before any ground-disturbing activities, the contractor would prepare a Stormwater Pollution Prevention Plan (SWPPP) (per the Construction General Permit Order 2009-0009-DWQ) or Water Pollution Control Program (WPCP) (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* 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 would likely require the following temporary construction site BMPs:

- Any spills or leaks from construction equipment (i.e., fuel, oil, hydraulic fluid, and grease) shall be cleaned up in accordance with applicable local, state, and/or federal regulations.
- Water would be removed by means of dewatering the individual pipe piles or cofferdams.
- Water generated from the dewatering operations would be trucked off-site to an appropriate facility or treated and used on-site for dust control and/or discharged to an infiltration basin or used to irrigate agricultural lands.
- Fiber rolls or silt fences 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*. This plan complies with the requirements of the Caltrans Statewide NPDES Permit (Order 2012-0011-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 United States 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	**Yes**
Agriculture and Forest Resources	No
Air Quality	No
Biological Resources	**Yes**
Cultural Resources	**Yes**
Energy	No
Geology and Soils	**Yes**
Greenhouse Gas Emissions	**Yes**
Hazards and Hazardous Materials	**Yes**
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	**Yes**
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 checklist and

this document 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 standard measures that are 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), 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 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 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 action, 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 based on their location and the effect of the potential impact on the resource as a whole in the project area. 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 (§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 (CAL. PUB. RES. CODE § 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, nor would any proposed improvements be implemented. The "No-Build" alternative is not discussed further in this document.

2.1. Aesthetics

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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?				✓

Regulatory Setting

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic*, natural, scenic and historic environmental qualities" (CA Public Resources Code [PRC] Section 21001[b]).

Environmental Setting

The proposed project is in Humboldt County on State Route (SR) 36, a rural two-lane highway which travels between the northern California coast to the Central Valley. Typical views on SR 36 range from rural residential, agricultural, densely forested valley floor that parallels the Van Duzen River, to steep mountainous slopes with dense coniferous forests with patches of open grasslands on more exposed southern facing slopes. The County of Humboldt considers the entire route to have scenic resources. These scenic resources include rural communities, forest land, agricultural land, the Van Duzen River, wildlife and wildlife habitats. The SR 36 is eligible for California State Scenic Highway status.

Hely Creek Bridge is adjacent to Van Duzen County Park which is 12 miles east of U.S. Highway 101. The park has old-growth redwood forest, a popular swimming hole, and camping facilities. The park has an annexed section with a trail connecting the two areas which run parallel to the highway at Hely Creek. The Hely Creek Bridge is approximately 300 feet from the Van Duzen River and is situated within a riparian redwood forest. The bridge is short and curved, maneuvering between large redwood trees. Grizzly Creek Redwoods State Park is a few miles to the east. There are two major types of viewer groups for highway projects: highway neighbors and highway users. Highway neighbors at Hely Creek include day hikers along the county park trail.

Little Larabee Creek Bridge is a few miles east of the community of Bridgeville, located along a forested section near the Van Duzen River. Little Larabee Creek flows into the Van Duzen River; however, the Van Duzen River is not visible from the bridge due to screening by dense tree canopy. Views of the river open up a few hundred feet to the west. A residence is located off the highway to the south, with the driveway on the southwest side of the bridge. The surrounding area has views of trees and vegetation, a wooden property fence and a large gravel pullout. Little Larabee Creek is partially visible to travelers heading west while crossing the bridge. Highway neighbors include the residence and a Caltrans Maintenance Station above the highway on the northeast side of the bridge.

The easternmost bridge is Butte Creek Bridge which is in Little Larabee Valley. There is some rural residential development in this area, with buildings in the distance. Pine, grassland, and oaks are prominent, with riparian trees lining Butte Creek. The bridge is not apparent; the roadway remains narrow with no shoulders and is flanked with metal beam guardrail on both sides. Highway neighbors at Butte Creek include a private property with an outbuilding which has views of the bridge.

The visual quality of the corridor at each of the bridge locations is moderately high due to the rural quality, scenic views, and native vegetation. Although the area is very scenic, there are no unique features at any of the bridge locations.

Discussion of CEQA Environmental Checklist Question 2.3a-d)—Aesthetics

A "*No Impact*" determination was made for Questions a), b), and d) listed within the CEQA Environmental Checklist—Aesthetics section. Determinations were based on scope, description, and locations of the proposed project, as well as the *Visual Impacts Assessment* dated March 11, 2020 (Caltrans 2020h). There are no scenic vistas or scenic resources that would be affected by the proposed project and the project would not result in new sources of light and glare. See below for further discussion of the "*Less Than Significant Impact*" determination made for Question c).

> ***c) In non-urbanized areas, would the project 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.)***

The proposed project would result in minor changes to visual character and quality at each bridge location.

At the Hely Creek Bridge, the new rail element wall would be visible to highway travelers. The visual impact would be minimized with the use of an earth-toned stain, which would allow the wall to recede into the landscape. Dense vegetation exists beyond the construction zone, so the removal of trees and vegetation is not anticipated to result in a noticeable loss. Impacts at this location would be minimal.

At Little Larabee Creek Bridge, the two new retaining walls would affect visual character and quality in the area, as there are currently no upslope retaining walls nearby and very few retaining walls along the entire route. The walls would be new elements introduced into the landscape. The wall on the southwestern side of the bridge would remain in the shadow of the north facing slope. Due to the shadow, length, and curve of this wall, it is not anticipated to be very apparent. The longer wall on the northeastern side would be more visible on a concave curve with more exposure to the sun, however it is not expected to cause a substantial visual impact. Recommendations for aesthetic treatment would be considered in the design phase. Impacts at this location would be minimal to very low.

At the Butte Creek Bridge, visual changes would be negligible.

At all three bridges, the light color of the concrete bridge decks may contrast with the asphalt paving. Over time, concrete bridge decks can darken and are not noticeable to most travelers. Incorporation of the see-through bridge rails would be an improvement by providing a continuous view of the landscape. The ability to view the creek from the highway would enhance the traveler's awareness of their surroundings. The new galvanized rails can be colorized to blend in with the natural landscape.

Overall, the visual character of the proposed project would be compatible with the existing corridor. The project would not substantially degrade the visual character or quality at any of the sites or surrounding locations. Given this, a "Less Than Significant Impact" determination was made for Question c).

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

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 regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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, or cause rezoning of, forest land (as defined in 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))?				✓

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: d) Result in the loss of forest land or conversion of forest land to non-forest use?				✓
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. At Hely Creek Bridge, the State right of way would be expanded. Caltrans would acquire 1 acre of a 244-acre parcel in the Timber Production Zone. This would not result in a use that is incompatible with timber production. The project would widen and/or replace existing bridge structures and would not cause changes to zoning or land use at any of the bridge locations. Therefore, impacts to Agriculture and Forestry are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

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	Potentially Significant Impact	Less Than Significant with Mitigation	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 *Air Quality and Noise Analysis for the Three Bridges Project* dated February 7, 2020 (Caltrans 2020b). Humboldt County is categorized as an attainment/unclassified area for all current National Ambient Air Quality Standards (NAAQS). Therefore, transportation conformity requirements do not apply. The project would not result in changes to traffic volumes, fleet mix, speed, or any other factor that would result in increase of emissions. Potential impacts to air quality are not anticipated.

There would be temporary construction emissions associated with the project. For more information on greenhouse gas emissions, please see Section 2.8—Greenhouse Gas Emissions.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.4. Biological Resources

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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	Potentially Significant Impact	Less Than Significant with Mitigation	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 (Biological Resources-Section 2.4), the topics are separated into Natural Communities, Wetlands and Other Waters, Plant Species, Animal Species, and Threatened and Endangered Species. Plant and animal species listed as "threatened" or "endangered" are covered within the Threatened and Endangered section. 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 Plant and Animal sections.

Natural Communities

CDFW maintains records of sensitive natural communities (SNC) in the California Natural Diversity Database (CNDDB). SNC 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 USC 1344
- Federal: Executive Order for the Protection of Wetlands (EO 11990)
- State: Sections 1600–1607 of the California Fish and Game Code (CFGC)
- State: Porter-Cologne Water Quality Control Act, §13000 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), United States Code 16 (USC), Section 1531, et seq. See also 50 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 C.F.R. Sections 1500 through 1508.
- California Environmental Quality Act (CEQA), California Public Resources Code, Sections 21000–21177.

Animal Species

The USFWS, NMFS, and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special status animal species. The primary laws governing animal species include:

- NEPA, 40 C.F.R. Sections 1500 through 1508.
- CEQA, California Public Resources Code, Sections 21000–21177.
- Migratory Bird Treaty Act, 16 U.S.C. Sections 703–712.

- Fish and Wildlife Coordination Act, 16 U.S. Code Section 661.
- Sections 1600–1603 of the California Fish and Game Code.
- Sections 4150 and 4152 of the California Fish and Game Code.

Threatened and Endangered Species

The primary laws governing threatened and endangered species include:

- FESA, United States Code 16 (USC), Section 1531, et seq.
  See also 50 CFR Part 402.
- CESA, California Fish and Game Code, Section 2050, et seq.
- CEQA, California Public Resources Code, Sections 21000–21177.
- Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S. Code § 1801.

Invasive Species

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

Environmental Setting

A *Natural Environment Study* (NES) (Caltrans 2020f) was prepared for the project. To comply with the provisions of various state and federal environmental statutes and Executive Orders, potential impacts to regulated habitats and special status plants and animals were investigated. Field reviews were conducted to identify existing habitat types and natural communities, potential jurisdictional waters and wetlands, rare species and/or factors indicating the potential for rare species (i.e., presence of suitable habitat), sensitive water quality receptors, and existing ambient noise levels. Airborne noise and water quality assessments were also examined to evaluate potential impacts to terrestrial and aquatic species from proposed construction activities.

The Environmental Study Limits (ESL) were established for the purpose of conducting surveys within the general project area. For species requiring FESA consultation, an "action area" is defined and includes those areas that would be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR §402.02). The action area is determined, in part, by the activities associated with the proposed action and the site geography, topography, and hydrology, along with an understanding of the distribution, habitat requirements, phenology, and vulnerability of federally listed species

potentially occurring near the proposed action. The action area is described specific to each species, where applicable, below. The "project footprint" referenced in this document describes the area where construction activities would occur, likely to be directly impacted. Each bridge location has a unique ESL, action area and project footprint.

The project is in Humboldt County in the Owl Creek, Redcrest, Bridgeville and Larabee Valley in the United States Geological Survey (USGS) Quadrangles. Forest habitat, including timberlands and protected County and State Park lands, are a prominent feature near both Hely Creek and Little Larabee Creek bridge locations. A change to drier habitat types, with open rolling hillsides that support oak woodlands and grasslands, becomes the dominant habitat within Larabee Valley and continuing to Butte Creek Bridge—the easternmost bridge location. The project area is influenced by the coastal marine climate, giving this region mild, foggy summers and wet winters, most notably in the westernmost bridge location at Hely Creek. The eastern portion of the project area experiences lesser climate stabilizing effects of fog and higher precipitation.

All three bridge locations occur in the Van Duzen River Basin and span tributaries to the Van Duzen River. The environmental setting is characteristic of the Van Duzen River Basin located within the Northwestern Region of the California Floristic Province, specifically in the Outer North Coast Ranges sub-region (Baldwin et al., 2012). This river is a major tributary to the larger Eel River which flows into the Pacific Ocean approximately 15 miles south of Eureka, in Humboldt County.

The Van Duzen River Basin is physically located within the Coastal, Central, and Eastern belts of the Franciscan Complex of the Coast Ranges geomorphic province. The Van Duzen River watershed, a highly active tectonic setting combined with erosive terrain and high rainfall amounts, is one of the most erodible watersheds in the United States (U.S. EPA 1999). This combination produces a high incidence of landslides adjacent to stream channels, including earthflows and debris slides.

The ESL for all locations include perennial creeks along SR 36 that drain directly to the Van Duzen River. The project area is within the Lower Eel Watershed (Hydrologic Unit Code 18010105) (USGS 2019). Hely Creek resides in the lower Van Duzen River subbasin, while Larabee Creek is within the middle subbasin and Butte Creek in the upper subbasin. Hely Creek drains a watershed basin of approximately 3.6 square miles of forested terrain. The creek flows southwest to its confluence with the Van Duzen River approximately 300 feet downstream of the bridge. Watershed elevations range from 2,400 feet to approximately 80 feet at the bridge. Little Larabee Creek drains a watershed basin of approximately 13.3

square miles of forested terrain. The creek flows northwest to its confluence with the Van Duzen River approximately 350 feet downstream of the bridge. Watershed elevations range from 4,000 feet to approximately 625 feet at the bridge. Butte Creek and its tributaries (which include Horse, Swift, and Mule creeks) drain a watershed basin of approximately 15.7 square miles of forested terrain. Butte Creek flows north upstream of the bridge and then northeast to its confluence with the Van Duzen River approximately one mile downstream of the bridge. Watershed elevations range from 4,000 feet to approximately 2,300 feet at the bridge.

The Van Duzen River is one of the few remaining un-dammed rivers in California and is recognized for its scenic, recreation, and fish and wildlife values. To help protect these values, sections of the river were added to the State Wild and Scenic River system in 1972. This river system was listed by the U.S. Environmental Protection Agency (U.S. EPA) under the Total Daily Maximum Load (TMDL) program as sediment impaired and water quality limited. The TMDL listing is due to impacts of sedimentation/siltation on beneficial uses, including maintenance of critical aquatic habitat which supports anadromous salmonids and other fish species.

Plant Species

Existing occurrence records of special status plant species were consulted to determine which special status plant species may occur in the project area. Several special status plant species could potentially occur within the region (see Special Status Species Table in Appendix F), however the majority have not been documented within or adjacent to the ESL at any of the bridge locations. Botanical surveys were conducted during the appropriate time of year when potentially occurring rare plants are present and identifiable. The surveys followed the *CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018b). A comprehensive species list, which documents all species observed during protocol-level surveying, is provided in Appendix G. Floristic surveys detected two special status plant species within the ESL: Leafy-stemmed miterwort (*Mitellastra caulescens*) and Buxbaum's sedge (*Carex buxbaumii*), which are discussed below. Additionally, plant species with FESA and/or CESA listing status are discussed below.

Buxbaum's Sedge

Buxbaum's sedge (*Carex buxbaumii*) has a CRPR of 4.2 and is listed on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2020b). This species, although not federally or state listed, is a plant of limited distribution in California. Species with CRPR of

4 are not considered "rare" from a statewide perspective but are uncommon enough that their status should be monitored regularly.

Buxbaum's sedge was observed in the ESL at the Little Larabee Creek Bridge site. This species is noted to occur in bogs and fens, meadows and seeps, and marshes and swamps. The species was detected during wetland delineations conducted for this project. Following further review of the site, during the non-flowing time of the year, a patch of 3 individual plants growing just east of the existing bridge was noted.

Humboldt County Milk-vetch

Humboldt County milk-vetch (*Astragalus agnicidus*) is a state endangered, coarse leafy perennial herb that blooms in the summer to early fall. The geographical distribution of this species in California includes the outer North Coast Ranges in Mendocino and Humboldt counties (Hickman 1996). It ranges in elevation from 635 to over 2,624 feet (180 to 800 meters) (CNPS 2018). It is documented in several locations in Mendocino County, however from only two watersheds (Larabee Creek and Bear Butte) in Humboldt County, with the populations on Humboldt Redwood Company land being the largest (CDFW 2019a). These populations are very close to each other within the Larabee Creek drainage (which is on the mainstem Eel River about ten miles to the southeast of the project) and may actually be part of a single population. It is described as occupying disturbed areas in broadleaved upland forest, North Coast coniferous forest, and open soil in woodlands (Baldwin et al., 2012).

The nearest CNDDB record of this species is 10 miles southeast of the project area. While the project area may support suitable habitat for Humboldt County milk-vetch, the species was not detected during floristic surveys conducted within the ESL.

Kneeland Prairie Pennycress

The Kneeland Prairie pennycress (*Noccaea fendleri* ssp. *californica*) is a federal endangered perennial herb in the mustard family *(Brassicaceae*) that grows from 3.7 to 4.9 inches tall. The global distribution of the Kneeland Prairie pennycress is restricted to three small patches of serpentine outcrop, encompassing about 2 acres of suitable habitat within Kneeland Prairie in Humboldt County. The known population occurs approximately 15.3 miles north of the Hely Creek Bridge site (CDFW 2019a) on Humboldt Redwood Company land.

A review of the habitats located at all three bridge sites indicates that serpentine substrate is not present ESL at any of the bridge locations. In addition, only the Butte Creek location contains grassland habitat that this species requires. Although highly likely to occur, no

detections were reported during seasonally appropriate floristic surveys completed within the ESLs in 2019 for Kneeland Prairie pennycress and other regionally occurring special status plants.

Lassis Lupine

Lassics lupine (*Lupinus constancei*) is a state endangered plant species. Lassics lupine is a low growing perennial plant of the legume family (*Fabaceae*) with rose and pink flowers which typically blooms in July but may bloom as early as late May. Lassics lupine is only found near the summits of remote mountains in northern California called the Lassics, which have unique serpentine-influenced soils. The Lassics are in Humboldt and Trinity counties within the Six Rivers National Forest (CDFW 2018c).

The Lassics lupine occurs on serpentine barrens at 5,528–5,577 feet (1,685–1,700 meters) on Mount Lassic approximately 9.5 miles southeast from the Butte Creek Bridge location. Since this species is restricted in range to Mount Lassic, and survives only on gravel barrens and serpentine soils, habitat for this species is not present in the ESL at any of the bridge locations.

Seasonally appropriate floristic surveys were completed within the ESLs in 2019 for the Lassics lupine and other regionally occurring special status plants and no detections were reported.

Leafy-stemmed Mitrewort

Leafy-stemmed mitrewort (*Mitellastra caulescens*) has a California Rare Plant Rank (CRPR) of 4.3 and is listed on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2020b). This species, although not federally or state listed, is a plant of limited distribution in California. Species with CRPR of 4 are not considered “rare” from a statewide perspective, but they are uncommon enough that their status should be monitored regularly.

Leafy-stemmed mitrewort was observed in the ESL at the Hely Creek Bridge site. This species generally occurs in broad-leaved upland forest, lower montane coniferous forest, meadows and seeps, and North Coast coniferous forest. The species was mapped just north of Hely Creek Bridge, on the eastern bank. The occurrence consisted of 15 individual plants. The plants were noted to be small, with some seedlings, spreading by rhizome. Most of the population was within a 2-foot by 2-foot area, with one plant approximately 8 feet from the larger population.

Water Howellia

Water howellia (*Howellia aquatilis*) is a federal threatened annual, aquatic herb in the bellflower family (*Campanulaceae*). The species is currently under review by USFWS for proposed removal of the species from the Federal List of Endangered and Threatened Plants due to updated scientific and commercial data that indicate threats to water howellia identified at the time of listing in 1994 are not as significant as originally anticipated (50 CFR 17; 2019).

Water howellia plants typically inhabit small, vernal freshwater wetlands and ponds with an annual cycle of filling with water in spring and drying up in summer or autumn (USFWS 2019). Water howellia occupies habitats across its range that vary in the extent of canopy cover, suggesting some flexibility in light tolerance. Many water howellia occurrences are surrounded or nearly surrounded by forested vegetation, with numerous observations reporting water howellia occupying shaded portions of ponds and wetlands.

Water howellia has been identified approximately 14.3 miles south of Butte Creek ESL along Alderpoint Road and Dobbyn and North Dobbyn Creeks. This occurrence was observed in 1893, with limited details provided in the database (CDFW 2019a).

Seasonally appropriate floristic surveys were completed within the ESLs in 2019 for water howellia and other regionally occurring special status plants and no detections were reported.

Western Lily

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 (*Picea sitchensis*) at elevations ranging from 6 to 607 feet (2-185 meters) (CDFW 2019a). 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.

Seasonally appropriate floristic surveys were completed within the ESLs in 2019 for western lily and other regionally occurring special status plants and no detections were reported. CNDDB records indicate the closest occurrence of western lily is approximately 17 miles northwest near Humboldt Bay National Wildlife Refuge. This occurrence was observed as recently as 1938 but is now believed to be extirpated (CDFW 2019a).

Animal Species

Record searches and habitat assessments were conducted to determine whether special status wildlife species have the potential to occur in the ESL at any of the bridge locations. Species that were queried but do not have potential habitat in the project area are not discussed in this document as CEQA, FESA, and CESA only require analysis of species that could potentially be affected by a project. Special status wildlife species with the potential to occur in the ESLs, based on queries and the rationale on whether or not there was potential habitat in the ESLs, are discussed further below (Appendix F—Special Status Species Table).

Amphibians

Several special status amphibians could potentially be present within the project ESLs, including Foothill yellow-legged frog (FYLF) (*Rana Boylii*), Northern red-legged frog (NRLF) (*Rana aurora*), as well as additional species identified in the CNDDB RareFind Database including Del Norte salamander (*Plethodon elongatus*) and southern torrent salamander (*Rhyacotriton variegatus*).

The North Coast clade of Foothill yellow-legged frog (FYLF) (*Rana Boylii*) is a Species of Special Concern (SSC). The species is characteristically found very close to water in association with perennial streams and ephemeral creeks that retain perennial pools through the end of summer. The CNDDB RareFind Database reports that this species has been detected at Butte Creek and numerous locations throughout the Van Duzen watershed.

Three surveys for FYLF were conducted between April and June 2018 for preliminary geotechnical drilling at Little Larabee Creek. Surveys were conducted from the confluence of Little Larabee Creek and the Van Duzen River to approximately 300 feet upstream of the bridge and along the roadside ditch. Potential breeding habitat may exist within this stretch of Little Larabee Creek; however, no egg masses were observed. A total of six adult FYLFs were identified over the three surveys, all of which were observed within approximately 5 feet of flowing water in Little Larabee Creek beneath the bridge. Additional surveys for the species were conducted for the proposed project at all bridge locations. The species was observed at all three bridge sites, with two egg masses detected at Butte Creek.

Northern red-legged frogs can be found in a variety of breeding habitats and aquatic non-breeding habitats such as ephemeral, intermittent, and perennial creeks and streams, reservoirs, springs, wetlands, and man-made impoundments. This species is also known to disperse to upland habitats, which can be triggered by both periods of wet weather and dry weather when breeding pools and other occupied aquatic habitats dry up and are no longer suitable (CDFW 2019b).

Both the Del Norte salamander and the southern torrent salamander are more restricted in range to late seral forests, with a developed multistory canopy. The Del Norte salamander is often found in talus and rock rubble of closed, multi-storied canopy forests while the southern torrent salamander prefers well-shaded permanent streams and seepages.

Other than FYLF, no specific surveys were conducted for other amphibian species by Caltrans biologists; however, Northern red-legged frogs have been observed within the project ESLs. There are CNDDB occurrences of Del Norte salamander approximately 16 miles to the north of Hely Creek ESL and southern torrent salamander approximately 2.3 miles southeast of the Hely Creek ESL.

Habitat in the project areas include areas within and adjacent to the creeks, as well as upland dispersal habitat for Northern red-legged frogs. All species, especially Northern red-legged frog, could be present during construction for this project.

Bat Species

In the mild northern California coastal climate, bats are present year-round. In colder areas, they are often migratory. In California, fourteen species of bats are either considered Species of Special Concern (SSC) by CDFW or currently proposed for such status. California Fish and Game Code Section 4150 provides further protection to bats (non-game mammals) from take or possession.

All 25 bat species that occur in California use one or more natural features or anthropogenic structures for roosting and 15 species are known to use bridges. Bats also forage in habitats near bridges such as riparian communities and open water, and along transportation corridors (e.g., roadside tree canopies).

Bats use bridge cavities for roosting during the day and for bearing and rearing young (i.e., maternal roost) typically from February through August. They may also use bridges in winter as hibernacula. At night, bats often roost in the openings on the concrete undersides of bridges. Night roosts, which are used from approximately sunset to sunrise, are sites

where animals congregate to rest and digest their food between foraging bouts. Night roosts also serve as important stopping points during migration and appear to have a social function.

In addition to bats roosting inside or on bridge structures, bats can roost in culverts, on rocky banks, or in nearby trees such as those in adjacent riparian habitat. Trees can serve as potential roosting sites for foliage roosting bats (e.g., hoary bats [*Lasiurus cinereus*], Western red bats [*Lasiurus blossevillii*], and many species of crevice roosting bats). Buildings and other structures adjacent to a transportation project may also provide potential habitat for crevice or cavern roosting species.

Two species of bats considered to be SSC by CDFW were documented within the twelve-quad database searches: Townsend's big-eared bat (*Corynorhinus townsendii*) and Western red bat. Both SSC have the potential to occur within the ESLs.

The project location is also within range of California myotis (*Myotis californicus*), fringed myotis (*Myotis thysanodes*), hoary bat, little brown bat (*Myotis lucifugus*), Mexican free-tailed bat (*Tadarida brasiliensis*), silver-haired bat (*Lasionycteris noctivagans*), Yuma myotis (*Myotis yumanensis*), and several other species (CDFW 2019A). Of these, Mexican free-tailed bat, little brown bat, and Yuma myotis are commonly found on bridges and fringed myotis and Townsend's big-eared bat are occasionally found on bridges. All these species are known to use bridge structures for day roost, maternity roost, and/or night roost where habitat is suitable (Erickson et al., 2002). California myotis, big brown bat (*Eptesicus fuscus*), hoary bat, little brown bat, long-eared myotis (*Myotis evotis*), long-legged myotis (*Myotis volans*), Townsends big-eared bat, and Yuma myotis have been historically documented roosting within Redwood trees (Zielinski et al., 2007). Hoary bat, silver-haired bat, and Western red bat are known to roost in trees exclusively.

Bat habitat assessments were conducted at all bridge locations on January 22 and April 15, 2019, by Caltrans biologists. This included a thorough review of the bridge structure for bat presence and sign and the potential for the bridges to support maternity or other colonial roosting bats. This assessment also reviewed surrounding vegetation to determine if tree roosting bats and bat foraging habitat could be present within the ESLs. Additional presence/absence surveys were conducted throughout the 2019 survey season, summarized in Table 2.

Table 2. Bat Survey Results

Survey Date and Purpose	Hely Creek	Little Larabee Creek	Butte Creek
01/22/2019 and 4/15/2019: Bridge Type, Habitat Assessment, Bat Signs	Concrete Slab Bridge lacks crevices for colonial roosting, limited sun exposure Small amount of guano	Concrete Slab Bridge lacks crevices for colonial roosting. No guano reported	Concrete Slab Bridge lacks crevices for colonial roosting, limited sun exposure. Night roosting evidence observed
04/18/2019: Presence/Absence	Roosting during the day at southeast side	None	None
04/23/2019: Presence/Absence	None	None	None
05/10/2019: Presence/Absence	None	Townsend's day roosting on southeast side	None
05/23/2019: Presence/Absence	None	Townsend's day roosting on southeast side	None
06/05-06/2019: Presence/Absence	None	Townsend's day roosting on southeast side	None
07/10/2019: Presence/Absence	None	Townsend's day roosting on southeast side	None

Surveys detected bat species and reported signs of bat roosting at all three bridge sites. Bat assessments indicated that although bridges are being utilized by singular individuals or small groups (visually detected or inferred due to presence of guano), maternity and other colonial roosts at the bridges were not present and believed unlikely due to the concrete slab construction at all three of the bridges and lack of suitable crevices observed. Slab structures rarely provide habitat value unless the structure has deterioration hollows, expansion joints, or other similar feature that provides a day roost crevices or hollows. Approximately seven percent of the known roosts are of a slab design (Erickson et al., 2002).

Although bats were not observed outside the bridge structures, conifer forests and oak woodlands offer additional roosting habitat for bats with abundant foraging habitat along perennial creeks associated riparian and adjacent grasslands present in the ESLs.

Coastal Cutthroat Trout

Coastal cutthroat trout (*Oncorhynchus clarkii*) is a SSC. This species can be found in small, low gradient coastal streams and estuaries from the Eel River to the Oregon border. Their habitat needs include shaded streams with water temperatures less than 64 degrees Fahrenheit (18 degrees Celsius) and small gravel for spawning. They are anadromous and spend part of the life cycle in the ocean, returning to fresh water to spawn.

Focused surveys for cutthroat trout have not been conducted for the proposed project; however, summer surveys were conducted for salmonids in 2019. No cutthroat trout were observed during the surveys but could be present in the perennial creeks associated with this project.

According to the CNDDB RareFind Database, the coastal cutthroat trout range extends to all three bridge locations. The closest occurrence of the species is approximately 4.6 miles north of Hely Creek Bridge from the Middle Fork Yager Creek.

Migratory Birds

Trees and vegetation present at all three bridge locations provide habitat for migratory birds. Several bird species were detected during site visits in 2019. A comprehensive list of avian species observed can be found in the *Natural Environment Study* (NES) (Caltrans 2020f) for this project.

Northern Goshawk

The Northern goshawk (*Accipiter gentilis*), a SSC, is the largest of the three accipiters of North America. Northern goshawks nest in mature and old-growth forests with more than 60% closed canopy. Northern goshawks usually choose the largest trees in a stand for nest sites, placing the nest next to the trunk on a large horizontal branch or in a primary or secondary crotch. Goshawks hunt in the forest, along riparian corridors, and flash through forests chasing bird and mammal prey, pouncing silently or crashing feet first through brush to grab quarry. Northern goshawks eat a wider range of prey than other accipiters, including birds, mammals, and reptiles, as well as insects and occasionally carrion (Squires and Reynolds, 1997). Tree and ground squirrels, snowshoe hares, jackrabbits, and cottontails are the main mammal prey.

No species-specific surveys were performed for this species. CNDDB lists the nearest observations 11.2 miles east of the project area. The eBird database lists no detections within 2.5 miles of the ESLs (eBird 2017). No Northern goshawk or their nests were observed in the ESLs at all three bridges.

Pacific Fisher

The West Coast Distinct Population Segment (DPS) of Pacific fisher (*Pekania pennanti*) is a SSC and some California populations are regulated as state and federally threatened; however, the population that occurs in the project region is not listed under the FESA or CESA.

The fisher is one of the larger members of the weasel family (*Mustelidae*) and are opportunistic, generalist predators with a diverse diet. 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 (Hatler et al., 2003). The fisher requires intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. They 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) (Zielinski et al., 2006). Fishers are generally solitary animals, except during the breeding season (Center for Biological Diversity, 2014). They mate between February and May (usually late March), giving birth the following March.

The CNDDB RareFind Database shows the nearest fisher detection approximately 2 miles east of the Little Larabee Creek Bridge ESL, located in the Rodgers Creek area. This occurrence was observed in 1894 noted to have been trapped and taken from the location. A more recent reporting of this species was detected in 2009, at the Butte Creek headwaters, about 2.1 miles southwest of Highway 36. Protocol-level surveys were not performed for this species. The ESLs were surveyed for trees suitable for fisher resting habitat and maternity den sites. Trees suitable for fisher den sites include conifers (≥ 22 inches diameter at breast height [DBH]) and hardwoods (≥ 18 inches DBH), not smaller trees. Day resting sites could include branches, platforms, and cavities of live trees. Suitably sized trees with the following characteristics were considered as potential fisher den sites:

- Any broken-topped tree with a minimum diameter at the break of 18 inches or larger;
- Trees with one or more limbs 12 inches or greater in diameter;

- Trees with a cavity (or void within a tree bole or large limb) with a relatively small opening; includes all cavities with entrances 2.5 to 6 inches across the smallest direction (for example, a vertical slit-like opening 4 inches across would count, as would a more circular entrance).

The ESLs at all three bridges contain numerous potential resting locations and large hollow trees with suitable denning cavities. Although fisher would likely prefer habitats farther away from areas with human disturbance outside of the Caltrans right of way, it is possible they could use this habitat for foraging. However, as the highway is nearby, it is unlikely fisher would use this habitat for denning. No signs of fisher occupation were observed within the ESLs at all three bridge sites.

Pacific Lamprey

A SSC, Pacific lamprey (*Entosphenus tridentatus*) are parasitic, anadromous fish (born in freshwater streams, migrate out to the ocean, and return to fresh water as mature adults to spawn). Pacific lamprey ammocoetes (the larval stage) start life under gravel in freshwater streams. After a few weeks they emerge and drift downstream until they find a low velocity backwater filled with silt or mud where they burrow and live as filter feeders for up to seven years. Metamorphosis to macrophthalmia (juvenile phase) occurs gradually from July to November, then they begin their downstream migration in late summer-early fall when rains increase stream flows that passively carry fish to mainstem rivers and eventually the ocean. As adults in the ocean, Pacific lamprey are parasitic and feed on the body fluids and blood of marine fishes. After spending one to three years in the marine environment, they stop feeding and migrate back to fresh water between February and June. They overwinter in fresh water until they spawn the following year between March and July, then die within days after spawning (Calfish 2016).

Focused surveys for Pacific lamprey have not been conducted for the proposed project; however, summer surveys were conducted for salmonids in 2019. No lamprey were observed during the surveys.

The CNDDB Rarefind Database indicates the closest occurrence to the project is approximately 15 miles to the northwest of the Hely Creek Bridge ESL. The location is described as occurring in Salmon Creek, from its mouth in South Humboldt Bay to about 3,280 feet (1,000 meters) upstream of Little Salmon Creek. The site consisted of ammocoetes and a single redd that was documented during salmon spawning surveys in March 2013. Suitable lamprey habitat has been observed in the ESLs at all three bridges.

Sharp-shinned hawk, Osprey, and Cooper's hawk

Forest and riparian habitats, such as those found within the project area, may provide habitat for sharp-shinned hawk (*Accipiter striatus*), osprey (*Pandion haliaetus*), and Cooper's hawk (*Accipiter cooperii*). These species are treated as "taxa to watch" by CDFW due to their former inclusion on special concern lists. While they have demonstrated population declines, they are still fairly common and widespread in the state and are currently at a low risk for extinction.

Sharp-shinned Hawks breed in deep forests. During migration, they prefer open habitats or high in the sky, migrating along ridgelines. During the nonbreeding season they hunt small birds and mammals along forest edges and sometimes at backyard bird feeders.

Osprey feed almost exclusively on fish and inhabit areas near shallow waters, either fresh or salt, which offer a steady source of food. Nests are usually built on snags, treetops, or crotches between large branches and trunks, on cliffs or human-built platforms. They are placed in open surroundings for easy approach and elevated for safety from ground predators. Nesting habitat must include an adequate supply of accessible fish within a maximum of about 12 miles of the nest.

Cooper's hawks reside in mature forest, open woodlands, wood edges, river groves and nest in coniferous, deciduous, and mixed woods, typically those with tall trees and with openings or edge habitat nearby. They may also be found among trees along rivers through open country, and increasingly in suburbs and cities where some tall trees exist for nest sites.

All three of these species occur throughout the Van Duzen and greater Eel River watershed. CNDDB (CDFW 2019a) reports the closest sharp-shinned hawk approximately 2.5 miles southeast from Hely Creek in the Root Creek drainage. The closest reported Cooper's hawk is documented in Flannagan Creek approximately 1 mile north of Hely Creek. An osprey nest site was reported on the west side of the Van Duzen River in Grizzly Creek State Park approximately 1.5 miles southeast of Hely Creek. No nests or observations of the species were reported within the ESLs of all three bridge sites.

Sonoma Tree Vole

Sonoma tree vole (STV) (*Arborimus pomo*) is a state SSC distributed along the North Coast of California from Sonoma County to the Oregon border. It is reported to be rare to uncommon throughout its range, but the difficulty of locating nests and capturing individuals make abundance difficult to assess. Sonoma tree voles (STV) occur in old-growth and other forests, mainly Douglas-fir, redwood, and montane mixed hardwood-conifer habitats.

Sonoma tree voles feed on needles of Douglas-fir and grand fir. Nests of Douglas-fir needles are constructed in trees, preferably tall trees. Nests may be situated on the whorl of the limbs against a trunk or at outer limits of branches. In young second-growth Douglas-fir, the broken tops of trees frequently are used for nesting (Maser et al., 1981). STV breeds year-round, but most breeding is from February through September. The spotted owl is the main predator of Sonoma tree voles throughout the geographical distribution.

The closest CNNDB detection of the STV is approximately 2.1 miles from the project area. This occurrence was noted on a southwest facing slope and was observed in 1993.

Trees within the ESLs at all three bridge locations were evaluated based on specific habitat requirements (Brylski and Harris, 1999; Forsman et al., 2016) for their potential to support STV. Surveys occurred on February 16, 26, and March 8, 2021. Individual trees (all Douglas-fir and pine species with a diameter of 2 feet or greater) were examined for signs of STV presence. Trees were also surveyed with binoculars to determine if there were any structures or nests throughout the tree. At the Hely Creek Bridge site, seventeen Douglas-fir trees were surveyed. At Little Larabee Creek Bridge, ten large and several small Douglas-fir trees, in addition to two Monterey pines, were surveyed. At Butte Creek Bridge, several small Douglas-fir trees were surveyed—these trees were all very small. All surveyed trees had clear view to the top and no structures to support STV were observed. No signs of STV were detected at any of the bridge locations; thus, surveys conclude that trees within the project ESLs lack the structure to support STV and are unoccupied by STV.

Western Pond Turtle

The Western pond turtle (WPT) (*Emys marmorata*) is a California SSC. Western pond turtle range throughout the state of California, from southern coastal California and the Central Valley east to the Cascade Range and Sierra Nevada.

The WPT occurs in a variety of permanent and intermittent aquatic habitats, such as ponds, marshes, rivers, streams, and ephemeral pools. They require suitable basking and haul-out sites, such as emergent rocks, large instream woody debris, or floating logs. These turtles require an upland nesting site in the vicinity of the aquatic habitat, typically created in grassy, open fields with soils that are high in clay or silt fraction. Egg laying usually occurs between March and August. This species may spend the winter in an inactive state, on land or in the water, or, in other cases, may return active and in the water throughout the year (Jennings and Hayes, 1994).

No species-specific surveys were conducted for WPT, but the species could be present at all three bridge sites. This species was observed during field visits at Butte Creek—although one of the occurrences was noted to be a deceased juvenile. The CNDDB RareFind Database has numerous reports of this species in the Van Duzen watershed, including one in the Van Duzen River at the confluence with Hely Creek.

Threatened / Endangered Species

American Peregrine Falcon

American peregrine falcon (*Falco peregrinus*), although delisted from both the federal and state Endangered Species Acts, is a CDFW fully protected species. The peregrine falcon feeds mainly on birds (doves, shorebirds, pigeons, ducks), and some mammals, such as bats, rabbits, and rodents, and occasionally insects, reptiles, and fish. Peregrine falcons are usually found alone or in breeding pairs, with each pair maintaining a breeding territory and often remaining together throughout the year. Nesting in northern California may begin in March, with young leaving the nest by early July. Although peregrine falcons often nest on cliff faces, they will select a wide variety of other structures for nest sites, including buildings, bridges, electrical transmission structures, and occasionally the abandoned nests of large raptors or ravens (White et al., 2002).

No American peregrine falcons were observed within the ESLs of the three bridges during focused bird surveys. CNDDB lists one observation approximately 1.4 miles to the southwest of the Hely Creek ESL. This nest site is located on the south side of the Van

Duzen River. A second occurrence is reported in the Little Larabee Creek watershed just east of the highway, near McClellan Mountain Road, approximately 3 miles northwest from the Butte Creek ESL.

Bald Eagle

Though the bald eagle (*Haliaeetus leucocephalus*) was delisted from federal status, it is still considered state endangered. They remain federally protected by the Bald and Golden Eagle Protection Act (16 U.S.C. §668). 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 (Buehler 2000). Active breeding occurs February through August. Bald eagles are known to feed on a wide variety of fish, small mammal, amphibians, reptiles, and small birds. They are also documented to scavenge for food and eat carrion. In Humboldt County, bald eagles are strongly tied to open water and undisturbed shorelines. River corridors and estuaries attract scattered individuals thought to be migrants, or otherwise nonresident, from October to March (Hunter et al., 2005).

No bald eagles were observed within the ESLs of the three bridge sites during focused bird surveys. No species-specific surveys were performed for this species. CNDDB lists a single historic nest site approximately 12 miles east of the Butte Creek ESL. The eBird Database lists one detection within 2.5 miles of the ESL. No bald eagles or their nests were observed within in the ESLs at any of the three bridge sites.

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 of 10 to 1,500 nesting pairs. The species forages by hawking insects during long, gliding flights, predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland.

No species-specific surveys were performed for this species. Bank swallows were not observed within the ESLs at any of the three bridge sites. The CNDDB RareFind Database lists a single breeding colony on a vertical cliff above the Van Duzen River. The CNDDB BIOS mapping applications shows this occurrence as a circle that encompasses the Van Duzen watershed from Hydesville to Root Creek, which is approximately 2 miles southeast of the Hely Creek Bridge (CDFW 2019a). This record was last observed in 1946 with no

subsequent reporting of the population. Nesting habitat for this species was not observed within the ESLs of the three bridge sites.

Golden Eagle

The golden eagle (*Aquila chrysaetos*) is a CDFW fully protected species, and also protected by the Bald and Golden Eagle Protection Act, and no take of the species is allowed. Golden eagles are more prevalent in open and semi-open habitat, but also may nest at lower densities in coniferous habitat when open space is available (USFWS 2011a). Golden eagles nest on cliffs, in the upper one third of deciduous and coniferous trees, or on artificial structures, such as windmills, electricity transmission towers, artificial nesting platforms (Phillips and Beske 1990; Kochert et al., 2002). Golden eagles build nests on cliffs or in the largest trees of forested stands that offer an unobstructed view of the surrounding habitat (USFWS 2011a).

No golden eagles were observed within the ESLs of the three bridge sites during focused bird surveys. No species-specific surveys were performed for this species. CNDDB lists a historical nest site approximately 5.8 miles to the southwest of Little Larabee Creek Bridge, along Larabee Creek in lands owned by Humboldt Redwood Company.

Humboldt Marten

The Humboldt marten or Pacific Marten (*Martes caurina*) Coastal Distinct Population is a federally proposed threatened and state endangered species. It is a carnivorous mammal that historically occupied the coastal mountains of California from Sonoma County north to the Oregon border. The current distribution is limited to areas of Humboldt, Del Norte, and Siskiyou counties. Humboldt marten are associated with late successional conifer stands with dense shrub layers with abundant downed tree structures used for resting, denning, and escape cover. They are also associated with serpentine soil communities of various seral stages with variable tree cover, dense shrubs, and rock piles and rock outcrops used for resting, denning, and escape cover. Natal and maternal dens would likely be occupied from late March or April, when females give birth until the young disperse in late summer or autumn (Hamlin et al., 2010).

The CNDDB RareFind Database shows the nearest Humboldt marten detection approximately 3.5 miles north and 4.2 miles northwest of Little Larabee Creek Bridge. Both occurrences were collections documented close to a century ago (1913 and 1927, respectfully). Protocol-level surveys were not performed for this species. Although the project is within the historic range of this species, there are no recent records of this species

near the ESLs of the three bridge sites and it is outside the current known population distribution. The reported current distribution within the state is limited to two small areas of Del Norte, northern Humboldt (north of Trinidad), and western Siskiyou counties (CDFW 2019a).

Little Willow Flycatcher

Little willow flycatcher (WIFL) (*Empidonax traillii brewsteri*) is a state endangered bird species. WIFL occur annually, both as spring and fall migrant and casual summer residents and breeders, in northwestern California. They are late spring migrants, appearing along the coast in May-June and in August-September. WIFL are locally rare to uncommon during their nesting season in June and July. Breeding habitat is typically moist meadows with perennial streams; lowland riparian woodlands dominated by willow (primarily in tree form) and cottonwoods; or smaller spring-fed or boggy areas with willow or alder (Craig, D. and P. L. Williams, 1998). In riverine habitats, such as those found within the project area, it is thought that contiguous willow thickets are used because the linear nature of these areas provide sufficient edge habitat, and/or the tree-like willows typically found in these areas provide sufficient openings within the canopy (Harris 1991).

The CNDDB RareFind Database shows the nearest WIFL detection approximately 16 miles south of Little Larabee Creek Bridge. This occurrence was observed about 1 mile NNW of Miranda, in Humboldt Redwoods State Park, during protocol-level surveys conducted in June 2000. The habitat is described as a dense willow thicket, located near the Eel River. Through technical assistance with USFWS liaison Greg Schmidt, it was determined that although the project is within the historic range of this species, the habitat at the site is inadequate for successful breeding (pers. comm. G. Schmidt, USFWS).

Marbled Murrelet

Marbled murrelet (MAMU) (*Brachyramphus marmoratus*) is listed as federally threatened (57 FR 45328) with over 3.6 million acres of critical habitat designated in the combined states of Washington, Oregon, and California (76 FR 61599). It is also state listed as endangered in California. Major factors attributed to their decline from historic levels are (1) loss of nesting habitat due to commercial timber harvest and forest management practices, (2) poor reproductive success due to habitat fragmentation and predation, and (3) mortality from net fisheries and oil spills (USFWS 1997).

The MAMU is a small Pacific seabird that breeds along the Pacific coast of North America from the Aleutian Archipelago and southern Alaska south to central California. In the Pacific Northwest (Washington, Oregon, and California), they have a unique life history strategy in that they feed primarily in nearshore marine waters (within a few miles of shore) but 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. They are commonly absent from stands less than 60 acres in size. Nests are not built, but an egg is laid in a depression of moss or other debris on the limb of a large conifer. Suitable nest structures include large mossy horizontal branches, mistletoe (*Phoradendron spp.*) infections, witches' brooms (structural deformities of the tree), and other such structures (NatureServe Explorer 2015). During the March to September breeding season, MAMU typically fly along river corridors for their morning and evening nest visits.

Protocol-level surveys were not conducted for MAMU. CNDDB RareFind Database lists the nearest MAMU detections in Cheatham Grove within Grizzly Creek Redwoods State Park, approximately 0.6 mile east of Hely Creek Bridge. Pamplin Grove, approximately 0.20 mile from the Hely Creek Bridge, is a residual grove of redwood trees that could also support MAMU nesting habitat. MAMU is assumed present in Grizzly Creek Redwoods State Park and Pamplin Grove. Designated critical habitat is approximately 2 miles southeast of the Hely Creek Bridge location, but outside of the action area.

Potentially suitable nesting habitat for MAMU is within the action area at Hely Creek Bridge (G. Schmidt, pers. communication). The action area includes a 500-foot noise harassment buffer around the construction footprint to account for areas that could be exposed to construction noise and result in behavioral effects to MAMU.

No MAMU habitat was observed within the Little Larabee Creek ESL and Butte Creek action area lies outside of the known range for the species. The ESLs at Little Larabee Creek Bridge and Butte Creek Bridge do not provide the necessary structures in trees to support nesting MAMU. Thus, there is no indication that the species could reside at these locations.

Northern Spotted Owl

The Northern spotted owl (NSO) (*Strix occidentalis caurina*) is a federally and state threatened species. NSOs generally have large home ranges and use large tracts of land containing significant acreage of older forest to meet their biological needs. The attributes of superior NSO nesting and roosting habitat typically include a moderate-to-high canopy closure (60 to 80 percent); a multi-layered, multi-species canopy with large overstory trees; a

high incidence of large trees with deformities (large cavities, broken tops, mistletoe infections, and debris accumulation); large accumulations of fallen trees and other debris; and sufficient open space below the canopy for flight. In redwood forests and mixed conifer-hardwood forests along the coast of northwestern California, considerable numbers of NSO also occur in young forest stands (USFWS 2011b). NSOs tend to select broken-top trees and cavities in older forests for nest sites, although they will also use existing platforms such as abandoned raptor nests, squirrel nests, mistletoe brooms, and debris piles. In younger forests, existing platforms are more frequently utilized for nest sites (Gutierrez et al., 1995). Courtship initiates in February or March with the first eggs laid in late March through April. Fledglings generally leave the nest in late May or in June but continue to be dependent on their parents into September until they are able to fly and hunt on their own. By September juveniles have left their natal area.

There is no designated critical habitat for NSO within the action areas at any of the bridge sites. The action area includes a 500-foot noise harassment buffer around the construction footprint at each of the bridges to account for areas that could be exposed to construction noise and result in behavioral effects on northern spotted owl.

Protocol-level surveys were initiated in 2019 at survey locations encompassing a 0.25-mile buffer from the ESL at each bridge site. Survey methods and station placement were implemented based upon the 2012 revised USFWS protocol described in *Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls* for disturbance only projects (USFWS 2012). The survey effort at the Hely Creek Bridge and Little Larabee Creek Bridge sites ended after NSOs were first detected at each location. Butte Creek had no detections during surveys conducted in 2019.

Hely Creek

On March 18, 2019, Caltrans biologists detected a single NSO near Hely Creek. CNDDB records identified two Activity Centers (ACs) near the vicinity of the detection: HUM0624, approximately 0.55 mile northeast of the bridge, and HUM032 located approximately 0.52 mile southeast of the bridge, however, there are no known NSO ACs within the action area documented in the CNDDB. Discussions with Humboldt Redwood Company (HRC) (who surveyed the adjacent property,) confirm no known nests are located within the action area. However, suitable nesting habitat does exist within 0.25 mile of the project location and potential for presence is assumed. Potentially suitable nesting and roosting trees that exhibit required vegetation composition and medium to high canopy cover is within the action area (Caltrans 2021b).

Little Larabee Creek

On May 29, 2019, a single detection was reported at one of the calls stations near the Little Larabee Creek Bridge during NSO protocol-level surveys. This detection was initially noted as very faint calls from an NSO that proceeded to come close to the station but was not visually detected.

CNDDB records in the vicinity of the project area include a historical NSO nest site (HUM0801) approximately 0.87 mile southeast of Little Larabee Creek, which is the closest known Activity Center. Given the close proximity of the Activity Center, presence of suitable nesting/roosting habitat, required vegetation composition and NSO detection during surveys, NSO is presumed present.

Butte Creek

Protocol-level surveys for NSO were conducted at Butte Creek in 2019; however, no NSO were detected.

The CNDDB records indicate the closest recorded Activity Center in the vicinity of the project area is an historical NSO nest site (HUM 0339) approximately 1.1 miles northeast of the Butte Creek Bridge. Due to the close proximity of a historical nest site and activity center, NSO is presumed present.

Trees and vegetation potentially suitable for roosting and foraging are present at this location, but recent survey data suggests that nesting within the action area at Butte Creek is unlikely.

Salmonids

Chinook Salmon

The California Coastal (CC) Evolutionarily Significant Unit (ESU) of Chinook salmon (*Oncorhynchus tshawytscha*) was federally listed as a threatened species on September 16, 1999 (64 FR 50394). Their threatened status was reaffirmed August 15, 2011 (76 FR 50447). The ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River to and including the Russian River, California (64 FR 50394). The ESU also includes fish released from State and Federal propagation programs. NMFS determined that these artificially propagated stocks are no more divergent relative to the local natural population(s) than what would be expected between closely related natural populations within the ESU (70 FR 37160).

Critical habitat for CC Chinook salmon was designated September 2, 2005 (70 FR 52488), which includes the stream channels within the designated stream reaches and includes a lateral extent as defined by the ordinary high-water line (33 CFR 329.11). Critical habitat includes (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species. Designated critical habitat for Chinook salmon area includes Hely, Little Larabee and Butte creek waterways and the respective adjacent riparian zones.

CC Chinook salmon are fall-run, ocean-type anadromous fish. In the Eel River and Van Duzen, the majority of spawning occurs from November through January and generally peaks in December (CDFW 2013). Entrance into fresh water is often delayed in smaller coastal watersheds where low flow barriers can prevent access until December or even January (Moyle et al., 2008).

Fall-run Chinook salmon typically spawn in the lower reaches of rivers and tributaries. Typically, they enter fresh water at an advanced stage of maturity, move rapidly to their spawning areas and spawn within a few weeks of freshwater entry (Healey 1991). Adults die within a few days after spawning. Fry emerge from the gravel in the late winter or spring and initiate outmigration within a week to months of emergence (Moyle et al., 2008). Fresh water residence, including outmigration, usually ranges from two to four months. After emergence, Chinook salmon fry seek out areas behind fallen trees, back eddies, undercut

banks, and other areas of bank cover. As they grow larger, their habitat preferences change (Everest and Chapman, 1972). Juveniles move away from stream margins and begin to use deeper water areas with slightly faster water velocities but continue to use available cover to minimize the risk of predation and reduce energy expenditure.

Most spawning habitat for CC Chinook salmon is in the upper main stems of rivers and lower reaches of coastal creeks. These habitats, when in proper condition, provide stable substrate and sufficient flows into late winter. Once alevins emerge, they become fry, which tend to aggregate along stream edges, seeking cover in bushes, swirling water, and dark backgrounds. Larger juveniles may wind up in the tails of pools or other moderately fast-flowing habitats where food is abundant and there is some protection from predators. The peak downstream migration period for juveniles is generally from mid-April to early June (CDFW 2013). As they move downstream, they use more open waters at night, while seeking protected pools during the day. Pools that are cooler than the main river, from upwelling or tributary inflow, may be sought out by migrating juveniles as daytime refuges (Moyle et al., 2008).

Water temperature is one of the most important environmental influences on salmonids at all life stages, affecting physiological processes and timing of life history events (Spence et al., 1996; CDFW 2014). Adult fall-run Chinook salmon tolerate water temperatures ranging from 51°F–67°F (10°C–19.4°C). Based on studies of steelhead and coho salmon, water temperature ranging from 50°F–55°F (10°C–12.8°C) has been recommended as the optimal thermal range for smoltification and emigration (DWR 2002). Juvenile Chinook salmon prefer water temperatures less than 71.6°F (22°C).

Species presence and potential presence was investigated in all three creeks through consultation with CDFW and surveys conducted by Caltrans and Humboldt Redwood Company (HRC). Further technical assistance with NMFS and coordination with CDFW has refined our understanding of salmonid species presence at each bridge location. To initiate formal consultation with NMFS, Caltrans submitted a *Biological Assessment for Potential Impacts to Coho Salmon (Oncorhynchus kisutch), Chinook Salmon (Oncorhynchus tshawytscha), Steelhead (Oncorhynchus mykiss irideus), their Designated Critical Habitat, and Essential Fish Habitat Assessment for Pacific Coast Salmon* (Caltrans 2021a). The results of the combined effort to determine species presence and potential presence in the project action areas, and sources of information, are discussed below. The action area for salmonid species at each site would encompass the entire construction footprint that would be subject to direct impacts from ground disturbance and vegetation clearing, including where staging and material storage may occur. It would also include the channel and its

adjacent wetlands and waters within the vicinity of the bridge that could be exposed to localized, minor pulses of turbidity stemming from ground disturbance, and the extent of potential underwater noise transmittal that could result in hydroacoustic impacts to fish. This action area would also encompass temporary water diversions upstream and downstream from the bridges.

Hely Creek

Although suitable habitat may exist upstream of the action area in Hely Creek (CDWF 2013), Chinook salmon is presumed absent within the action area of Hely Creek based on:

- Small size of creek and lack of suitable spawning gravels (pers. comm. Mike Kelly NMFS liaison, Jason Frederickson ECL).
- Presence was not detected during any of the five surveys completed in 1996, 2011, 2015, 2017, and 2019 (surveys conducted by CDFW, Pacific States Marine Fisheries Commission, and Caltrans).

Little Larabee Creek

Chinook salmon are presumed present at the Little Larabee Creek Bridge action area, based on the following information:

- Humboldt Area Foundation spawner survey in January 2011 reported 47 Chinook carcasses and 7 Chinook redds.
- Presence of potential suitable spawning habitat upstream of the action area; however, Chinook are unlikely to be present during the instream work window of June 15–October 15 due to out-migration strategies.
- CNDDB RareFind Database reports of Chinook salmon distribution to Bloody Run Creek, which is over 3 miles upriver of Little Larabee Creek.

Butte Creek

Chinook salmon are presumed absent at the Butte Creek Bridge action area, based on:

- Small size of creek and lack of suitable spawning gravels (pers. comm. Mike Kelly NMFS liaison, and Jason Frederickson ECL).
- Presence was not detected during any of the three surveys completed in 1992, 2019 and 2020 (surveys conducted by CDFW and Caltrans).

- Natural fish barriers downstream (CDFW 2013)

Caltrans deployed temperature data loggers during the summer of 2019 to obtain water temperatures in the project areas. Although temperatures were observed to be optimal throughout the summer, juvenile Chinook salmon are not anticipated to be present during the instream work window as life history strategies show that out-migration occurs between April to mid-June.

Coho Salmon

NMFS published its final decision to list the Southern Oregon/Northern California Coast (SONCC) ESU of coho salmon (*Oncorhynchus kisutch*) as threatened under the Federal Endangered Species Act (FESA) on May 6, 1997 (62 FR 24588), a status that was reaffirmed on August 15, 2011 (76 FR 50447). The listing initiated the development of a recovery plan for the ESU that includes delisting goals. The final recovery plan for the SONCC coho salmon was published by NMFS in 2014. In August 2002, the California Fish and Game Commission issued a finding that coho salmon warranted listing as threatened from the Oregon border south to Punta Gorda.

Critical habitat for the Southern Oregon/Northern California Coast (SONCC) ESU of coho salmon was designated in 1999 (64 FR 24049) as encompassing accessible reaches of all rivers (including estuarine 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 impassable barriers, and 3) tribal lands. The proposed project is within designated critical habitat for SONCC coho salmon at all three bridge locations.

In the Van Duzen and greater Eel River system, the coho salmon spawning run occurs from December to February. Spawning is predominantly confined to the upper South Fork and its tributaries, and lower tributaries of the mainstem Eel and Van Duzen rivers. Fry emergence takes place between March and July, with peak emergence between March and May. Juvenile coho salmon typically feed and rear within the streams of their natal watershed for a year before migrating to the ocean. Coho salmon fry may move upstream or downstream to rear after emergence. Coho salmon rearing areas include lakes, sloughs, side channels, estuaries, beaver ponds, low-gradient tributaries to large rivers, and large areas of slack water (Pacific Fishery Management Council [PFMC] 2014).

Water temperature is one of the most important environmental influences on salmonids at all life stages, affecting physiological processes and timing of life history events (Spence et al.,

1996). Juvenile coho salmon, as small as two grams, may be present in Hely Creek year-round; however, recorded temperatures ranging in the unsuitable category during the summer months may cause coho salmon to seek out cool water refuge outside of the action area. Based on life history strategies, adult coho may be present within the action area at Hely Creek between December and February. Based on known distribution within the Van Duzen watershed, the 'lack of presence data' during stream surveys, known natural fish barriers (Goat Rock and Salmon Falls) and communications with CDFW's fisheries biologist David Kajtaniak and NMFS liaison Mike Kelly, coho are not expected to be present at Little Larabee Creek or Butte Creek.

Species presence was investigated in all three creeks through consultation with CDFW and surveys conducted by Caltrans and Humboldt Redwood Company (HRC). The following results of the combined effort to determine species presence at the bridge locations and three tributaries where the bridges reside, followed with the sources of information, is discussed below.

Hely Creek

Coho salmon are present at Hely Creek, based on:

- HRC Aquatic Trends Monitoring Station 112, located approximately 200 feet upstream from the bridge site, has documented occurrences of the species at the site since 2003.
- The *Hely Creek Stream Inventory Report*—biological sampling documented the presence of coho salmon in Hely Creek near the bridge site (CDFW 2017).

Little Larabee Creek

Although there may be suitable coho salmon habitat upstream of the action area, coho salmon is presumed absent within the action area at Little Larabee Creek based on:

- Natural fish barrier downstream and current known distribution (CDFW 2013)
- Unsuitable spawning or rearing habitat in action area (pers. comm. with NMFS Liaison Mike Kelly and Jason Frederickson ECL)
- Presence was not detected during any of the five surveys completed in 1996, 2011, 2015, 2017, and 2019 (surveys conducted by CDFW, Pacific States Marine Fisheries Commission, Humboldt Area Foundation, and Caltrans).

Butte Creek

Although suitable habitat conditions exist within the action area of Butte Creek, coho salmon are presumed absent within the Butte Creek action area based on:

- Natural fish barriers downstream and current distribution (CDFW 2013)
- Presence was not detected during any of the three surveys completed in 1992, 2019 and 2020 (surveys conducted by CDFW and Caltrans).

Steelhead

Northern California (NC) Steelhead (*Oncorhynchus mykiss irideus*) Distinct Population Segment (DPS) is a federally threatened species and the summer-run NC steelhead (*Oncorhynchus mykiss irideus*) is a state candidate (endangered) species and a state SSC. The Northern California steelhead 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. Steelhead in this DPS include both winter and summer-run types, and what is presently considered to be the southernmost population of summer steelhead in the Middle Fork Eel River. A recent genetic study (Kannry et al., 2020), concluded that both winter-run and summer-run steelhead variants are present at Little Larabee and Butte creeks, whereas only winter-run steelhead are present at Hely Creek.

Critical habitat for NC steelhead was designated September 2, 2005, as occupied watersheds from the Redwood Creek watershed to the Russian River watershed (exclusive). Designated critical habitat for steelhead includes Hely, Little Larabee and Butte creek waterways and the respective adjacent riparian zones.

Winter steelhead adults generally enter the estuaries between September and March as sexually mature fish (Caltrout 2020b) and migrate up to natal tributaries to spawn between December and early April (Busby et al., 1996), though favorable wet conditions may lengthen the spawning period into May (Moyle et al., 2008). Neither flow nor temperature is generally problematic for winter-run adults. Once suitable spawning habitat is found, females prepare the spawning nest (i.e., redd). Females can lay between 200 and 12,000 eggs (depending on their size and condition) before migrating back to the ocean by May. Eggs hatch within three to four weeks. Newly emerged steelhead school together and seek shallow waters with gentle currents to grow, while older juveniles maintain territories in faster water and in pool habitats. Steelhead young rear in freshwater environments for one to three years. Juveniles become smolts in early spring and migrate to estuaries or the ocean from December

to May (CDFW 2013). During this time, smolts may use estuaries to acclimate to saline environments prior to entering the ocean (Caltrout 2020b).

The state candidate (endangered) summer-run steelhead is also represented in the steelhead population in the Van Duzen watershed. This designation was granted by the California Fish and Game Commission on June 12, 2019, pursuant to the provisions of Section 2074.2 of the Fish and Game Code. The extent of summer-run steelhead near the project area is known 1-mile northeast of Bridgeville and upstream locations, including the action areas at both Little Larabee and Butte creeks (Kannry et al., 2020).

A small run of summer steelhead usually enters the Van Duzen River from March to the end of June. Summer-run steelhead migrate farther inland into smaller tributaries than winter-run steelhead. They spend summer months resting in pools with consistent cool temperatures as they mature, waiting for winter rains to spawn in December-February. Juveniles leave their natal tributaries from April to June to feed and grow in mainstem rivers and estuaries before migrating out to sea (Caltrout 2020a). Summer-run steelhead depend on cold water refuges that often occur at tributary junctions or in thermally stratified pools (Moyle et. al., 2008) and are believed to be highly vulnerable to the effects of climate change.

Depending on water temperature, steelhead eggs hatch in 1.5 to 4 months. As alevins, they have an attached yolk sac that is absorbed into their bodies. They will emerge from the gravel as young juveniles and begin actively feeding. Juvenile steelhead rear in fresh water from one to four years, then migrate to the ocean as smolts.

According to the CDFW 2013 *Van Duzen Watershed Assessment Report*, temperatures for "fully suitable conditions" are 50–60°F. Temperatures of 65°F and above are within the ranges considered "unsuitable" for salmonids. Juvenile steelhead are the most tolerant of higher water temperatures, with summer-run steelhead generally being more tolerant than winter-run. As with coho salmon and Chinook salmon, steelhead seek out areas of cooler water at the mouths of tributaries and where spring water upwells.

Through genetic analysis, winter-run steelhead have been reported to occupy Hely, Little Larabee and Butte creeks; whereas summer-run steelhead occupy only Little Larabee and Butte creeks (Kannry et al., 2020). Adult winter-run and summer-run steelhead are not expected to be present in the action areas at Hely, Little Larabee and Butte creeks during the instream work window (June–October). Juvenile winter-run steelhead may be present in all three tributaries within the action area year-round; and may seek these tributaries as cool water refuge during summer months. Summer-run steelhead are not present at Hely Creek;

however, may be present in the action area at Little Larabee Creek during instream work—although in low numbers as only 0.28 allele frequency was reported in Kannry et al., 2020. Further investigation concluded there was a small number of juvenile steelhead recorded near the action area, and of this small number about a 0.25 percent of them were deemed to be summer-run steelhead. These juvenile steelhead likely entered Little Larabee Creek from the Van Duzen River and were probably not progeny of Little Larabee Creek (Pers. communication with D. Kajtaniak and S. Kannry). Given recent genetic analysis showing an allele frequency of 0.94, juvenile summer-run steelhead may be present in the action area of Butte Creek during the instream work window (Kannry et al., 2020). CDFW confirmed winter-run steelhead variants were present in low numbers at Butte Creek; therefore, it is possible that winter-run juveniles (low frequency) may be present in the action area of Butte Creek during the instream work window (pers. comm. D. Kajtaniak CDFW and S. Kannry UC Davis).

Hely Creek

Steelhead (winter-run only) is presumed present at Hely Creek, based on:

- HRC Aquatic Trends Monitoring (ATM) Station 112, located approximately 200 feet upstream from the bridge site, has documented occurrences of the species at the site since 2003 (K. Lackey, HRC pers. comm. 2019).
- The *Hely Creek Stream Inventory Report* summarized presence of salmonids observed during the inventory (CDFW 2017).
- Genetic results report no summer-run variant present (Kannry et al., 2020)
- Steelhead was observed during Caltrans snorkel surveys in the action area at Hely Creek.

Little Larabee Creek

Steelhead (winter-run and summer-run) is presumed present at Little Larabee Creek based on:

- The *Little Larabee Creek Stream Inventory Report* summarized presence of steelhead observed during the inventory (CDFW 1996)
- HRC surveys of the Lower Eel River and Van Duzen River reported presence of steelhead in 2015.

- Genetic results from Kannry et al., 2020, reported presence of low allele frequency of summer-run variant; these steelhead likely entered Little Larabee Creek from the Van Duzen River and were probably not progeny of Little Larabee Creek (Pers. comm. D. Kajtaniak CDFW and S. Kannry, UC Davis, February 2021).

Butte Creek

Steelhead (winter-run and summer-run) are presumed present at Butte Creek based on:

- The *Butte Creek Stream Inventory Report* summarized presence of steelhead in Butte Creek (CDFW 1992).
- Genetic results from Kannry et al., 2020, reported presence of high allele frequency of summer-run variant
- Both winter-run and summer-run variants spawn upstream of the project site; steelhead population was reported to comprise 70-80% summer steelhead and 20-30% winter-run steelhead (Pers. comm. D. Kajtaniak CDFW and S. Kannry, UC Davis, February 2021).

Pacific Salmon Essential Fish Habitat

Essential Fish Habitat (EFH) is defined by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for federally managed species as "those waters and substrate necessary for fish for spawning, breeding, feeding, or growth to maturity". The Van Duzen River and associated tributaries support EFH for species regulated under the federal Pacific Coast Salmon Fishery Management Plan.

EFH for the Pacific Coast Salmon Fishery means those waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem. To achieve that level of production, EFH must include all those streams, lakes, ponds, wetlands, and other currently viable water bodies, and most of the habitat historically accessible to salmon in Washington, Oregon, Idaho, and California. In the estuarine and marine areas, salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the Exclusive Economic Zone offshore of Washington, Oregon, and California north of Point Conception. Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and

other water bodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the Pacific Fishery Management Council [PFMC]), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years) (PFMC 2016).

Western Bumble Bee and Obscure Bumble Bee

The Western bumble bee (*Bombus occidentalis*) is a species of bumble bee native to the Western United States and Canada and is a state candidate for listing as endangered. It is considered critically imperiled in the state (CDFW S1 species) because of extreme rarity (often five or fewer populations) or because of factor(s) such as very steep population declines making it especially vulnerable to extirpation from the state. This bumble bee is associated with several plant genera including *Melilotus, Cirsium, Lupinus, Trifolium, Centaurea* and *Eriogonum* (CDFW 2019a). 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 queen gathers pollen and nectar and stores them in wax containers. She then lays 8 to 16 eggs that hatch into larvae and tends to them until they spin cocoons, pupate, and emerge as workers. Once they emerge, the queen stops foraging and devotes her time to egg laying. 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. The new queens will mate and dig holes in which they will hibernate through the winter.

The obscure bumble bee (*Bombus caliginosus*) is a species of bumble bee native to the west coast of the United States where its distribution extends from Washington to southern California. It is critically imperiled due to rarity, few populations, and restricted range. The obscure bumble bee is associated with several plant genera including *Baccharis, Cirsium, Lupinus, Lotus, Grindelia* and *Phacelia*. Queens of this species emerge from hibernation in late January, the first workers appear in early March, and the males follow by the end of April. Nests are usually well concealed, often underground, sometimes on the surface, and occasionally 30 to 40 feet (9 to 12 meters) above ground in trees (Throp et al., 1983). The colony dissolves in late October, when all the inhabitants die except the new queens.

No species-specific surveys were conducted for bumble bee species. There are no CNDDB records of these species within the project ESLs. The closest CNDDB record for both bumble bee species is near Myers Flat, where *B. caliginosus* was collected in 1963 and *B. occidentalis* was collected in 1968.

Western Snowy Plover

The Pacific Coast DPS of the Western snowy plover (WSP) (*Charadrius nivosus* formerly C. *alexandrinus nivosus)* is federally listed as threatened and is a state SSC. The Pacific Coast DPS population is defined as those individuals that nest within 50 miles of the Pacific Ocean from southern Washington to southern Baja California, Mexico (USFWS 2007). Sand spits, dune-backed beaches, beaches at creek and river mouths, and salt pans at lagoons and estuaries above the high tide line are the main coastal habitats for nesting. Nests typically occur in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent. WSP also regularly nest on gravel bars along the Eel River in northern California (USFWS 2007). There is no critical habitat for WSP within the ESLs of all three bridges.

There is no habitat for this species within the project ESLs due to the lack of expansive beach habitat. No observations of the species were detected during focused bird surveys for the project.

Western Yellow-billed Cuckoo

The Western yellow-billed cuckoo (YBCU) (*Coccyzus americanus occidentalis*) Western 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). The optimal size of habitat patches for the species is generally greater than 200 acres in extent and have dense canopy closure (Laymon and Halterman, 1989). Rarely do YBCU use sites less than 50 acres for nesting, and sites less than 37 acres are considered unsuitable habitat (Laymon and Halterman, 1989).

Critical habitat for YBCU was proposed by the USFWS in 2014 (79 FR 48547). The nearest proposed critical habitat to the project site is Unit 1, located along the Eel River in Humboldt County, California. There is no proposed critical habitat within or adjacent to the project ESLs.

Although riparian habitat exists at the bridge locations, the relative size of riparian habitat required for nesting is insufficient. Through technical assistance with Caltrans' USFWS Liaison Gregory Schmidt, it was determined that suitable habitat for the species does not exist in the project ESLs.

Invasive Species

Introduction and naturalization of non-native species is one of the most important threats to global biodiversity. The Van Duzen watershed contains several invasive plant species that adversely affect ecologic functions. Some of the species that most threaten native ecosystem function and structure include English ivy (*Hedera helix*), yellow star-thistle (*Centaurea solstitialis*), jubata grass and pampas grass (*Cortaderia* spp.), Scotch broom, (*Cytisus scoparius),* French broom (*Genista monspessulana*), water primrose (*Ludwigia* sp.), and Spanish broom (*Spartium junceum*).

At Hely Creek, the dominant invasive plant species observed within the vicinity of the bridge includes Himalayan blackberry (*Rubus armeniacus*) and English ivy.

At Little Larabee Creek, the dominant invasive plant species observed within the vicinity of the bridge includes French broom, Himalayan blackberry, periwinkle (*Vinca major*), fennel (*Foeniculum vulgare*), and Italian thistle (*Carduus pycnocephalus*).

At Butte Creek, the dominant invasive plant species observed within the vicinity of the bridge includes Himalayan blackberry and an unidentified rose species.

Invasive bird species which could potentially occur within the ESLs include the European starling (*Sturnus vulgaris*) and Eurasian collared dove (*Streptopelia decaocto*). These two species are known to compete with native species for resources and are typically associated with human disturbance. Brown-headed cowbirds (*Molothrus ater*), a native North American species but invasive to California, may also occur within the ESLs. The expansion of agriculture in California has resulted in a phenomenal increase in cowbird populations and significant range expansions. Brown-headed cowbirds parasitize the nests of more than 220 bird species in their range. Nest parasitism lowers the reproductive success of host birds and has led to population declines in several bird species (CDFW 2020a).

Natural Communities

Vegetation type mapping was conducted, following the CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018b). The vegetation types in the study area were identified based on the vegetation classification and keys in *A Manual of California Vegetation*, *second edition (*Sawyer et al., 2009). Results are documented in the *Vegetation Type Mapping* report (Caltrans 2019g). Sensitive Natural Communities and associated alliances within the project area are discussed below. Rarity of each natural vegetation type (i.e., alliances and

associations) was determined from CDFW's current California Natural Communities List, which lists the vegetation types considered sensitive. High priority sensitive natural communities are globally (G) and state (S) ranked 1 to 5, where 1 is critically imperiled, 2 is imperiled, 3 is vulnerable, 4 is apparently secure, and 5 is considered demonstrably secure (CDFW 2018a).

In addition to analyzing global and state ranks for natural communities, mapping standards for Sensitive Natural Communities (SNCs) were reviewed for conformance to the *Survey of California Vegetation Classification and Mapping Standards* (CDFW 2019c).

Douglas-fir—Tanoak Forest Association

Douglas-fir (*Pseudotsuga menziesii*) Forest Alliance is not a sensitive natural community; however, several associations within this alliance are considered sensitive. This includes the Douglas-fir–Tanoak (*Notholithocarpus densiflorus*) Forest Association which covers 0.59 acre within the ESL at the Little Larabee Creek Bridge site. Douglas-fir–tanoak forest has a global rank of G5 (secure) and a state rank of S3 (vulnerable). Douglas-fir–tanoak forests represent a gradation between Douglas-fir and tanoak forests, where Douglas-fir and tanoak each make up at least 30 percent canopy cover (Sawyer et al., 2009). This association meets the definition of a SNC due to the quality of the habitat observed as well as the relative abundance of the community in the vicinity of the Little Larabee Creek Bridge ESL. This association was not mapped at the Hely Creek Bridge or Butte Creek Bridge ESLs.

Oregon White Oak Woodland Alliance

Two small patches of Oregon White Oak (*Quercus garryana*) Woodland Alliance were identified at Butte Creek Bridge: one at the northeast bridge abutment, generally at the top of the bank between the road and Butte Creek, and one on the opposite side of the creek. Together this SNC represents .11 acre within the ESL. Oregon White Oak Woodland has a global rank of G4 (apparently secure) and a state rank of S3 (vulnerable). As defined in *A Manual of California Vegetation* (Sawyer et al., 2009), this vegetation alliance was mapped where Oregon white oak formed more than 30 percent relative canopy cover. This alliance commonly inhabits riparian terraces, ridges, and slopes. Although this occurrence does not meet minimum mapping standards, the community would be considered a SNC regardless, due to the quality of habitat observed and the prevalence of this community in the surrounding landscape. This alliance was not mapped at the Hely Creek Bridge or Little Larabee Creek Bridge ESLs.

California Bay Forest Alliance

A relatively dense and tall canopy of California bay (*Umbellularia californica*) Forest Alliance occurs on the steep lower hill slope between the proposed staging area and Little Larabee Creek, covering 0.13 acre in the ESL. California Bay Forest Alliance has a global rank of G4 (apparently secure) and a state rank of S3 (vulnerable). As defined in *A Manual of California Vegetation* (Sawyer et al., 2009), this alliance was identified where California bay forms more than 50 percent of the relative canopy cover. Although this occurrence does not meet minimum mapping standards, this community would be considered a SNC due to the quality of habitat in the ESL and the prevalence of habitat in the vicinity of the Little Larabee Creek Bridge. This alliance was not mapped at the Hely Creek Bridge or Butte Creek Bridge ESLs.

Redwood Forest Alliance

At Hely Creek, the forest habitat aligns with Sensitive Natural Community Redwood Forest (*Sequoia sempervirens*) Alliance, which is considered globally vulnerable and state ranked imperiled at G3 S3. Redwood Forest Alliance comprises 1.73 acres in the Hely Creek Bridge ESL and does not occur at the other bridge locations for this project. Redwood forest is prevalent in the surrounding landscape. The Hely Creek Bridge ESL is part of a redwood stand that covers approximately 48 acres of similarly aged forest along the Van Duzen River. The Hely Creek watershed is approximately 2,300 acres, dominated by redwood and Douglas-fir forest (CDFW 2017).

The Redwood Forest Alliance mapped in the ESL comprises a predominant overstory of coast redwood trees with a mixture of Douglas-fir (*Pseudotsuga menziesii*), with tanoak (*Notholithocarpus densiflorus var. densiflorus*). Common understory plants include huckleberry (*Vaccinium ovatum*), poison oak (*Toxicodendron diversilobum*), western sword fern (*Polystichum munitum*), and redwood sorrel (*Oxalis oregana*). The natural community also includes an infestation of English ivy (*Hedera helix*) northeast of the Hely Creek Bridge.

An arborist assessment was conducted to map and inventory trees and determine project impacts to large diameter trees. Results of the arborist assessment are documented in the *Tree Impact Analysis Technical Report* (Caltrans 2020g). Several large-diameter coast redwood trees are present at the Hely Creek Bridge location.

Large-diameter trees are often described as being old-growth, a term defined differently among professional foresters and ecologists and one that varies further when applied to individual trees, stands of trees (i.e., forests), and individuals and stands of different tree

species or assemblages (Pacific Northwest Research Station 2003). In general, mature, late-seral coast redwood forests comprise mixed-age, and therefore mixed-structure, stands with multiple layered canopies, where redwoods form the dominant crown class, occasionally with Douglas-fir and other smaller hardwood species restricted to the intermediate or suppressed canopy classes (Olson et al., 1990). Late-seral forests contain many individual trees of a size and age that represent the distal end of the dominant species' lifespan (Singer 2012). For coast redwoods, this typically means late-seral forest will contain many trees ranging from 700–2,000 years of age, collectively containing an enormous amount of carbon (Jones and O'Hara, 2012). Based on these definitions, the bridge sites included in the project are not considered late-seral forests.

The forest in the Hely Creek project area would best be described as a previously harvested redwood forest that has experienced intermittent tree removal since construction of the highway in 1934. Humboldt Redwood Company classifies individual old-growth trees as greater than 48-inch DBH and existing before 1800, with characteristics that include being in the upper 20% diameter class of the species on site, deeply fissured bark, flattened or irregular crowns, highly complex structure, large limbs, crown debris accumulations, platforms, high presence of complex lichens or moss, cat-facing or basal burn cavities (HRC Unknown). Individual redwood trees at Hely Creek exhibit some of these characteristics, including DBH greater than 48 inches and large limbs. The other two bridge locations contain both hardwood and conifer species, but no redwood trees due to their location further inland.

Wetlands and Other Waters

Aquatic resources within the ESL were delineated in accordance with methods described in the *1987 U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010). Results are documented in the project Aquatic Resources Delineation Report (Caltrans 2019f). Portions of the project area contain federally- and state-recognized jurisdictional waters of the U.S.

A total of 0.764 acre of potential jurisdictional wetlands and other waters of the U.S. were identified in the ESL—comprising 0.028 acre of wetlands (WD) and 0.736 acre of non-wetland waters, which consist of 0.677 acre of perennial streams (PS), 0.007 acre of intermittent streams (IS), 0.003 acre of ephemeral streams (ES), 0.038 acre of roadside ditches (RD), and 0.011 acre of culverted waters (C) (Table 3).

Table 3. Wetlands and Waters Within the Project Environmental Study Limits

Project Location	Aquatic Feature	Feature Type	Cowardin Type	Area (acres)
Hely Creek	PS-3	Perennial Stream	R2SB	0.080
Hely Creek	RD-4	Roadside Ditch	R4SBx	0.012
Hely Creek	RD-5a	Roadside Ditch	R4SBx	0.001
Hely Creek	RD-5b	Roadside Ditch	R4SBx	0.002
Hely Creek	RD-5c	Roadside Ditch	R4SBx	0.001
Hely Creek	C-4	Culvert	N/A	0.002
Hely Creek	C-5	Culvert	N/A	0.002
Little Larabee Creek	WD-3a	Wetland Ditch	R4SBx/PEM1	0.004
Little Larabee Creek	WD-3b	Wetland Ditch	R4SBx/PEM1	0.007
Little Larabee Creek	WD-4	Wetland Ditch	R4SBx/PEM1	0.006
Little Larabee Creek	PS-2	Perennial Stream	R2SB	0.237
Little Larabee Creek	ES-2	Ephemeral Stream	R4SB	0.002
Little Larabee Creek	C-3	Culvert	N/A	0.003
Little Larabee Creek	RD-3	Roadside Ditch	R4SBx	0.001
Butte Creek	WD-1	Wetland Ditch	R4SBx/PEM1	0.002
Butte Creek	WD-2a	Wetland Ditch	R4SBx/PEM1	0.001
Butte Creek	WD-2b	Wetland Ditch	R4SBx/PEM1	0.008
Butte Creek	PS-1	Perennial Stream	R2SB	0.360
Butte Creek	IS-1a	Intermittent Stream	R4SB	0.006
Butte Creek	IS-1b	Intermittent Stream	R4SB	0.001
Butte Creek	ES-1	Ephemeral Stream	R4SB	0.001
Butte Creek	C-1	Culvert	N/A	0.002
Butte Creek	C-2	Culvert	N/A	0.002
Butte Creek	RD-1a	Roadside Ditch	R4SBx	0.006
Butte Creek	RD-1b	Roadside Ditch	R4SBx	0.007
Butte Creek	RD-2	Roadside Ditch	R4SBx	0.008

[1] Cowardin Types (Cowardin et al., 1979)

R4SB = Riverine, Intermittent, Streambed
R2SB = Riverine, Perennial, Streambed
R4SBx = Riverine, Intermittent, Streambed, excavated
PEM1 = Palustrine, Emergent, Persistent

The indicators of wetland hydrology, hydric soils, and hydrophytic vegetation used to make wetland determinations at each sampling point are discussed below. These results, and the mapped extent of delineated features depicted in Appendix E, are subject to verification by the USACE San Francisco District.

Wetlands (Wetland Ditches)

The term "wetland ditch" is used in this document for wetlands that formed in a roadside ditch; they are believed to be the result of excavation of road cuts and associated drainage features through areas where groundwater is present for all or most of the year. These ditches are considered wetlands due to the presence of hydrophytic vegetation, hydric soil, and wetland hydrology present at the time of field surveys. They are therefore also given the Cowardin Classification of PEM1, Palustrine emergent wetlands, persistent (i.e., with perennial wetland plants). Three wetland ditches were observed within the Little Larabee Creek ESL (WD-3a, WD-3b, and WD-4) and three within the Butte Creek ESL (WD-1, WD-2a, WD-2b).

Other Waters

Butte Creek (PS-1), Little Larabee Creek (PS-2), and Hely Creek (PS-3) are all perennial streams, with flowing water throughout the year, including during the dry-season field survey.

Two segments of an intermittent stream were mapped at Butte Creek (IS-1a and IS-1b). The stream flows from the hillslope to the south, heading north through a culvert under SR 36 and through a down drain before continuing to Butte Creek. The ordinary high-water mark (OHWM) was delineated based on the shift from the unvegetated stream channel to upland vegetation.

Two ephemeral streams, one at Butte Creek (ES-1) and one at Little Larabee Creek (ES-2), were identified and mapped in the survey area. The ephemeral streams were delineated based on differences in vegetation and plant species composition and soil characteristics between the sparsely vegetated stream channels and the adjacent upland habitat.

In this document, "roadside ditches" characterized in the Aquatic Resources Delineation Report are considered ephemeral streams. Eight segments of roadside ditches were mapped throughout the project area (which encompassed the ESL at the three bridge locations). The OHWMs were delineated based primarily on the difference in vegetation cover and plant species composition between the channels and adjacent upland habitat. The roadside ditches were typically sparsely vegetated with pennyroyal and other herbaceous vegetation. The adjacent uplands generally had significantly higher cover of upland grasses and other non-hydrophytic herbaceous vegetation. The roadside ditches lacked hydric soil and had gravel or road-base bottoms. At the time of the field surveys, there was no surface water or saturated soil in any of the roadside ditches. The roadside ditches have an OHWM and clearly deliver road runoff from SR 36 to the perennial streams. RD-4 does not directly connect with Hely Creek at the western end of the feature; therefore, this ditch may be determined non-jurisdictional.

Roadside Ditch 1 (RD-1) is non-jurisdictional as it does not convey water to Hely Creek. This roadside ditch lacks hydric soil and has a gravel bottom, most likely placed to capture roadside runoff.

Riparian Vegetation

Riparian vegetation potentially impacted by the project occurs from the top of bank to the OHWM. This vegetation includes dense shrubs and herbaceous species and upland trees with large branches that provide shade and inhibit sedimentation to adjacent waterways. Riparian vegetation was observed at all bridge locations.

Discussion of CEQA Environmental Checklist Questions 2.4a-f)—Biological Resources

"*No Impact*" determinations were made for Questions e) and f) of the CEQA Environmental Checklist–Biological Resources section based on the scope, description, and location of the proposed project, as well as the NES prepared in 2020 (Caltrans 2020f).

The following discusses Questions a) through d) of the CEQA Environmental Checklist–Biological Resources section. Each question is discussed individually; however, it should be noted that some resources fall under more than one question. As such, where necessary, those resources are discussed multiple times throughout this section.

> ***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?***

Plant Species

Buxbaum's sedge

Proposed construction at the Little Larabee Creek Bridge would result in impacts to Buxbaum's sedge. Impacts would be minimized by establishing ESAs around Buxbaum's sedge found outside of the immediate project footprint (area of impact). For plants within the project footprint, seeds would be collected and/or individual plants would be transplanted by a botanist familiar with the species. Seeds would either be spread, or individual plants would be relocated outside of the project footprint where impacts are not anticipated. Given this, it was determined the project would have a "*Less than Significant Impact*" on Buxbaum's sedge or its habitat.

Humboldt County Milk Vetch

Humboldt County milk-vetch has not been documented within or adjacent to the project ESL; therefore, proposed construction would not be expected to directly or indirectly impact this species. Given this, it was determined the project would have "*No Impact*" on Humboldt County milk-vetch or its habitat.

Per CESA, it was determined the project would not result in ***"Take"*** of Humboldt County milk-vetch.

Kneeland Prairie Pennycress

Kneeland Prairie pennycress has not been documented within or adjacent to the project ESL; therefore, proposed construction is not expected to directly or indirectly impact this species. Given this, it was determined the project would have "*No Impact*" on Kneeland Prairie pennycress or its habitat.

Per FESA, it was determined the project would have "*No Effect"* on Kneeland Prairie pennycress.

Lassics Lupine

Lassics lupine has not been documented within or adjacent to the project ESL; therefore, proposed construction is not expected to directly or indirectly impact this species. Given this, it was determined the project would have "*No Impact*" on Lassics lupine or its habitat.

Per CESA, it was determined the project would not result in "*Take*" of Lassics lupine.

Leafy-stemmed Mitrewort

Proposed construction at the Hely Creek Bridge would result in impacts to leafy-stemmed mitrewort. Impacts would be minimized by establishing ESAs around leafy-stemmed mitrewort found outside of the immediate project footprint. For plants within the project footprint, seeds would be collected and/or individual plants would be transplanted by a botanist familiar with the species. Seeds would be spread, or individual plants would be relocated outside of the project footprint where impacts are not anticipated. Given this, it was determined the project would have a "*Less than Significant Impact*" on leafy-stemmed mitrewort and its habitat.

Water Howellia

Water howellia has not been documented within or adjacent to the project ESL; therefore, the proposed construction is not expected to directly or indirectly impact this species. Given this, it was determined the project would have "*No Impact*" on water howellia or its habitat.

Per FESA, it was determined the project would have **"***No Effect*" on water howellia.

Western Lily

Western lily has not been documented within or adjacent to the project ESL; therefore, the proposed construction is not expected to directly or indirectly impact this species. Given this, it was determined the project would have "*No Impact*" on Western lily or its habitat.

Per FESA, it was determined the project would have "*No Effect"* on Western lily.

Per CESA, the project would not result in "*Take*" of Western lily.

Animal Species

Caltrans has determined that project activities would have "*No Impact*" on special status species that were queried but did not have potential habitat in the ESLs. Further discussion is provided below for special status wildlife species that could potentially occur in the project ESLs.

Amphibians

Construction work within the creeks and riparian areas could impact amphibians from project activities such as dewatering, vegetation removal and soil disturbance. The impacts on Foothill yellow-legged frog (FYLF), Northern red-legged frog, Del Norte salamander, and Southern torrent salamander are anticipated to be minimal with incorporation of the standard avoidance and minimization measures identified in Section 1.4, including the implementation of an Aquatic Species Relocation Plan.

If water is present at the time of construction, a qualified biologist would perform pre-construction amphibian surveys immediately prior to entering or working at the sites. Native amphibians found within the work area, which are not CESA-listed or candidates for CESA listing, would be relocated to a suitable habitat area outside of the construction limits prior to work. Suitable exclusion measures would be in place as needed prior to construction to minimize injury or mortality to wildlife.

Due to the timing of work, temporary nature of construction, standard measures, and the abundance of suitable habitat in the project vicinity to which amphibians could relocate if necessary, it was determined the project would have a "*Less Than Significant Impact*" on special status amphibians and their habitat.

Bat Species

Although no known maternity roosts or other colonial night roosts would be removed or altered during project activities, the proposed project could temporarily displace suitable night roosting habitat and inhibit foraging during active construction.

With the standard bird and bat measures and provisions for use of artificial light at night identified in Section 1.4, the proposed project is anticipated to have a minimal impact on bats due to the temporary loss of roosting and foraging habitat. Additionally, trees required for removal that have a diameter-at-breast-height (DBH) of 12 inches or less would be felled one day and the following day the remaining trees would be felled. This order of tree removal is intended to disturb tree roosting bats in the larger trees on Day One while smaller trees are being removed. It is anticipated that this disturbance would cause bats roosting in larger trees to mobilize into adjacent forests where auditory disturbances are not present. If disturbed, night roosting bats could readily relocate given the availability of suitable roosting and foraging habitat near the project site. Post construction, the new bridges would provide comparable night roosting habitat to the existing bridges.

Given the above, it was determined the project would have a "*Less Than Significant Impact*" on bat species and their habitat.

Coastal Cutthroat Trout

Several activities associated with the proposed project could negatively affect coastal cutthroat trout. These include stream diversion and associated fish relocation, noise and visual disturbance, and water quality impacts—similar to those identified for salmonids, as noted in the *Threatened/Endangered Species* section below.

Impacts would be minimized with the incorporation of the Standard Measures and Best Management Practices provided in Section 1.4 which includes the implementation of an Aquatic Species Relocation Plan. The measures proposed for federal and state listed fish species would be protective to coastal cutthroat trout as well.

Given this, it was determined the project would have a "*Less Than Significant Impact*" on coastal cutthroat trout and their habitat.

Migratory Birds

Impacts on migratory birds or their nests are not anticipated with incorporation of the Standard Measures and Best Management Practices identified in Section 1.4. Given this, it was determined the project would have a "*Less Than Significant Impact*" on migratory bird species or their habitat.

Northern Goshawk

No nests would be removed or altered during project activities. Pre-construction nest surveys would be performed to identify potential threats to Northern goshawk from project activities and to provide opportunity to develop appropriate avoidance measures. Given the highly unlikely presence of goshawk, minimal amount of vegetation to be removed, temporary nature of the project, and the Standard Measures and Best Management Practices to avoid disturbing active nests, it was determined the project would have "*No Impact*" on Northern goshawk or their habitat.

Pacific Fisher

As Pacific Fisher habitat exists within the ESLs of both Hely Creek and Little Larabee Creek, the species could be impacted during construction at these two locations.

Prior to tree removal, an assessment of potential resting and denning habitat would be conducted within the project footprint for Hely Creek and Little Larabee Creek. Consultation with CDFW and USFWS would occur if resting or denning habitat are identified. Additionally, if a fisher is observed at any time, construction operations would stop until a consultation with CDFW or USFWS has occurred. If trees that would be removed meet resting or denning criteria, the following measures would be implemented:

- No potential fisher den habitat trees would be removed during the critical denning period (March 1st through July 31st) unless a qualified biologist has assessed the tree and confirms that denning activities are not taking place.

- Outside of the critical denning period, trees ≤12 DBH shall be felled on Day One to allow Pacific fisher to move to suitable habitat nearby, and the following day the remaining trees may be felled.

With implementation of the measures discussed above, impacts to Pacific fisher would be minimized. Given this, it was determined the project would have a "*Less Than Significant Impact*" on Pacific fisher or their habitat.

Pacific Lamprey

Dewatering and stream flow management for work in Hely Creek, Little Larabee Creek and Butte Creek could cause a rapid fluctuation in water level and strand lamprey ammocoetes in the substrate. Clear water diversion could also impede upstream migrations by adult lamprey and downstream movement of ammocoetes and macrophthalmia. Excavation of the substrate within the dewatered creek channel for bridge construction could affect all age classes of ammocoetes, if present. Contaminants from accidental spills could also harm or kill ammocoetes, which are thought to have a higher propensity for accumulating toxins since they spend three to seven years filter feeding.

There have been no studies to determine responses of lamprey to sound, but lamprey do not have the typical hearing structures of other fish. Ammocoetes are partially buried in the substrate, which dampens vibration and noise. As a result, at least some life stages of lamprey may be less susceptible to injury from impulsive sound waves than other fish species. Relocation efforts in response to dewatering activities are expected to avoid any potential impacts to lamprey from any pile driving or hoe ramming; however, electrofishing performed in conjunction with relocation efforts could potentially harm individual fish.

Dewatering and relocation efforts for lamprey would be performed in accordance with *Best Management Practices to Minimize Adverse Effects to Pacific Lamprey* (*Entosphenus tridentatus*) (USFWS 2010) and *Best management guidelines for native lampreys during in-water work* (Lamprey Technical Workgroup 2020) which include the following:

- A pre-construction survey prior to construction to identify lamprey presence would be conducted by a professional fisheries biologist in areas affected by dewatering in the creeks.
- If present, salvaging by electrofishing or other methods would be performed prior to dewatering to relocate ammocoetes within the work zone to a safe area away from the construction site.
- Dewatering would be performed slowly over several days, or at a minimum overnight, to allow opportunity for any remaining lamprey to relocate on their own.

- The orientation, siting and type of fish screens used for dewatering operations would be selected to prevent entrainment by lamprey.
- A professional fisheries biologist would be present during channel excavations to sift through removed substrate to salvage any remaining ammocoetes, returning them to the stream channel a safe distance away from the construction site.

These measures, in addition to the Standard Measures and Best Management Practices listed in Section 1.4, would minimize impacts to Pacific lamprey. Given the small amount of habitat affected, the short duration/intermittent nature of the work, and the implementation of standard measures and BMP's, the proposed project is not likely to result in substantial population-level effects to Pacific lamprey. Therefore, it was determined the project would have a "*Less Than Significant Impact*" to Pacific lamprey.

Sharp-shinned hawk, Osprey, and Cooper's hawk

The standard protection measures for nesting raptors described in Section 1.4 would ensure avoidance of construction-related impacts to nesting raptors. No nests or observations of these species were reported within the project ESLs. Higher quality perching and resting habitat occurs elsewhere in the watershed along the Van Duzen should they be flushed from the project sites due to elevated noise levels during construction. Therefore, it was determined the project would have a "*Less Than Significant Impact*" to sharp-shinned hawk, osprey, and Cooper's hawk and their habitat.

Sonoma Tree Vole

Trees removed as a result of the project would be adjacent to a highly traveled roadway that would provide low quality habitat and limit use for nesting voles. Surveys determined the trees that would be removed do not have habitat structure to support Sonoma tree vole and lack occupancy of Sonoma tree vole. Additionally, the project is on the edge of the known range of this species. Given this, it was determined the project would have "*No Impact*" on Sonoma tree voles and their habitat.

Western Pond Turtle

Due to the temporary nature of construction and the abundance of suitable habitat near the project to which Western pond turtles (WPT) could relocate if necessary, impacts to Western pond turtle from this project are anticipated to be minimal. The Standard Measures and Best Management Practices for aquatic species listed in Section 1.4 would avoid impacts to this

species. Additionally, if work were to begin during the species critical egg laying period (March–August), a preconstruction survey for Western pond turtle would be conducted by a qualified biologist. If any WPT nests are observed in the project footprint, consultation with CDFW would be initiated, and an appropriate course of action would be carried out with guidance from CDFW. Given this, it was determined the project would have a "*Less Than Significant Impact*" to Western pond turtles and their habitat.

Threatened/Endangered Species

American Peregrine Falcon

No impacts to American peregrine falcon are anticipated with incorporation of the Standard Measures and Best Management Practices presented in Section 1.4. Standard measures for raptors include a pre-construction survey for active raptor nests and incorporation of conservations measures if active nests are detected within 0.25 mile of the project. Given this, it was determined the project would have "*No Impact*" on American peregrine falcons and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of American peregrine falcons.

Bald Eagle

A nesting bird survey prior to construction (as described in Section 1.4) would ensure that no bald eagles would be disturbed by project activities. Additionally, the inclusion of avoidance and minimization measures at both Hely Creek and Little Larabee Creek for NSO and MAMU would further protect any unknown bald eagles nesting on the edge of the ESLs.

Given there would be no bald eagle nest or nest structure removal associated with this project, and no nests were observed in range of the project where noise disturbance could potentially impact bald eagles, it was determined the project would have "*No Impact*" on bald eagles and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of bald eagles.

Bank Swallow

Bank swallows are not expected to occur within the ESLs; therefore, no project impacts are anticipated. Given this, it was determined the project would have "*No Impact*" on bank swallow and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of bank swallows.

Golden Eagle

Due to the lack of suitable breeding habitat, the potential for occurrence of Golden Eagle in the project ESLs is low. No impacts to Golden eagles are anticipated with incorporation of the Standard Measures and Best Management Practices presented in Section 1.4. Standard measures for raptors include a pre-construction survey for active raptor nests and incorporation of conservations measures if active nests are detected within 0.25 mile of the project.

Given this, it was determined the project would have "*No Impact"* on Golden Eagle and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of Golden eagles.

Humboldt Marten

The project is outside the current known population distribution of Humboldt marten. Given this, it was determined the project would have "*No Impact*" on Humboldt Marten and their habitat.

Per FESA, Caltrans has determined the project would have ***"No Effect"*** on Humboldt marten.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of Humboldt marten.

Little Willow Flycatcher

Due to the lack of suitable breeding habitat, little willow flycatcher is not expected to occur in the project ESLs. Given this, it was determined the project would have "*No Impact*" on little willow flycatcher and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of little willow flycatcher.

Marbled Murrelet

The Little Larabee Creek and Butte Creek locations do not provide the necessary structures in trees present to support nesting MAMU, thus no impacts are anticipated at these locations. At the Hely Creek Bridge location, MAMU is presumed present due to the presence of potentially suitable nesting within Grizzly Creek State Park.

Auditory or visual disturbance from action-generated sound may result in harm to MAMU or NSO during the breeding season when at least one of the following conditions is met (USFWS 2020): (1) action-generated sound exceeds existing ambient sound levels by 20 or more decibels (dB); (2) action-generated sound, when added to existing ambient sound levels, exceeds 90 dB; or (3) proposed activities occur within the visual line-of-sight distance of 330 feet (100 meters) or less from a MAMU or NSO nest.

There would be no visual disturbances to marbled murrelet nests within the project footprint at Hely Creek. However, some activities could occur within a visual line-of-sight of 330 feet (100 meters) from unknown nest locations—potentially leading to disturbance of nesting MAMU outside of the project footprint. Given MAMU are unlikely to nest close to the highway, and thus project activities, visual impacts are not expected to result in abandonment of their breeding effort or nest abandonment.

Effects of the project on MAMU include potential noise-related harm to nesting individuals at Hely Creek (USFWS 2020). These effects were evaluated using USFWS guidance (USFWS 2020). Ambient noise levels within the project footprint were estimated at *High* (81-90 decibels [dB]) because SR 36 is a busy highway used by recreational vehicles, large trucks, buses, and passenger cars. Most of the project equipment sound levels are estimated at *Moderate* (71-80 dB) to *High* (81-90 dB) and would not exceed likely ambient noise levels; however, some equipment used for pile driving could reach *Extreme* sound levels (101-110 dB). This could result in disturbance to MAMU if they are nesting in the action area at Hely Creek.

Caltrans determined that for the majority of project activities (< 91 dB) at Hely Creek, the estimated auditory harassment distance to any potential MAMU would be 165 feet (50 meters) from the source. However, during pile driving at Hely Creek, the estimated auditory harassment distance to any potential MAMU nesting habitat could extend up to 500 feet (150 meters) from the source. Beyond these distances, action-generated sound levels are expected

to attenuate back down to ambient levels. Pile driving activities at Hely Creek would start after July 9, occurring over a few days in two seasons. The MAMU breeding season in California is from March 24 through September 15, but most young have fledged by August 5 (Evans-Mack et al., 2003). Pile driving during a portion of the MAMU nesting season (March 24 to August 5) may affect nesting adults and dependent young occupying habitat outside of the project limits but within the estimated 500-foot auditory harassment distance from pile driving. Exposure to above-ambient noise levels could result in reduced reproductive success through disruption of nesting behavior. However, between August 6 and September 15, pile driving would be restricted to a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset. This restriction would minimize auditory disturbance to dependent murrelet chicks in nests and to adult murrelets during morning and evening prey deliveries to the nest. Although MAMU are unlikely to nest near the highway (high ambient noise) when surrounding habitat within the redwood grove is higher quality, the potential for noise disturbance during the breeding season for MAMU is presumed; therefore, Caltrans has determined a likely to adversely affect for MAMU at the Hely Creek Bridge site.

Due to potential impacts to MAMU, Caltrans prepared a Biological Assessment to initiate Section 7 Consultation with the USFWS in pursuit of a Biological Opinion for MAMU. The USFWS Biological Opinion is available in Appendix J.

Visual disturbance to MAMU as a result of the project is not expected to result in abandonment of their breeding effort or nest abandonment. Adverse MAMU habitat modification is not anticipated. Conservation measures have been incorporated into the project to minimize noise disturbance during the breeding season. Given this, it was determined the project would have a "*Less Than Significant Impact"* on marbled murrelet and their habitat.

Per FESA, Caltrans anticipates the proposed project ***may affect, is likely to adversely affect*** MAMU. There would be "*No Effect"* to MAMU designated critical habitat from this project.

Given the project would not directly harm this species, per CESA, this project would have no "***Take***" of MAMU.

Northern Spotted Owl

There would be no visual disturbances to northern spotted owl (NSO) nests within the construction footprints at any project location. However, activities could occur within a visual line-of-sight of 330 feet (100 meters) from unknown nest locations—potentially leading to disturbance outside of these footprints. No suitable nest trees would be removed.

The potential for noise-related impacts to NSO during the breeding season as a result of project activities was evaluated using USFWS guidance in (USFWS 2020). Ambient noise levels within the project footprint were estimated at *High* (81-90 decibels) because SR 36 is a busy highway used by recreational vehicles, large trucks, buses, and passenger cars. Most of the project equipment sound levels are estimated at *Moderate* (71-80 dB) to *High* (81-90 dB) and would not exceed likely ambient noise levels; however, some equipment used for pile driving could reach *Extreme* sound levels (101-110 dB). This could result in disturbance to NSO if they are nesting or foraging in the action areas.

Caltrans determined that for the majority of project activities (< 91 dB) in the action areas, the estimated auditory harassment distance to any potential NSO would be 165 feet (50 meters) from the source. However, during pile driving and bridge deck removal activities, the estimated auditory harassment distance to any potential NSO could extend up to 500 feet (150 meters) from the bridge. Beyond these distances, action-generated sound levels are expected to attenuate back down to ambient levels. Pile driving activities are proposed to take place after July 9 at Hely and Little Larabee creeks and after June 15 at Butte Creek.

The NSO breeding season is from February 1 through September 15. However, by July 10 the majority of young NSO have fledged from the nest. Presence of NSO during construction is presumed at Hely and Little Larabee creeks based on survey data and the presence of suitable habitat within the 500-foot estimated harassment distance. Recent survey data suggests that nesting within the action area at Butte Creek is unlikely, but due to the presence of suitable habitat and possibility for missed detections or future occupancy, NSO presence at Butte Creek is not completely ruled out, however discountable.

Caltrans does not anticipate adverse effects to NSO from elevated action-generated noise given pile driving activities would be restricted until after July 9 at Hely and Little Larabee creeks when young are expected to have fledged from the nest. In addition, NSO are unlikely to nest near the highway at any location (due to high ambient noise) when surrounding habitat within the project vicinity is higher quality. Therefore, Caltrans has determined that effects to NSO from elevated project noise disturbance would be insignificant at Hely and Little Larabee creeks and discountable at Butte Creek.

Tree and vegetation removal can result in habitat modification impacts to NSO. Removal of any potentially suitable nest trees or limbs within the project footprint would be restricted to September 16 to January 31, outside of NSO nesting season. Tree and vegetation removal activities would not have a substantial impact on the overall quality, characteristics, or structure of the stands of mature forest within the action area nor would it be likely to impact NSO nesting or roosting activity. Overall, less than a dozen potential NSO nest/roost trees would be removed; therefore, impacts due to the proposed action are unlikely to reach the level of habitat degradation. The proximity of the project to the highway would likely discourage NSO from nesting within the construction footprints where trees are to be removed due to the year-round high ambient noise levels. Within the project vicinity, there is a significant amount of higher quality nesting and roosting habitat for NSO. Foraging NSO could temporarily relocate if disturbed by project activities as adjacent to the project area there is a substantial amount of higher quality foraging habitat for NSO.

Given that auditory and visual disturbance and habitat modification would be minor, it was determined this project would have a "*Less Than Significant Impact*" on NSO and their habitat.

Per FESA, Caltrans anticipates the proposed project *may affect, but is not likely to adversely affect* NSO. There would be "*No Effect"* to NSO designated critical habitat from this project. Due to potential impacts to NSO, Caltrans initiated formal Section 7 Consultation with the USFWS. The USFWS concurrence on the NSO effects determination is available in Appendix J.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of NSO.

Salmonids

Construction of the proposed project would result in impacts to CC Chinook salmon, SONCC coho salmon, and steelhead (NC and summer-run steelhead). Actions that could potentially affect salmonids occupying the creeks include clear water diversions and associated fish relocation, noise and visual disturbance, and water quality impacts, as described below. Vegetation removal, noise and visual disturbance, and/or water quality impacts could also temporarily affect designated critical habitat.

Clear Water Diversion and Fish Relocation

A diversion would be installed at each of the three bridge sites during the work season over the two-year duration of construction. The diversion would occur on or after June 15 and would be removed prior to October 15 each year of construction. Stream diversions are necessary for completion of work, but also reduce potential impacts from noise and visual stressors on fish. The temporary stream diversion system may restrict the movement of rearing juvenile coho salmon that could be present in Hely Creek and NC steelhead at Hely, Butte and Little Larabee creeks, potentially making them more vulnerable to stress and predation; however, the timing of diversion avoids the late fall-winter migration period for adult salmon that may pass through the project area to spawn, and most of the spring-early summer smolt out-migration. Elements of salmonid habitat potentially affected by the stream diversion include rearing/foraging sites and migration corridors. The short-term loss of rearing habitat and migratory function alone is not likely to substantially impact juveniles given the temporary nature of the diversion, the availability of suitable rearing habitat elsewhere in the watershed, and placement of the diversion during the summer when few individuals would be expected to use the habitat. Adult spawning and smolt migration are not likely to be affected considering the diversion would be constructed after smolts have completed emigration to the estuary and then removed prior to the onset of adult spawning migration. Even with the diversion in place, downstream passage would be maintained, allowing for any potential late season smolt out-migration through the action area.

The stream diversion systems may require fish capture and relocation using electrofishing. Removing fish from the temporary construction areas of the creeks would reduce the number of fish potentially injured or killed during the summer work season. In the absence of fish relocation, fish and aquatic organisms may be exposed to dewatering, thermal stress, desiccation, physical injury from construction equipment, and elevated sound levels during pile driving operations. However, while fish relocation substantially avoids impacts from construction, fish relocation activities themselves can harm fish. Electrofishing and handling can harm individual fish, resulting in up to 3% mortality (pers. comm. Mike Kelly). Estimated fish exposure and mortality at each bridge location are summarized in Table 4. The amount of unintentional injury or mortality attributable to fish removal varies widely depending on the method used, ambient conditions, and the expertise and experience of the field crew. Fish collecting gear, whether passive (Hubert 1996) or active (Hayes et al., 1996), poses some risk to individuals, including stress, disease transmission, injury, or death. In addition, relocated fish may have to compete with other fish for available resources such as food and habitat (Keeley 2003). The growth rate of fish can be slowed when population density is high (Ward et al., 2007).

Table 4. Fish Exposure and Mortality Estimates During Dewatering and Relocation

Project Location	Coho Salmon Estimated Exposure	Steelhead Winter-run Estimated Exposure	Steelhead Summer-run Estimated Exposure	Coho Salmon Estimated Mortality (3%)	Steelhead Winter-run Estimated Mortality (3%)	Steelhead Summer-run Estimated Mortality (3%)
Hely Creek	30	60	0	1	2	0
Little Larabee Creek	0	70	30	0	2	1
Butte Creek	0	4	160	0	1	5

Electrofishing would be performed prior to dewatering to relocate fish and other aquatic organisms within the work zone to a safe area away from the construction site. Adverse effects to listed species would be minimized by incorporating the measures outlined in Section 1.4. A qualified fisheries biologist would conduct all fish relocation and oversee dewatering operations.

Noise and Visual Disturbance

Construction activities may cause behavioral responses to stress associated with noise and visual disturbance of juvenile salmon present during the in-stream work period of June 15 to October 15. Physical changes to the water column caused by shading, vibration from construction equipment, and/or workers walking in or near the channels could disrupt feeding, delay migration, or flush fish from suitable habitat, potentially making them more vulnerable to predation. Impact noise (such as hoe ramming, jackhammering and impact pile driving) conducted near the wetted channels could cause abrupt and extreme changes in water pressure that could be harmful or fatal to fish. Injury sustained from these pressure changes is termed barotrauma.

Construction activities which produce impulsive sound waves that could potentially cause injury or harm to individual fish are differentiated from those activities that produce continuous sound waves (i.e., general construction noise), which typically only elicit behavioral responses in fish. General construction noise and visual impacts would be

restricted to the immediate vicinity of the bridge work. During construction, movement of salmonid species may be affected by noise (e.g., vibration from construction equipment, hoe-ramming) and visual stressors (e.g., artificial light, sudden movements). However, upon cessation of work, it is anticipated that fish movement and access would return to pre-construction conditions. Noise and visual disturbances are expected to have only temporary effects on the behavior and distribution of fish and would be minimized through implementation of the Standard Measures and Best Management Practices identified in Section 1.4.

Caltrans conducted a hydroacoustic assessment (Caltrans 2020d) to evaluate potential underwater noise levels generated by planned construction activities. The hydroacoustic assessment was updated in December 2020 to address refinements to the dewatering limits and potential pile driving. It was determined that peak sound pressure from pile driving, hoe ramming, and jackhammering would not be expected to exceed currently adopted hydroacoustic noise thresholds known to cause injury to fish of any size at any of the three bridge locations. It is anticipated that pile strikes with single strike SELs of less than 150 dB would not accumulate to cause injury or elicit behavioral effects to fish of any size.

The most impactful (loudest) scenario for bridge construction was analyzed—this included the use of an impact hammer to install piles for the new bridge and a demolition hammer (most likely excavator-mounted hoe ram) to demolish the old bridge. Both construction activities are considered impulsive noise sources that could potentially create noise levels that could cause injury to fish and possibly exceed the daily cumulative sound exposure level (SEL) criteria. It is anticipated the small pile size and large dewatered areas would prevent exceedance of the 206 dB peak sound pressure level threshold in adjacent waters that could support fish.

The cumulative SEL impact zone is dependent on the size of the dewatered area and would vary between bridge locations (further discussed below). Hely, Little Larabee and Butte creeks would be dewatered prior to any pile driving and hoe ramming activities. Distance from the piles to the water varies by location.

At Hely Creek the nearest pile to the water is approximately 30 feet (9 meters) from the creek. Falsework may be required at this location and could be driven within the dewatered area of the creek. The distance to the 187 dB cumulative SEL is estimated to be 66 feet (20 meters) from the pile driving operation and the distance to the 183 dB cumulative SEL criteria is estimated to be 115 feet (35 meters) from the pile. The distance to the behavioral

root mean square (RMS) criteria would most likely be limited to less than 328 feet (100 meters) from the pile due to site conditions.

At Little Larabee Creek the nearest pile to the water is approximately 39 feet (12 meters). Falsework would not be required at this location. The distance to the 187 dB cumulative SEL is estimated to be 66 feet (20 meters) from the pile driving operation and the distance to the 183 dB cumulative SEL criteria is estimated to be 115 feet (35 meters) from the pile. The distance to the behavioral RMS criteria would most likely be limited to less than 328 feet (100 meters) from the pile due to site conditions.

At Butte Creek the nearest pile to the water is approximately 130 feet (40 meters). Falsework may be required at this location and could be driven within the dewatered area of the creek. Spread footings or small diameter CIDH piles are anticipated at Abutment 2 due to expected hard rock. A jackhammer would most likely be required to remove rock during foundation construction. Due to the distance from the creek, impact driving steel H-piles at Abutment 1 is not expected to exceed the 183 dB cumulative SEL injury threshold. Steel H-piles for the falsework could potentially exceed the 183 dB cumulative SEL threshold but would remain below the 206 dB peak sound pressure level threshold. Because the dewatered area is smaller at Butte Creek than the other two locations, the cumulative SEL impact zones are expected to be larger. The distance to the 187 dB cumulative SEL is estimated to be 98 feet (30 meters) from the pile driving operation and the distance to the 183 dB cumulative SEL criteria is estimated to be 180 feet (55 meters) from the pile. The distance to the behavioral RMS criteria would most likely be limited to less than 328 feet (100 meters) from the pile due to site conditions. The primary source of noise at Butte Creek may be caused by operation of hydraulic hammers while removing a portion of the rock needed for foundation construction. There is limited data that shows underwater noise impacts associated with hoe-ram and jackhammer activity and there is no data that shows potential underwater noise levels from hammering of hard rock adjacent to the water. However, there are several Caltrans projects and one Washington Department of Transportation project where underwater noise monitoring was conducted during removal of bridge piers where it was determined that the transmission of sound energy from hoe rams is similar to the energy from an impact pile driver. Based on this determination, peak sound pressure levels during jackhammering are expected to remain below the 206 dB threshold at 33 feet (10 meters) from the rock removal operation. The distance to the 183 and 187 dB cumulative SEL is estimated to be 151 feet (46 meters) from the rock removal operation. The distance to the behavioral RMS criteria would most likely be limited to less than 328 feet (100 meters) due to site conditions.

Installation of small land-based piles typically do not create peak sound pressure levels large enough to cause injury to fish. It is estimated that five piles would be installed per day/creek and would not exceed more than two thousand blows per day. No exceedances of the peak injury or behavioral threshold criteria to fish are anticipated during pile driving, hoe ramming, jackhammering, or other equipment necessary for bridge and partial boulder removal. Due to the shallow water conditions and the small channel widths, the cumulative SEL impact zone would most likely be limited to the immediate area of the pile driving or jackhammering operations. However, ground borne noise can be unpredictable and varies from site to site because it depends on site conditions, such as soil saturation and soil composition. Because of the uncertainties, to identify when abatement is necessary, noise levels would be monitored by a trained hydroacoustic specialist during all operations that could potentially produce impulsive sound waves. To stay below the cumulative SEL limit (183 dB at Hely and Butte creeks; 187 dB at Little Larabee Creek), a daily construction time limit (as determined by monitoring) may be required and would be included in the Hydroacoustic Monitoring Plan.

Dewatering of the stream channels and the commitment to remain below hydroacoustic injury thresholds would ensure that potential effects stemming from elevated levels of hydroacoustic noise during construction would be insignificant, unlikely to reduce the fitness of individual fish, or have permanent, lasting effects to the rearing/foraging and migratory function of the habitat.

Water Quality Impacts

Pollutants in highway runoff, or from construction operations, could result in the mobilization of sediment both during and after construction. Wetland fill encroachment, new impervious surface, and the removal of wetland and riparian vegetation all have the potential to impact water quality within the project area. However, the project is not anticipated to permanent effect on water quality or the beneficial uses of downstream receiving waters. Further discussion on water quality is provided in Section 2.10—Hydrology and Water Quality. Water quality issues that could potentially impact salmonids are discussed below.

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 that they could displace themselves from their preferred habitat in order 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 (Newcombe and Jensen, 1996; Bash et al., 2001). Suspended sediment and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels. At levels reaching 25 milligrams per liter (mg/L), suspended sediment can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd, 1980). While benthic communities can normally withstand short-term increases in suspended sediment, small increases over longer or continuous durations can affect the quantity and composition of aquatic invertebrates (i.e., prey species) and reduce the production of aquatic plants (Robertson et al., 2006).

Construction of all three bridges (and associated clear water diversions) would disturb soils which could potentially be transported to the wetted channels during storm events. Demolition of the bridges could produce fugitive dust emissions that could reach the project area watercourses or fall to the ground and later be discharged to waterways. There is also potential for increases in sediment delivery post construction if areas of soil disturbance are not stabilized and remain susceptible to erosion. However, with implementation of the Standard Measures and Best Management Practices identified in Section 1.4, 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. These measures also include scheduling BMPs that avoid the most vulnerable periods of adult and smolt migration and coincide with the period when juvenile salmonid populations are lowest.

Pollutants Associated with Stormwater Runoff and Accidental Spills

Contaminants generated by traffic, pavement materials, and airborne particles that settle may be carried by stormwater runoff into receiving waters, which may be taken up by aquatic organisms. Accidental spills of hazardous material, such as those caused by highway-related traffic accidents or equipment refueling, maintenance, and fluid leakage near watercourses, also pose a risk of contamination to aquatic habitat, depending on the type and quantity of the material spilled.

Exposure to stormwater pollutants can cause reduced growth, impaired migratory ability, and impaired reproduction in salmonids and other fishes. Contaminants in runoff can also be taken in by prey species, reducing prey availability or providing an indirect source of toxicity. The extent and severity of these effects vary depending on the extent, timing, and duration of the exposure; ambient water quality conditions; the species and life history stage exposed; pollutant toxicity; and synergistic effects with other contaminants (U.S. EPA 1980).

During construction, a risk would exist for accidental release of oil, grease, wash water, solvents, cement, or other construction materials into the creeks. However, with implementation of the standard measures and Best Management Practices identified in Section 1.4, 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 and Best Management Practices 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 the potential effects to salmonids are discountable. There would 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.

Wetland Fill Encroachment

Wetland fill encroachment could potentially cause an increase in peak flow and higher runoff volumes that could lead to channel scouring and bank erosion that, in turn, can increase sediment and turbidity in receiving waters. It can also lead to decreased storage capacity and outflow efficiency, thereby negatively affecting floodplain processes that are important for salmonids. The project would permanently impact 0.0195 acre of wetlands (Table 6), described further under Question c) below. The impacts would be mitigated off site and are not expected to increase peak flow and runoff volumes on site. New impervious surface area that could increase flow and volume of runoff would be addressed by creating bioswales and biostrips. These would be placed adjacent to highway shoulders, fill slopes, revegetated access areas, and drainage systems to convey and treat stormwater through biofiltration.

Impacts to Jurisdictional Waters and Riparian Habitat Removal

Temporary and permanent impacts to wetlands, waters and riparian are discussed in Section 2.4.—Biological Resources under Question c). The bridge work is expected to have minimal impact on the functional values of existing riparian, wetlands, and waters habitat for salmonids at each bridge location. The project would not result in long term changes to the water chemistry or physical characteristics (e.g., substrate and flow) of the river after construction is complete. Habitat changes would include wetland fill encroachment, permanent loss of in-stream habitat due to pier column installments at Little Larabee Creek, vegetation disturbance associated with the temporary and permanent removal of wetland and riparian vegetation, and increased shading from wider bridge configurations. However, the project overall would result in fish habitat enhancement in the stream systems by improving bank stability at Hely Creek, opening up the stream channel at both Hely and Butte creeks,

removing invasive plants from the riparian corridor at Hely Creek, and in-stream habitat improvements with installation of large woody debris (LWD) at Hely and Butte creeks.

Per FESA, Caltrans anticipates this project *may affect, and is not likely to adversely affect CC ESU Chinook salmon*. Caltrans anticipates the project *may affect, and is likely to adversely affect* SONCC coho salmon, and NC DPS steelhead. Caltrans anticipates this project *may affect but is not likely to adversely affect* critical habitat for CC Chinook salmon, SONCC coho salmon, and NC steelhead. Caltrans has initiated formal consultation (Appendix K) for these species and is seeking a Biological Opinion from NMFS.

Per CESA, the project may result in "*Take*" of SONCC coho salmon and summer-run steelhead due to the need for dewatering and potential fish relocation (Table 4). Caltrans would pursue an Incidental Take Permit (ITP) or Consistency Determination (CD) on the federal Biological Opinion for SONCC coho salmon and NC steelhead. CDFW may require Caltrans to fully mitigate for impacts to SONCC coho salmon and NC steelhead pursuant to CESA. Caltrans coordinated with CDFW regarding American bullfrog (*Rana catesbeiana*) eradication efforts at the Mad River Pond in Humboldt County to mitigate for incidental take of coho salmon and summer-run steelhead that may result from upcoming projects. However, through technical assistance and formal consultation with NMFS, it was determined that take numbers would be low and the proposed mitigation at Mad River Pond would not be commensurate with the impacts. Instead, mitigation for incidental take would be implemented on-site through installation of LWD.

At the Hely Creek Bridge, a rootwad revetment would be installed at the northeast quadrant of the bridge to help maintain the new alignment of the channel and provide habitat and embankment protection. The structure would be constructed with two large conifer rootwads. The habitat provided by the LWD is anticipated to offset take of juvenile coho at this location. At the Butte Creek Bridge location, habitat creation and enhancement would be implemented for take of summer steelhead by installing LWD. LWD in streams can create hydraulic complexity such as pools that provide refuge. LWD can also provide cover and food sources for fish and other aquatic species. The installations would be designed by a licensed hydraulic engineer and plans would be provided to CDFW for review and approval prior to construction. A Conceptual Large Woody Debris Installation Plan is available in Appendix N. Caltrans would continue to work closely with CDFW during the permitting phase of this project to determine appropriate measures to ensure all impacts to SONCC coho salmon and summer-run steelhead from the final project designs are fully mitigated. Any measures identified in the ITP would be associated with agency permit compliance and would not be considered a mitigation requirement per CEQA.

Essential Fish Habitat

The proposed project would affect essential fish habitat (EFH) for Pacific salmon managed under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). During construction, water quality may be temporarily impaired due to short term, localized increases in turbidity from activities that involve ground disturbance. Stormwater runoff has the potential to compromise downstream habitat and reduce the quality of localized rearing habitat. However, implementation of the Standard Measures and Best Management Practices to protect water quality identified in Section 1.4 would 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. No long-term, permanent impacts to EFH are anticipated due to water quality.

Cover/shelter, foraging potential, and safe passage conditions may also be temporarily compromised due to elevated noise levels (i.e., general construction noise, bridge removal, pile installation, Butte Creek rock removal) and visual stressors (i.e., artificial light, sudden movements) during construction near or over the project watercourses. With incorporation of the Standard Measures and Best Management Practices designed to limit disturbance identified in Section 1.4, and given that available cover/shelter, foraging potential, and safe passage conditions would be restored to baseline levels once construction is complete, it is expected there would only be minor, localized, and/or short term effects to these EFH elements. During construction, activities that could cause noise and visual stressors would be restricted to the period when the least number of individuals would be present within the action area.

Slightly wider bridge configurations would result in a small incremental increase of permanent shading of Hely, Little Larabee and Butte creeks which may result in a minor reduction of primary production and riparian vegetation. There would also be temporary and permanent removal of vegetation that provides riparian function. The scale of these impacts is considered small, resulting in no measurable decrease in the quality of the rearing habitat for EFH species or migration corridors (for salmonids).

Caltrans anticipates a determination that the proposed project would ***adversely modify*** EFH for coho salmon and Chinook salmon, therefore consultation with NMFS would be required. However, no measurable, long-term adverse modification to waters, substrates, food production and availability, and cover conditions from increased shading or vegetation removal is expected. As such, there would be no long-term, permanent impacts to EFH for

Pacific salmon after construction that would reduce the quality of habitat to an extent that individual salmonids would be impacted.

Although the project may result in take and temporarily degrade habitat, the project is not anticipated to result in substantial adverse effect to the populations of these species. The estimated incidental take numbers for salmonid species are low, and permanent habitat enhancement would be incorporated on site. Impacts would be addressed through consultation with NMFS and CDFW. Given this, it was determined the project would have a "*Less Than Significant Impact*" to salmonids and their habitat.

Western Bumble Bee and Obscure Bumble Bee

Most ground disturbance for this project would occur in areas seasonally flooded during the hibernation period of bumble bees. Because the areas are inundated with water during the hibernation period, bumble bees are not anticipated to be overwintering in areas proposed for project access. Areas that are not seasonally flooded are routinely disturbed by mowing and road grading.

Given potential ground disturbance would likely not impact bumble bee habitat and all vegetated disturbed areas would be restored, it was determined the project would have "*No Impact*" on bumble bee species and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of Western bumble bee.

Western Snowy Plover

There is no habitat for Western snowy plover in the project ESLs due to the lack of expansive beach habitat. The potential for Western snowy plover to occur is low. There would be no potential nest disturbance. Given this, it was determined the project would have "*No Impact*" on Western snowy plover and their habitat.

Per FESA, Caltrans has determined the project would have "*No Effect"* on Western snowy plover and their critical habitat.

Western Yellow-billed Cuckoo

Due to the lack of suitable breeding habitat, the potential for occurrence of Western yellow-billed cuckoo in the project ESLs is low. Given there would be no nest disturbance associated with this project, it was determined the project would have "*No Impact*" on Western yellow-billed cuckoo and their habitat.

Per FESA, Caltrans has determined the project would have "*No Effect"* on Western yellow-billed cuckoo and their critical habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of Western yellow-billed cuckoo.

Endangered Species Act Determinations for Species Not Discussed in Section 2.4

Green sturgeon (*Acipenser medirostris*) has been identified as potentially occurring in the project vicinity; however, given they were determined to be absent from the ESL at all three bridges, the species is not discussed further in Section 2.4 (see Appendix F). As a result, per FESA, Caltrans has determined the project would have ***"No Effect"*** on green sturgeon.

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?

Natural Communities

Douglas-fir—Tanoak Forest Association

At the Little Larabee Creek Bridge location, construction of the proposed project would result in approximately 0.052 acre of permanent impact and 0.038 acre of temporary impact to the Douglas-fir–Tanoak Forest Association.

The amount of impact would not result in a substantial adverse effect to this sensitive natural community. Disturbed areas would be treated with erosion control BMP's, seeded, or planted with appropriate native plant species. Plant species and locations would be developed by the project landscape architect and biologist. Given this, a determination was made that the project would have a "*Less Than Significant Impact*" on Douglas-fir–Tanoak Forest Association.

Oregon White Oak Woodland Alliance

At the Butte Creek Bridge location, construction of the proposed project would result in approximately 0.004 acre of permanent impact and 0.013 acre of temporary impact to Oregon White Oak Woodland Alliance.

The amount of impact would not result in a substantial adverse effect to this sensitive natural community. This occurrence is not considered representative of any sensitive alliances or associations. Disturbed areas would be treated with erosion control BMP's, seeded, or planted with appropriate native plant species. Plant species and locations would be developed by the project landscape architect and biologist. Given this, it was determined the project would have a "*Less Than Significant Impact"* on Oregon White Oak Woodland Alliance.

California Bay Alliance

At the Little Larabee Creek Bridge location, construction of the proposed project would result in approximately 0.014 acre of permanent impact and 0.042 acre of temporary impact to California Bay Alliance.

The amount of impact would not result in a substantial adverse effect to this sensitive natural community. Disturbed areas would be treated with erosion control BMP's, seeded, or planted with appropriate native plant species. Plant species and locations would be developed by the project landscape architect and biologist. Given this, it was determined the project would have a "*Less Than Significant Impact*" on California Bay Alliance.

Redwood Forest Alliance

At the Hely Creek Bridge location, construction of the proposed project would impact approximately 0.5 acre of Redwood Forest Alliance. There is a total of 1.73 acres of Redwood Forest Alliance within the ESL, at the Hely Creek Bridge location and no Redwood Forest Alliance at the other two project locations. Project activities such as creation of access roads, cut/fill grading, clearing for crane pad construction and crane operation, and bridge widening would require the removal of trees. Impacts to portions of the root zones could also necessitate additional tree removal.

An arborist assessment was conducted to evaluate impacts to large diameter trees. Results of the arborist assessment are documented in the *Tree Impact Analysis* report (Caltrans 2020g). An update to the 2020 report was prepared in 2021 to address project changes and the resulting reduction of impacts to large diameter trees (Caltrans 2021c). Construction would

require the removal of six large trees located within access and crane operational areas or to those trees that would sustain substantial impacts to their critical root zone (CRZ). Of the six large trees to be removed, two are coast redwood, three are Douglas-fir, and one is a tanoak.

For the purpose of analyzing potential project impacts on trees, this discussion focuses on the terms structural root zone (SRZ) and absorber root zone (ARZ) (Figure 2).

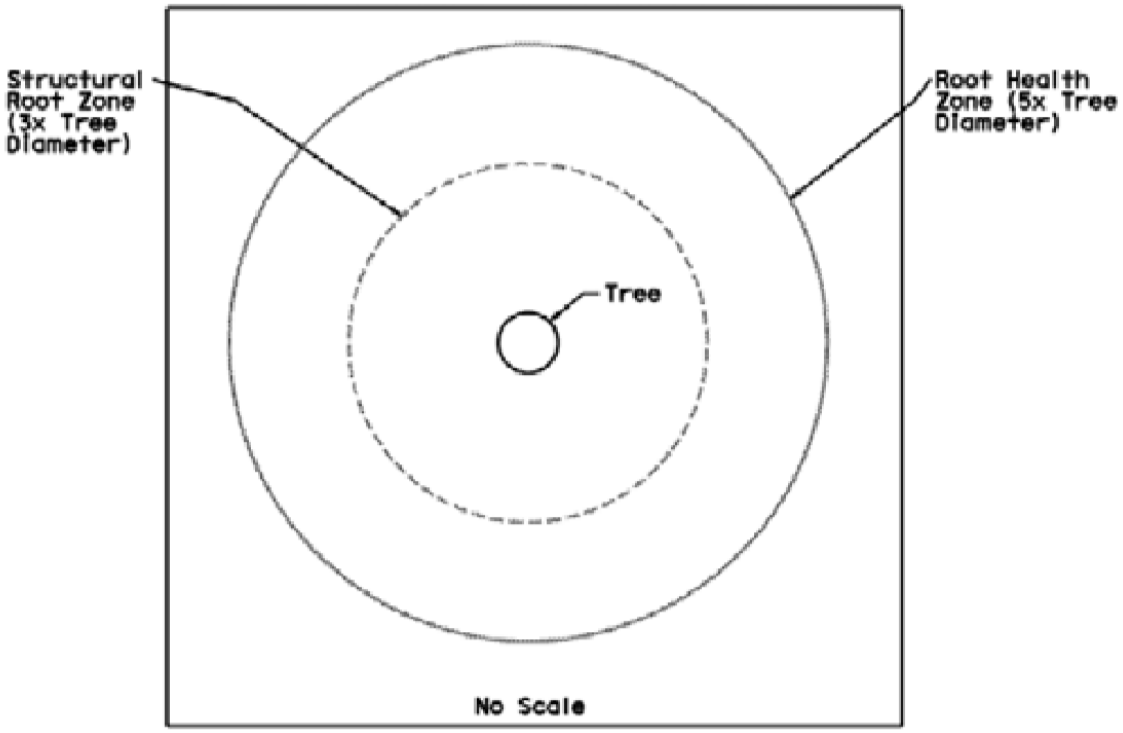

Figure 2. Diagram of the Root Zones of Coast Redwood Trees

The root health zone (RHZ) seen in this figure, and found in other arborist reports, is synonymous with the ARZ used in this document. The smaller SRZ contains the majority of the tree's large supporting structural roots that provide stability (Costello et al., 2003; Helliwell 1989; Smiley et al., 2002; Smiley 2009). The larger ARZ is important for tree health, generally containing most of a tree's finer roots which absorb water and nutrients from the soil. The size of these zones varies by species. For coast redwood, the SRZ is three times the diameter at breast height (DBH) and the ARZ is five times the DBH. Maps of trees and their root zones, in relation to proposed construction, are provided in Appendix H. Table 5 summarizes the potential tree impacts at the Hely Creek Bridge location.

Table 5. Potential Impacts to Trees at Hely Creek

Tree	Species	DBH (feet, tenths)	Stem Removal[1]?	SRZ Permanent Impact (Cut)	ARZ Temporary Impact (Fill)	ARZ Permanent Impact (Cut)[2]	Removal of Tree Required?
10071	Douglas-fir	2.5	No	0.0%	0.0%	0.0%	No
10072	Coast redwood	2.1	No	0.0%	0.0%	0.0%	No
10080	Coast redwood	2.0	No	0.0%	0.0%	0.0%	No
10081	Coast redwood	2.0	No	0.0%	0.0%	0.0%	No
10082	Coast redwood	4.5	No	0.0%	0.0%	0.0%	No
10175	Coast redwood	6.0	No	0.0%	7.8%	0.0%	No
10178	Douglas-fir	2.0	No	0.0%	1.4 %	0.0%	No
10180	Douglas-fir	2.3	No	0.0%	18.8%	0.0%	No
10255	Coast redwood	2.2	Yes	-	-	-	Yes
10256	Coast redwood	4.5	Yes	-	-	-	Yes
10257	Douglas-fir	2.0	Yes	-	-	-	Yes
10285	Tanoak	2.2	Yes	-	-	-	Yes
10336	Douglas-fir	2.5	No	0.0%	100.0%	0.0%	Yes
10353	Douglas-fir	2.0	No	0.0%	85.4%	0.0%	Yes

[1] Trees in direct conflict with access roads, crane pads and crane radii would need to be removed regardless of root zone impacts

[2] Cuts associated with the access roads are not considered permanent impacts on the ARZ.

Tree	Species	DBH (feet, tenths)	Stem Removal[1]?	SRZ Permanent Impact (Cut)	ARZ Temporary Impact (Fill)	ARZ Permanent Impact (Cut)[2]	Removal of Tree Required?
10356[3]	Coast redwood	8.2	No	18.03%	0.0% or 9.7% (CIP[4])	6.8%	No, ESA critical
10363	Coast redwood	2.7	No	0.0%	0.0%	2.84	No
10364	Coast redwood	2.5	No	0.0%	0.0%	12.6%	No
10367	Coast redwood	2.4	No	0.0%	0.0%	10.7%	No
10368	Coast redwood	2.4	No	2.9%	0.89%	17.8%	No
10889	Douglas-fir	2.0	No	0.0%	0.0%	0.07%	No
10890	Coast redwood	8.0	No	9.0%	0.79%	20.3%	No
10932	Coast redwood	4.0	No	0.0%	0.0%	0.0%	No
10975	Coast redwood	8.0	No	0.0%	0.65%	0.0%	No
10981	Coast redwood	4.5	No	0.0%	11.8%	0.0 %	No, ESA critical (pruning required)
10982	Coast redwood	2.4	No	0.0%	7.1%	0.0%	No, ESA critical (pruning required)
10986	Coast redwood	2.4	No	2.1%	0.0%	0.0%	No

[3] A composite DBH derived from four stems.

[4] Refers to fill impacts that would result from placement of temporary falsework for cast-in-place (CIP) construction

Tree	Species	DBH (feet, tenths)	Stem Removal[1]?	SRZ Permanent Impact (Cut)	ARZ Temporary Impact (Fill)	ARZ Permanent Impact (Cut)[2]	Removal of Tree Required?
10987	Coast redwood	4.2	No	2.2%	3.2%	12.7%	No
10991	Coast redwood	5.5	No	1.2%	20.1%	0.0%	No
10992	Tanoak	2.0	No	0.0%	29.1%	0.0%	No
11259	Coast redwood	8.0	No	0.0%	3.7%	2.3%	No
11273	Coast redwood	4.5	No	0.0%	11.8%	0.0%	No

The project could result in moderate impacts (7.1–11.8%) to the ARZ of an additional three coast redwoods (Trees 10356, 10981, 10982) (Table 5). Coast redwood Tree 10356 would also have permanent impacts to 18.03.7% of its SRZ, and trees 10981 and 10982 could experience branch trimming within approximately 30 feet of the ground surface for crane operations. Removal of these trees is not recommended; rather an ESA buffer would be established around them (Table 5). An additional 14 trees would have mild to moderate temporary (0.65–29.1%) and/or permanent (0.07–20.03%) impacts to their ARZs. These trees are not recommended for removal because of the resiliency of coast redwood trees, particularly when in good health, as these are. The mild to moderate impacts on their SRZs (less than 20%), ARZs (less than 40%), and trimming of lower branches, would not substantially affect the structural integrity, health, or life expectancy of these trees. Additionally, with implementation of the Standard Measures and Best Management Practices discussed in Section 1.4, these trees are considered likely to survive any impacts from construction activities.

The Redwood Forest Alliance is prevalent in the Hely Creek watershed and the surrounding landscape. The forest area impacted by the Hely Creek Bridge replacement is 0.5 acre, which amounts to 1% of the 48-acre stand in the immediate project vicinity. The removal of this 0.5 acre of habitat adjacent to the highway would not result in a substantial adverse effect to the forest. The largest trees (4.5 to 8-foot DBH) within the ESL would be avoided and remain after construction to continue to provide canopy cover and shade. Temporarily disturbed areas would be regraded to a natural contour and treated with erosion control, such as redwood duff and bark to slow surface water run-off and invasive plant growth. A

Revegetation Plan would be implemented after construction is completed to restore native vegetation and riparian habitat to these areas. Given this, it was determined the project would have a "*Less Than Significant Impact*" on the Redwood Forest Alliance.

Invasive Species

There are numerous invasive species within the project area. Many invasive plant species are disturbance related and could recolonize or increase population sizes through construction activities; however, implementation of the Standard Measures and Best Management Practices listed in Section 1.4 would ensure invasive species would not proliferate. Given this, it was determined this project would have "*No Impact*" on invasive species proliferation.

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 would have temporary and permanent impacts to jurisdictional waters of the U.S. and State. Temporary impacts refer to those areas that would be restored on-site and in-kind upon completion of construction.

Temporary impacts to aquatic resources are anticipated during ground disturbance and construction activities, such as vegetation removal, grading for access, temporary placement of fill, equipment staging, drainage work, and dewatering.

Permanent impacts include areas with a larger infrastructure footprint relative to the current bridge and highway. This includes any areas where new pavement would be added including new bridge foundations, walls, wingwalls, and sites where rock slope protection (RSP) would be added. Table 6 summarizes temporary and permanent impacts areas combined for all bridge locations.

Table 6. Permanent and Temporary Impacts to Wetlands and Other Waters

Feature	Temporary Impact Area (acres)	Permanent Impact Area (acres)
Palustrine Emergent Wetlands [PEM1B]	0.00004	0.01951
Total Impact to Wetlands	**0.00004**	**0.01951**
Hely Creek, Little Larabee Creek, Butte Creek [R2SB]	0.33196	0.0419
Intermittent Drainages [R4SB]	0.00037	0.00000
Ephemeral Drainages [R4SB/R4SBx]	0.00199	0.02369
Culverted waters	0.00569	0.00000
Total Impact to Other Waters of the U.S. and State	**0.34001**	**0.06561**
Total Impacts to Waters of the U.S./State (wetland and relatively permanent waters)	**0.34005**	**0.08512**
Upland Riparian Habitat	0.80112	0.38852

Temporary impacts to jurisdictional waters and riparian vegetation would be offset with incorporation of the Standard Measures and Best Management Practices identified in Section 1.4. BMPs would be implemented to stabilize all bare soil areas over both the short and long term and to minimize adverse effects to water quality, aquatic habitat, and aquatic species. BMPs include treatment controls, soil stabilization practices, and weather-appropriate scheduling. High-visibility temporary fencing would be used to limit ground disturbance to the project footprint, and debris containment plans would be implemented if needed to ensure construction debris does not enter adjacent waters.

Debris and sediment would be contained within the project site and disposed appropriately off-site. The contractor would be required to restore wetland and riparian areas temporarily impacted by construction to pre-existing conditions once construction is complete.

Caltrans would 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 would be developed and submitted with project permit applications.

Mitigation Measures

Mitigation for permanent wetlands and waters impacts would be implemented off-site. The appropriate measures would be identified and coordinated with the USACE, NCRWQCB, CDFW and any other administering agencies. Caltrans is currently assessing a property on State Route 36 as a possible mitigation site for this project, with opportunities for wetland preservation and protection. The property identified is approximately 115 acres, has high value wetland features and watershed area and contains valuable upland mature forest habitat. Caltrans would propose a Cooperative Agreement with the NCRWQCB and CDFW to purchase the parcel in CDFW's name to satisfy wetland mitigation needs for this project and other projects on SR 36 and US 101 within the Lower Eel River Watershed. Caltrans has been in coordination with these agencies to move forward with this effort. A Wetlands and Waters Mitigation and Monitoring Plan is available in Appendix M.

Should the scenario where the currently pursued strategy becomes infeasible, Caltrans will coordinate with the permitting agencies (USACE, NCRWQCB and CDFW) to find an appropriate plan to mitigate for the impacts to Waters of the US and Waters of the State.

Given that temporarily impacted areas would be restored and permanent impacts would be mitigated, a determination was made that the project would have a "*Less Than Significant Impact with Mitigation*" on wetlands and other waters.

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?

Animal Species

Caltrans has determined that project activities would have "*No Impact*" on special status species that were queried but did not have potential habitat within the ESLs. However, as mentioned in the Environmental Setting, the following special status wildlife species could potentially occur in the project vicinity.

Amphibians

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of special status amphibians in Question a), it was determined the project would have a "*Less Than Significant Impact*" on special status amphibians and their habitat.

Bat Species

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of bat species in Question a), it was determined the project would have *a "Less Than Significant Impact*" on bat species and their habitat.

Coastal Cutthroat Trout

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of coastal cutthroat trout in Question a), it was determined the project would have a "*Less Than Significant Impact*" on coastal cutthroat trout and their habitat.

Migratory Birds

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of migratory birds in Question a), it was determined the project would have a "*Less Than Significant Impact*" on migratory bird species and their habitat.

Northern Goshawk

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Northern goshawk in Question a), it was determined the project would have "*No Impact*" on Northern goshawk and their habitat.

Pacific Fisher

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Pacific fisher in Question a), it was determined the project have a "*Less Than Significant Impact*" on Pacific fisher and their habitat.

Pacific Lamprey

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Pacific lamprey in Question a), it was determined the project would have a "*Less Than Significant Impact*" on Pacific lamprey and their habitat.

Sharp-shinned hawk, Osprey, and Cooper's hawk

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of sharp-shinned hawk, osprey, and Cooper's hawk in Question a), it was determined the project would have a "*Less Than Significant Impact*" to sharp-shinned hawk, osprey, and Cooper's hawk and their habitat.

Sonoma Tree Vole

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Sonoma tree vole in Question a), it was determined the project would have "*No Impact*" on Sonoma tree vole or their habitat.

Western Pond Turtle

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Western pond turtle in Question a), it was determined the project would have "*No Impact*" on Western pond turtle or their habitat.

Threatened/Endangered Species

American Peregrine Falcon

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of American peregrine falcon in Question a), it was determined the project would have "*No Impact*" on American peregrine falcon and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of American peregrine falcons.

Bald Eagle

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of bald eagle in Question a), it was determined the project would have "*No Impact"* on bald eagle and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of bald eagles.

Bank Swallow

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of bank swallow in Question a), it was determined the project would have "*No Impact"* on bank swallows and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of bank swallows.

Golden Eagle

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of golden eagle in Question a), it was determined the project would have "*No Impact*" on golden eagles and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of golden eagles.

Humboldt Marten

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Humboldt marten in Question a), it was determined the project would have "*No Impact*" on Humboldt marten and their habitat.

Per FESA, it was determined the project would have *"No Effect"* on Humboldt marten.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of Humboldt marten.

Little Willow Flycatcher

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of little willow flycatcher in Question a), it was determined the project would have "*No Impact*" on little willow flycatcher and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of little willow flycatcher.

Marbled Murrelet

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of marbled murrelet in Question a), it was determined the project would have a "*Less Than Significant Impact*" on marbled murrelet and their habitat.

Given this, per FESA, Caltrans anticipates the proposed project *may affect, is likely to adversely affect MAMU*. There would be "*No Effect*" to MAMU designated critical habitat from the project.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of marbled murrelet.

Northern Spotted Owl

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Northern spotted owl in Question a), it was determined the project would have a "*Less Than Significant Impact*" on NSO and their habitat.

Given this, per FESA, Caltrans anticipates the proposed project *may affect, is likely to adversely affect* NSO. There would be "*No Effect*" to NSO designated critical habitat from this project.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of northern spotted owl.

Salmonids

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a) for discussion of impacts to salmonids and their habitat. These impacts have been examined to determine if the proposed project would interfere substantially with the movement of migratory salmonid species or with established migratory corridors.

Fish habitat in the ESL is restricted to the perennial creeks that are direct tributaries to the Van Duzen River and does not include culverted waters in the ESL that convey small inputs of water, most notably stormwater from roadside runoff. Due to the small size of the project culverts, source of water inputs, and steep grade where they reside, culverted waters within the ESL do not provide fish habitat.

The project would not have permanent adverse impacts to fish passage or migration. Permanent impacts to the stream channel at Little Larabee Creek include the addition of a new pier column that would displace approximately 120 square feet of channel habitat below the OHWM. However, the new pier column is not expected to impact fish passage or significantly reduce the amount of available rearing habitat within the system and was designed to minimize obstruction of flow and debris wracking. The project as a whole would result in a net increase of 810 square feet of stream habitat available to salmonids with the full span solution at Butte Creek, which eliminates the existing middle pier wall, and the relocation of Abutment 2 and RSP removal at Hely Creek. The instream design modifications at Butte and Hely creeks would allow for more natural movement of sediment, debris, and flood conveyance.

During construction, movement of salmonid species may be affected by noise (e.g., vibration from construction equipment, hoe-ramming) and visual stressors (e.g., artificial light, sudden movements). Dewatering portions of the streams (where construction would occur) and relocating aquatic species outside of the work area would reduce these effects. The diversion itself would temporarily restrict the movement of rearing juvenile salmonids, potentially making them more vulnerable to stress and predation, but the timing of diversion avoids the

late fall-winter migration period for adult salmon that may pass through the project area to spawn, and most of the spring-early summer smolt out-migration.

Impacts to habitat, such as temporal loss of riparian vegetation, would not result in a measurable decrease in the quality of the rearing habitat or migration corridors for salmonid species. A Revegetation Plan would be implemented to restore the project area to pre-construction conditions with native tree and plant species. Additional standard measures described in Section 1.4 would avoid and minimize impacts to the movement and migration of salmonids. Given the above, a determination was made that the project would have a "*Less Than Significant Impact*" to movement of salmonid species and established migratory corridors.

Per FESA, Caltrans anticipates this project *may affect, but is not likely to adversely affect* the CC Chinook salmon ESU. Caltrans anticipates the project *may affect, and is likely to adversely affect* SONCC coho salmon, and NC DPS steelhead. Caltrans will continue to consult with NMFS regarding the project effects on these species.

Per FESA, Caltrans anticipates this project *may affect, but is not likely to adversely affect* critical habitat for CC Chinook salmon, SONCC coho salmon, and NC steelhead.

Per CESA, the project may result in **"*Take*"** of SONCC coho salmon and summer-run steelhead.

Caltrans anticipates a determination that the proposed project would *adversely modify* EFH for species managed under the Pacific Coast Salmon Fishery Management Plan.

Western Bumble Bee

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Western bumblebee in Question a), it was determined the project would have "*No Impact*" on bumble bee species and their habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of Western bumble bee.

Western Snowy Plover

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Western snowy plover in Question a), it was determined the project would have "*No Impac*t" on Western snowy plover and their habitat.

Per FESA, Caltrans has determined the project would have "*No Effect*" on Western snowy plover or their critical habitat.

Western Yellow-billed Cuckoo

Please reference Section 2.4. Biological Resources—Discussion of CEQA Environmental Checklist, Question a). Based on the discussion of Western yellow-billed cuckoo in Question a), it was determined the project would have "*No Impact*" on Western yellow-billed cuckoo.

Per FESA, Caltrans has determined the project would have "*No Effect*" on Western yellow-billed cuckoo and their critical habitat.

Given the project would not directly harm this species, per CESA, this project would have no "*Take*" of Western yellow-billed cuckoo.

2.5. Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	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?			✓	

Regulatory Setting

The primary laws and regulations governing cultural resources include:

- Advisory Council on Historic Preservation (ACHP), Section 106 regulations, 36 CFR 800
- National Historic Preservation Act (NHPA), 54 USC 300101 et seq.
    - Section 106 Programmatic Agreement (PA): The PA implements ACHP's regulations, 36 CFR 800, streamlining the Section 106 process
- National Register of Historic Places (NRHP), 36 Code of Federal Regulations (CFR) 63
- Native American Graves Protection and Repatriation Act, 25
- Archaeological Resources Protection Act (ARPA), 16 USC 470
- Section 4(f) of the U.S. Department of Transportation Act, 23 CFR 774
- Assembly Bill 52 (Native Americans: CEQA)
- Historic Sites Act of 1935, 16 USC 461 et seq.
- NEPA, 42 USC 4321-4347
- CEQA, PRC 21000

Environmental Setting

The project area is in the lower foothills at the western edge of the North Coast Ranges along the Van Duzen River drainage. Climate in this area is classified as Mediterranean with cool, wet winters and hot, dry summers. The lower elevations of the drainage are dominated by Redwood forests while the upper elevations support oak-conifer woodlands and grass prairie. The project area is situated in the Van Duzen River Basin and encompassed by the Eel River Basin watershed, which generally comprises highly erodible rocks, including Franciscan Complex rocks (County of Humboldt 2017).

Meyer et al. (2011) provide a thorough overview of the potential for buried archaeological deposits in Caltrans District 1, including the entire study area. Certain portions of the ESLs are located on pre-Quaternary age erosional landforms (e.g., hillslopes, very old alluvial fans, etc.) that formed long before humans occupied North America, and these areas are considered to have a very low potential for buried archaeological resources. However, other portions of the ESLs contain relatively young (e.g. late Holocene) depositional landforms that have greater potential for buried archaeological resources. Previously recorded archeological sites exist within the project area of direct impact (ADI).

An archaeological survey was conducted throughout the project ESLs in 2018, followed by an extended Phase I investigation in 2018 and Phase II Archaeological Evaluation in 2019. Results of these investigations are documented in the Archaeological Survey Report (Caltrans 2019a), Extended Phase One Report (Caltrans 2019e), Archaeological Evaluation Report (Caltrans 2020a) and Historic Property Survey Report (Caltrans 2020c).

A large prehistoric site, and possible ethnographic village known to contain groundstone, diagnostic tools, and midden soil, is present within the ADI at the Little Larrabee Creek Bridge. Field investigations revealed intact archaeological deposits as well as historic-era artifacts. A midcentury residential site was found within the boundaries of this site and was subsequently subsumed.

A multicomponent prehistoric and historic-era site is within the ADI for the Butte Creek Bridge. Field investigations revealed prehistoric deposits, but no cultural features, discrete activity areas, or midden were identified. Historic-era deposits were found, but no historic features, discrete activity areas, or data sets sufficient to advance our understanding of local or regional history were discovered.

Discussion of CEQA Environmental Checklist Question 2.7a-c)—Cultural Resources

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Since testing was confined to the project area of direct impact (ADI), the sites cannot be formally evaluated. Therefore, for the purposes of this project, they will be considered eligible for inclusion in the National Register of Historic Places (NHRP).

Impacts to both sites within the ADI would not alter the characteristics that might make them eligible to the NRHP or California Register of Historical Resources (CRHR) under Criterion D/4, the potential to contribute to history and/or prehistory. The portions of these sites in the ADI demonstrated a low diversity of artifact types, a lack of cultural features and no evidence of discrete activity areas. Untested portions of the sites outside of the ADI would be protected as Environmentally Sensitive Areas (ESAs) during construction. The ESA will be placed along the right of way line, to contain the equipment staging and work activities to the evaluated portions of the sites. By limiting the work area to the evaluated areas, the potential for direct effects is reduced. In addition to ESAs, Caltrans will also implement an Archaeological Monitoring Action Plan that includes Native American monitors. Given this, a "*Less Than Significant Impact*" determination was made for this question.

Caltrans anticipates a Finding of No Adverse Effect is appropriate for this undertaking. Caltrans has initiated consultation with the State Historic Preservation Officer (SHPO) and has received the SHPO's concurrence on this finding. The SHPO concurrence letter is available in Appendix L.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

As discussed above under Question a), field investigations found archaeological deposits within the project ADI. However, Phase II testing revealed no new or significant data in the areas of the site that would be impacted by construction. Untested portions of the sites outside of the ADI would be protected as ESAs during construction, limiting the potential for direct effects. Given this, a "*Less Than Significant Impact*" determination was made for this question.

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

The site at Little Larrabee Creek Bridge is thought to have possible human remains, although none were uncovered or observed during the field investigations completed on portions of the site within the ADI for this project. The Standard Measures and Best Management Practices discussed in Section 1.4 would reduce the potential for impacts to human remains. Given this, a "*Less Than Significant Impact*" determination was made for this question.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.6. Energy

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project: a) Result in 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 *Energy Analysis for the Three Bridges Replacement and Widening Project* dated September 17, 2019 (Caltrans 2019d). The proposed project would not increase highway capacity or provide congestion relief when compared to the No-Build alternative. The project would not result in a change in energy consumption. Construction-related energy consumption would be temporary and would not have a noticeable effect on local and regional fuel supplies. Given this, potential impacts to energy are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.7. Geology and Soils

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

Discussion of CEQA Environmental Evaluation Questions 2.9a-e—Geology and Soils

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project, and California Geological Survey regulatory maps (California Geological Survey 2010, 2015). No Alquist-Priolo earthquake fault zones are mapped at the project locations. Landslide activity is mapped throughout the SR 36 corridor; however, the project proposes to widen or replace existing bridge structures and would not result in substantial adverse effects involving risk of loss, injury, or death. Geotechnical investigations were conducted to provide foundation recommendations for the design of the bridges, based on subsurface conditions.

Mitigation Measures—Geology and Soils

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

Regulatory Setting—Paleontological Resources

Several sections of the California Public Resources Code protect paleontological resources, including Sections 5097.5 and 30244.

Environmental Setting—Paleontological Resources

A *Combined Paleontological Identification Report and Paleontological Evaluation Report*, dated October 11, 2019, was prepared for the project to determine the likelihood of encountering fossils during construction (Caltrans 2019c). Knowledge of the geological formations gleaned from the survey and records of previous fossils recovered from the area are the basis for determining the paleontological potential of projects.

This project lies within the Coast Ranges Geomorphic Province. The Coast Ranges are characterized by northwest-southeast trending mountains and valleys roughly parallel to the San Andreas Fault Zone. The cores of the mountains of the Coast Ranges are typically Mesozoic[5] to Cenozoic[6] in age (less than 250 million years old) and consist of metamorphic and sedimentary rocks.

Sediments at Hely Creek Bridge are fill overlying alluvium (river deposit), overlying the undifferentiated late Miocene[7] to Pliocene[8] Wildcat Group. Sediments at Little Larabee Creek Bridge are mapped as Pleistocene[9] to Holocene[10] terrace deposits underlain by Late Jurassic[11] to Late Cretaceous[12] Central Belt Franciscan Complex "Broken Formation". Sediments at Butte Creek Bridge are deep fill overlying Late Jurassic to Late Cretaceous mélange (rock formation of varied material).

A records search indicated that no previous fossil localities have been recorded within the project area or immediate vicinity. Fossils are known in the county in Pleistocene deposits and the Wildcat Formation. No fossils are known from the Late Jurassic to Late Cretaceous Franciscan Complex "broken formation" or mélange units as both are metamorphic rocks.

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[5] An interval of geologic time from about 250 million to 66 million years ago

[6] An interval of geologic time from 66 million years ago to present day

[7] An interval of geologic time from 11.6 million to 5.3 million years ago

[8] An interval of geologic time from 5.3 million to 2.6 million years ago

[9] An interval of geologic time from about 2.58 million to 11,700 years ago

[10] An interval of geologic time from about 11,700 years ago to present day

[11] An interval of geologic time from about 199.6 million to 145.5 million years ago

[12] An interval of geologic time from about 145.5 million to 66 million years ago

A paleontological field survey of the project area was conducted on July 15, 2019. No fossils were observed during the survey.

Paleontological resources are considered to be scientifically relevant if they provide new data on fossil animals, distribution, evolution, or other scientifically important information. Fill, "broken formation", and mélange are not considered sensitive. Fill is too young to contain fossils and the second two are metamorphic rocks that contain no fossils. Holocene alluvium is ranked low because these sediments are too young to contain fossils. The Wildcat Group is considered to have a low sensitivity because it contains well-known invertebrate fossils. Pleistocene alluvium is considered to have a high sensitivity as fossils of this age are rare in the vicinity.

Discussion of CEQA Environmental Checklist Question 2.9f—Paleontological Resources

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Ground disturbance is estimated to be 12 feet at Hely Creek Bridge, 10 feet at Little Larabee Creek Bridge, and 20 feet at Butte Creek Bridge, not including disturbance from pile driving. Road grading is anticipated to only impact fill material. Abutment work would extend into alluvium at all three bridges. The depth of change from Holocene to Pleistocene alluvium is unknown but no fossils are known nearby. Pile drilling or driving could come into contact with all sediments but would not produce salvageable fossil material.

No scientifically important fossils are known in the project area. Caltrans Standard Specification 14-7.03 would be followed, requiring that if unanticipated discoveries of paleontological resources occur during construction excavations, all work within a 60 feet radius of the discovery should be halted until the find has been evaluated by Caltrans. Work may resume immediately outside that radius. The project is not anticipated to destroy a unique paleontological resource/site or geologic feature. Given this, it was determined the project would have a "*Less Than Significant Impact*" on Paleontological Resources.

Mitigation Measures—Paleontological Resources

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.8. Greenhouse Gas Emissions

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including 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; while it is a naturally-occurring component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO_2.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation". Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG emissions to limit or "mitigate" the impacts of climate change. Adaptation, on the other hand, is concerned with planning for

and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels). This analysis will include a discussion of both.

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 2019). 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 n.d.). 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.

Various efforts have been promulgated at the federal level 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) and Corporate Average Fuel Economy (CAFE) Standards. This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the CAFE program based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Energy Policy Act of 2006, 109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) the establishment of the Office of Indian Energy Policy and Programs within the Department of Energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

The U.S. EPA, in conjunction with the National Highway Traffic Safety Administration (NHTSA), is responsible for setting GHG emission standards for new cars and light-duty vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence GHG emissions.

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 percent 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 (AB) 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 the 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 percent 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 the 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 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent 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 to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO_2e).13 Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that 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 percent below 1990 levels by 2030.

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[13] GHGs differ in how much heat each trap in the atmosphere (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" (CO_2e). 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.

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."

AB 134, Chapter 254, 2017: allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

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.

EO N-19-19 (September 2019): advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce GHG emissions from the transportation sector. It orders a focus on transportation investments near housing, managing congestion, and encouraging alternatives to driving. This EO also directs CARB to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

Environmental Setting

The proposed project is in a rural area, surrounded by timber and agricultural lands. SR 36 connects various unincorporated rural communities and forested lands across the middle of Humboldt County. SR 36 traverses most of Northern California, connecting the North Coast at US 101 to the upper end of the Central Valley at I-5 and the eastern border of California at US 395. SR 36 travels across six counties: Humboldt, Trinity, Shasta, Tehama, Plumas, and Lassen. The annual average daily traffic (ADT) in the project corridor was 1,450 in 2015 and is projected to increase to 1,830 by 2041. Peak hour traffic volume in 2015 was 370 vehicles per hour and is projected to reach 470 vehicles per hour by 2041.

The Humboldt County Association of Governments (HCAOG) is the designated Regional Transportation Planning Agency (RTPA) for the region and guides transportation development. Elements of the Humboldt County General Plan (Land Use, Circulation, Energy, and Safety) address GHGs in the project area.

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.

National GHG Inventory

The U.S. EPA prepares a national GHG inventory every year and submits it to the United Nations in accordance with the Framework Convention on Climate Change (Figure 3). The inventory provides a comprehensive accounting of all human-produced sources of GHGs in the United States, reporting emissions of CO_2, CH_4, N_2O, HFCs, perfluorocarbons, SF_6, and nitrogen trifluoride. It also accounts for emissions of CO_2 that are removed from the atmosphere by “sinks” such as forests, vegetation, and soils that uptake and store CO_2 (carbon sequestration). The 1990–2016 inventory found that of 6,511 MMTCO2e GHG emissions in 2016, 81% consist of CO_2, 10% are CH_4, and 6% are N_2O; the balance consists of fluorinated gases (U.S. EPA 2018). In 2016, GHG emissions from the transportation sector accounted for nearly 28.5% of U.S. GHG emissions.

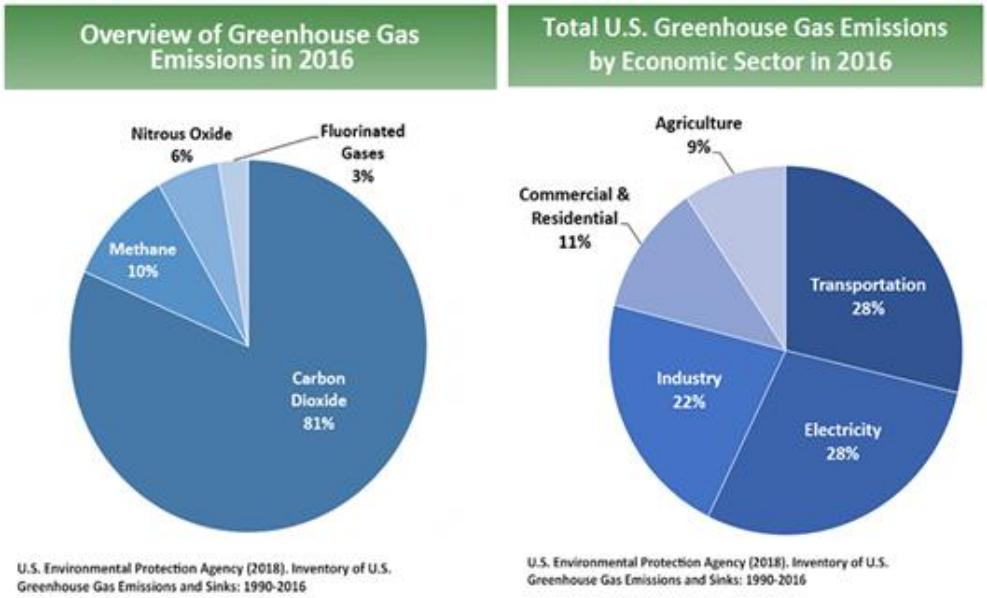

Figure 3. U.S. 2016 GHG Gas Emissions

State GHG Inventory

The California Air Resources Board (CARB) collects GHG emissions data for transportation, electricity, commercial/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 2019 edition of the GHG emissions inventory found total California emissions of 424.1 $MMTCO_2e$ for 2017, with the transportation sector responsible for 41% of total GHGs. It also found that overall statewide GHG emissions declined from 2000 to 2017 despite growth in population and state economic output (Figures 4 and 5) (CARB 2019a).

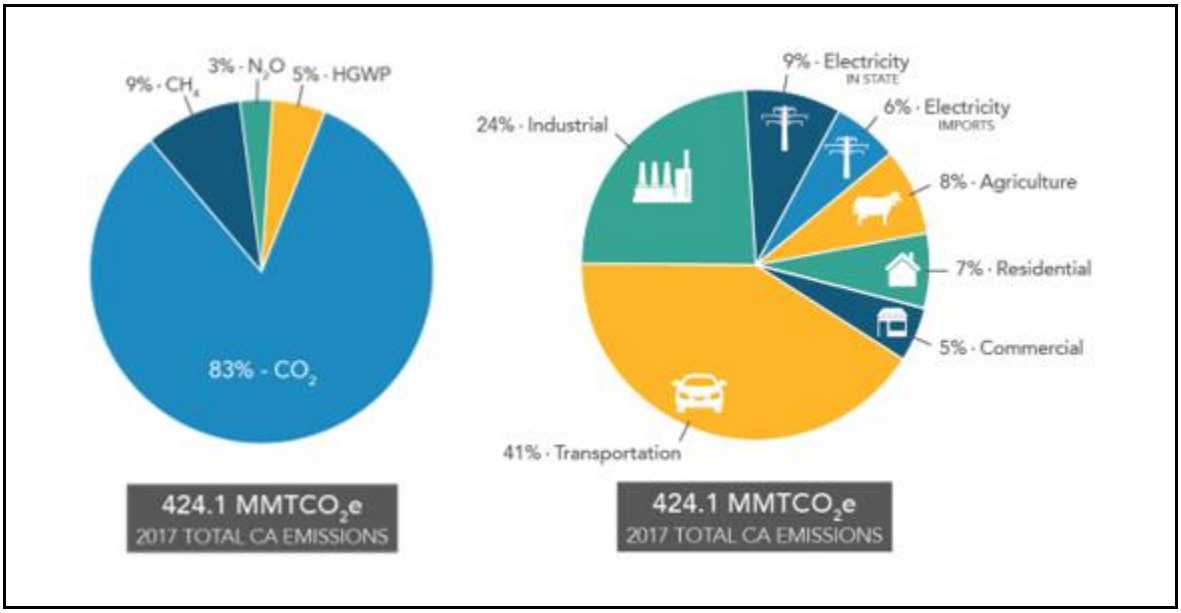

Figure 4. California 2017 Greenhouse Gas Emissions

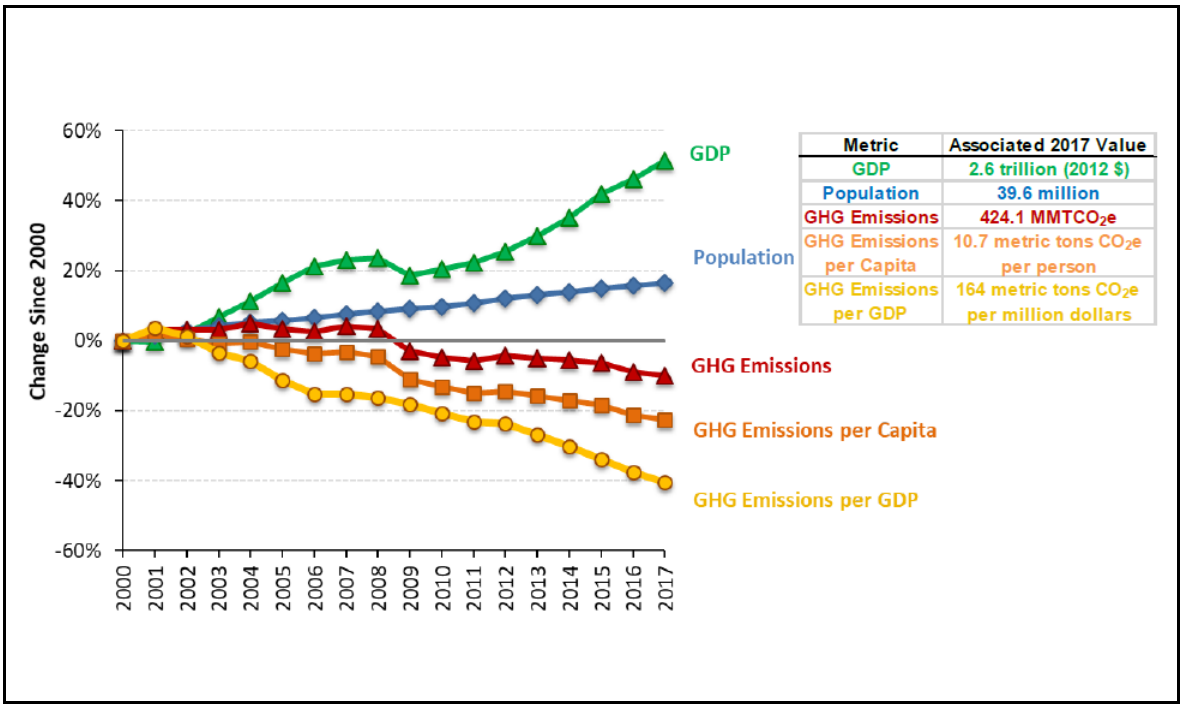

Figure 5. Change in California GDP, Population, and GHG Emissions Since 2000

Source: California Greenhouse Gas Emissions for 2000 to 2017. Trends of Emissions and Other Indicators (CARB 2019b).

AB 32 required the CARB 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. 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 AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions.

Regional Plans

The CARB sets regional targets for California's 18 Metropolitan Planning Organizations (MPOs) to use in their Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. HCAOG is not an MPO, and therefore does not have regional targets established by CARB. However, the proposed project is within the jurisdiction of the HCAOG RTPA. The *Variety in Rural Options of Mobility 2017 RTP* identifies GHG reductions goals and strategies, such as those listed below in Table 7 (HCAOG 2017).

Table 7. Regional GHG Reductions Goals and Strategies

Title	GHG Reduction Policies or Strategies
HCAOG Regional Transportation Plan (2017)	• Policy CS-3: HCAOG shall pursue grants and public-private partnerships to augment funding for infrastructure and non-infrastructure projects and planning for pedestrian, bicycle, and transit facility improvements. HCAOG shall identify and help secure the financial resources necessary to accommodate HCAOG's Complete Streets and active transportation policies adopted in the Regional Bicycle Plan, Regional Transportation Plan (VROOM), Regional Master Trails Plan, and Regional Pedestrian Plan. • Policy CS-11: Carry out policies and program funding for projects that will help achieve the goals of the Global Warming Solutions Act (California Assembly Bill 32 (2006) and Senate Bill 32 (2016)). This shall include supporting efforts to reduce non-renewable consumption and air pollution, such as projects that increase access to alternative transportation and renewable fuels, reduce congestion, reduce single-occupancy (motorized) vehicle trips, and shorten vehicle trip length, and reduce greenhouse gas emissions. • Climate Objective: Reduce motor vehicle miles traveled (VMT) and lower GHG emissions.

Title	GHG Reduction Policies or Strategies
	• Policy Climate C-2: Promote active transportation, ridesharing, rail, and public/mass transit promoting policies for the co-benefit of reducing air pollution when they replace motor vehicle trips. • Policy Climate C-3: Support local communities in developing integrated transportation and land use strategies for responding resiliently to climate change, and codifying such strategies in General Plans, Regional Transportation Plans, and Local Coastal Programs • Policy Climate C-4: HCAOG will support and plan transportation and projects that provide safe and convenient travel modes for people who cannot or choose not to drive. • Policy Climate C-5: HCAOG will promote and support land use policies that accommodate or reinforce planning, designing, and building a truly multimodal transportation network.

Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation of the State Highway System (SHS) 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 the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of CH_4 and N_2O are emitted during fuel combustion. In addition, a small amount of HFC emissions are 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 upgrade bridge rails and shoulder widths to meet current design standards. The project would not increase the vehicle capacity of the roadway. This type of project generally causes minimal or no increase in operational GHG emissions. Because the project would not increase the number of travel lanes on SR 36, no increase in vehicle miles traveled (VMT) would occur. While some GHG emissions during the construction period would be unavoidable, no increase in operational GHG emissions is expected.

Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions would 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.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

The 2018 Caltrans Construction Emissions Tool (CAL-CET2018) version 1.2 was used to estimate carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), and emissions from construction activities. Table 8 summarizes estimates of GHG emissions generated by onsite equipment for the proposed project. The estimates are based on the scenario that the three bridges would be constructed simultaneously over two years. Estimated construction working days are described in Chapter 1. The carbon dioxide equivalent (CO_2e) produced during construction is estimated to be approximately 617 tons.

Table 8. Estimated Construction Emissions in U.S. Tons

Construction Year	CO_2	CH_4	N_2O	HFCs	CO_2e*
2022	224	0.007	0.012	0.007	331
2023	150	0.004	0.010	0.009	286
Total	**374**	**0.011**	**0.022**	**0.016**	**617**

* 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 Sections 7-1.02A and 7-1.02C, Emissions Reduction, which require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all Air Resources Board (ARB) emission reduction regulations; and Section 14-9.02, Air Pollution Control, which 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 would result in GHG emissions during construction, it is anticipated the project would 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 would 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

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 GHG emissions targets. Former Governor Edmund G. Brown promoted GHG reduction goals (Figure 6) that involved (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farms and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California*.

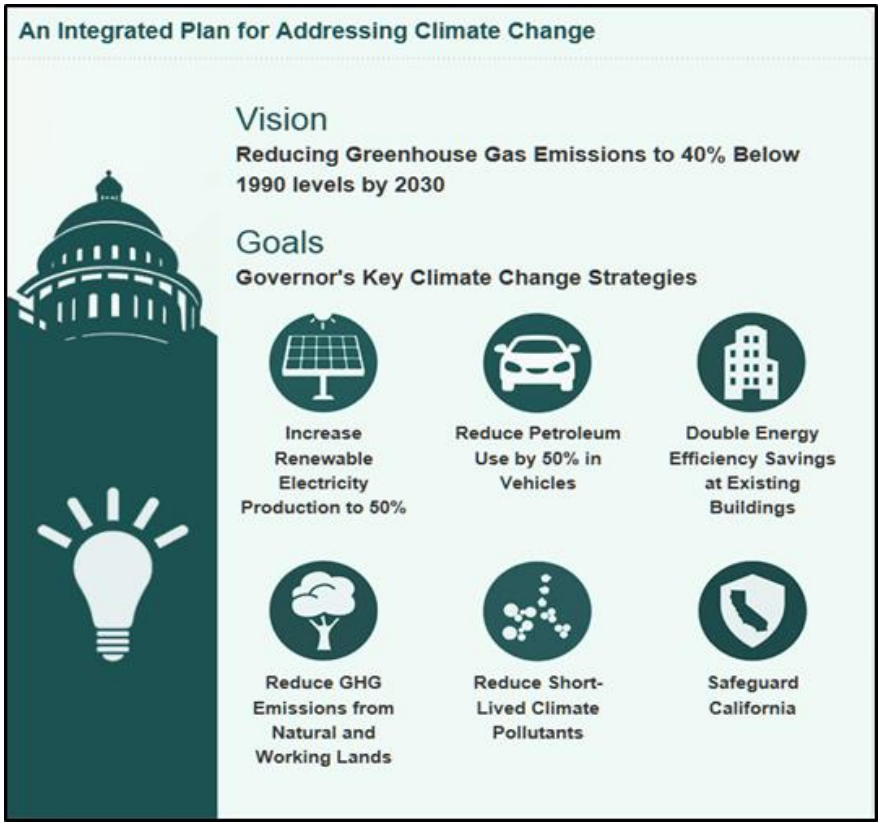

Figure 6. California Climate Strategy

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). A key state goal for reducing GHG emissions is to reduce today's petroleum use in cars and trucks by up to 50 percent by 2030 (State of California 2019).

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.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board (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 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. In 2016, Caltrans completed the *California Transportation Plan 2040*, which establishes a new model for developing ground transportation systems, consistent with CO_2 reduction goals. It serves as an umbrella document for all the other statewide transportation planning documents. Over the next 25 years, California will be working to improve transit, reduce long-run repair and maintenance costs of roadways, and developing a comprehensive assessment of climate-related transportation demand management and new technologies rather than continuing to expand capacity on existing roadways.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While Metropolitan Planning Organizations (MPOs) have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several sustainable transportation planning grants. These grants encourage local and regional multimodal transportation, housing, and land use planning that furthers the region's RTP/SCS; contribute to the State's GHG reduction targets and advance transportation-related GHG emission reduction project types/strategies; and support other climate adaptation goals (e.g., *Safeguarding California*).

Caltrans Policy Directives and Other Initiates

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. Caltrans *Activities to Address Climate Change* (April 2013) provides a comprehensive overview of Caltrans' statewide activities to reduce GHG emissions resulting from agency operations.

Project-Level Greenhouse Gas Reduction Strategies

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

- Caltrans Standard Specifications, Section 7-1.02C, Emissions Reduction: requires the contractor to certify awareness of, and comply with, the emissions reduction regulations mandated by the California Air Resources Board (CARB).
- Caltrans Standard Specifications, Section 14-9.02, Air Pollution Control: requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes of the CARB and the local air pollution control district.
- Standard construction best management practices for air quality would also apply. Such air-pollution control measures can also help reduce construction GHG emissions.
- Traffic and Transportation measures would also reduce/ minimize GHG emissions during construction:
- Pedestrian and bicycle access would be maintained during construction, to avoid such users having to transfer to using motor vehicles.

- A Transportation Management Plan (TMP) would be implemented in the project to maintain traffic flow and minimize delays and idling that would generate extra GHG emissions.
- Measures to preserve and restore trees and vegetation would help prevent loss of carbon storage potential in the project area:
  - Tree and vegetation removal would be minimized to the extent necessary to construct the project. Where feasible, large trees would be protected in place.
  - A revegetation plan would be implemented to restore the project area to pre-construction conditions with native tree and plant species. Replanting would be subject to a plant establishment period as defined by project permits, which would require Caltrans to adequately water plants, replace unsuitable plants, and control pests.
- Earthwork would be balanced as much as possible to reduce the need for transport of cut and fill materials.
- Salvaging materials for re-use (such as portions of existing abutment foundations), to conserve resources.

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 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 U.S. Global Change Research Program (USGCRP) delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (15 U.S.C. Ch. 56A § 2921 et seq). 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". Chapter 12, "Transportation", presents a key discussion of vulnerability assessments. It notes that "asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and scenarios in the context of asset-specific information, such as design lifetime" (USGCRP 2018).

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).

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. California's *Fourth Climate Change Assessment* (State of California 2018) is the state's effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales. It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

- *Adaptive capacity* is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities".

- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.

- *Resilience* is the "capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience". Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.

- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.

- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt". Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

EO S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea-level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan). The Safeguarding California Plan offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

EO S-13-08 also led to the publication of a series of sea-level rise (SLR) assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance) in 2010, with instructions for how state agencies could incorporate "sea-level rise (SLR) projections into planning and decision making for projects in California" in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California—An Update on Sea-Level Rise Science* was published in 2017 and its updated 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.

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 other than 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. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 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.

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans is conducting climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects including precipitation, temperature, wildfire, storm surge, and sea-level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency, and involves the following concepts and actions:

- *Exposure* – Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence* – Determine what might occur to system assets in terms of loss of use or costs of repair.
- *Prioritization* – Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

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 will guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the State Highway System, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

Sea-Level Rise

The proposed project is outside the Coastal Zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

Floodplains

The proposed project is within the Van Duzen River watershed, which is a tributary to the Eel River. The mean annual precipitation is 47.51 inches at Hely Creek, 60.22 inches at Little Larabee Creek, and 71.64 inches at Butte Creek. A *Floodplain Evaluation Report Summary* was prepared for the project (Caltrans 2018a).

Highway 36 at Hely Creek Bridge is at an elevation of roughly 250 feet. The project area lies within the Federal Emergency Management Agency (FEMA) mapped area shown on the 06023C1455F Firmette[14] and is classified as "Other Areas", "Zone X", "Areas determined to

[14] A section of a flood insurance rate map (FIRM) developed by the Federal Emergency Management Agency

be outside the 0.2% annual chance floodplain", or "Zone D", areas in which flood hazards are undetermined, but possible.

Highway 36 at Little Larabee Creek Bridge is at an elevation of roughly 640 feet. The project area lies within the FEMA mapped area shown on the 06023C1500F Firmette and is classified as "Special Flood Hazard areas subject to inundation by the 1% annual chance flood", "Zone A"; "No Base Flood Elevations determined".

Highway 36 at Butte Creek Bridge is at an elevation of roughly 2,520 feet. The project area lies within the FEMA mapped area shown on the 06023C1525F Firmette and is classified as "Special Flood Hazard areas subject to inundation by the 1% annual chance flood", "Zone A"; "No Base Flood Elevations determined".

The proposed project would not result significant in floodplain encroachment or risk at any of the bridge locations.

Drainage

The *Caltrans Climate Change Vulnerability Assessment District 1 Technical Report* analyzed and mapped the percentage increase in the 100-year storm precipitation depth from historical conditions. The projections are based on the Representative Concentration Pathways (RCP) 8.5 Emissions Scenario[15]. The mapping indicates a percentage increase of 5.5–9.9% through 2025, 2055, 2085 in the project area in Humboldt County (Caltrans 2019b). Heavier precipitation and extreme weather events, such as the 100-year flood, may occur as a result of climate change. A *Preliminary Hydraulics Recommendation* was prepared to address hydrology and drainage at each project location (Caltrans 2017f). Flood frequency estimates in the project limits were reviewed using NOAA Atlas 14 (in this region, historic NOAA Atlas 14 data tends to model higher precipitation levels than future climate projection tools, such as CalAdapt). This information is used to estimate flows at culverts for discharge events, based on the storm duration and average recurrence interval. The project culverts are designed to accommodate historic 100-year flood events.

The project would create minor amounts of new impervious surface but would not alter the drainage pattern of the site to result in increased flooding, erosion, or runoff.

[15] RCPs represent the most recent generation of GHG scenarios produced by the IPCC. RCP 8.5 presumes that high GHG emissions will continue to the end of the century.

Existing drainage patterns at each location would be preserved to avoid any adverse hydromodification. The rate and volume of stormwater discharged to adjacent waterbodies would be controlled by using vegetated ditches, bioswales and rock energy dissipators, such as rock slope protection (RSP). The proposed project would improve the drainage facilities to better protect the roadways compared to existing conditions.

Structure Hydraulics and Hydrology

A *Draft Hydraulic Report* was prepared by Caltrans Structure Hydraulics (Caltrans 2018b). The Watershed Modeling System program, in conjunction with the National Flood Frequency Equation, was used to calculate frequency discharge information for Hely Creek, Little Larabee Creek and Butte Creek. The U.S. Army Corps of Engineers Hydrologic Engineering Center-River Analysis System program was used to perform a one-dimensional hydraulic analysis to calculate the water surface elevations and velocity for the existing bridge pre-construction condition and post-construction condition. Freeboard for both the 50 and 100-year discharge at each structure will be taken into consideration as the bridge dimensions are refined and the design details are finalized for final structure plans. None of the bridges have a history of overtopping. The proposed project is not anticipated to result in scour concerns. The structures would have adequate freeboard to pass drift. Accordingly, the project is not anticipated to increase flood risk.

Wildfire

The project corridor is located within State Responsibility Area (SRA). The project area is within lands classified as high and very high fire hazard severity zones (CALFIRE 2019). The project would widen or replace existing bridges and is not expected to exacerbate wildfire risks. Standard fire prevention measures would be implemented during construction, including:

- The names and emergency telephone numbers of the nearest fire suppression agencies would be posted at a prominent place at the job site.
- Fires occurring within and near the project limits would 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 would be in cooperation with fire prevention authorities.
- Project personnel would be prevented from setting open fires that are not part of the work.

- Fires caused directly or indirectly by job site activities would be extinguished and escape of fires would be prevented.
- Materials resulting from clearing and grubbing would be disposed of or managed to prevent accumulation of flammable material.

These measures would minimize wildfire risk during construction. The project would not result in changes to the highway facilities or environment that could exacerbate fire risk.

2.9. Hazards and Hazardous Materials

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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?				✓

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?				✓
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?				✓

Regulatory Setting

The primary laws governing hazardous materials include:

- California Health and Safety Code, Chapter 6.5
- Porter-Cologne Water Quality Control Act, §13000 et seq.
- CFR Titles 22, 23, and 27

Environmental Setting

An *Initial Site Assessment* (ISA) was prepared in 2014 (Caltrans 2014a) to identify potential hazardous materials that could be present within the limits of the proposed project (Caltrans 2014b). The assessment determined that the project may generate treated wood waste (TWW) and disturb aerially deposited lead (ADL) in shoulder soils, lead in paint or thermoplastic striping, and possible asbestos in the structures. Subsequent surveys were undertaken in 2017 to investigate ADL levels, and asbestos and lead-containing paint at each

bridge. Results of these studies are documented in *the Aerially Deposited Lead Site Investigation Report* and *Asbestos and Lead-Containing Paint Survey Report* prepared for each bridge (Caltrans 2017a, Caltrans 2017b, Caltrans 2017c, Caltrans 2017d).

Discussion of CEQA Environmental Checklist Questions 2.11a-g—Hazards and Hazardous Materials

A "No Impact" determination was made for questions b), c), d), e), f), and g) listed within the CEQA Environmental Checklist—Hazard and Hazardous Material section. Determinations were based on the scope, description, and locations of the proposed project, as well as the 2019 ISA Update. See below for further discussion of the "*Less Than Significant Impact*" determination made for Question a).

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Investigations found that the three bridges do not contain asbestos. Although asbestos was not detected, written notification to the North Coast Unified Air Quality Management District is required prior to commencement of any demolition activity. ADL levels in the shoulder soils near the bridges are low. Aerially deposited lead can be found on the surface and near-surface soils along nearly all roadways because of the historic use of tetraethyl lead in motor vehicle fuel. ADL would be addressed with 2018 *Caltrans Non-Standard Special Provision* (NSSP) 7-1.02K(6)(j)(iii) and a *Lead Compliance Plan*, which would document the compliance program to prevent or minimize worker exposure to lead.

High amounts of lead are present in yellow thermoplastic traffic stripe at Hely Creek and Butte Creek bridges. Removal, handling, and disposal of yellow thermoplastic striping with high levels of lead would follow Standard Special Provision (SSP) 14-11.12, which would specify requirements such as containment, sampling protocols and disposal documentation. Additionally, a Lead Compliance Plan would be required.

Treated wood waste would be generated from guardrail removal at all bridge locations. This would be addressed with 2018 Caltrans Standard Special Provision (SSP) 14-11.14, and a treated wood waste disposal contract item.

Caltrans' specifications require the management of hazardous materials to comply with applicable laws, rules, and regulations. Best Management Practices would be used on-site to contain hazardous materials and avoid exposure to workers, the public, and surrounding environment. An appropriate facility would be utilized for disposal of hazardous materials generated during construction. Given this, the project would not create a significant hazard to the public or environment. Therefore, a "*Less Than Significant Impact*" determination was made for Hazards and Hazardous Materials.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.10. Hydrology and Water Quality

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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;			✓	

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
(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?			✓	
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 Sections 1600–1607 of the California Fish and Game Code (CFGC)
- State Porter-Cologne Water Quality Control Act, §13000 et seq.

Environmental Setting

Hydrology

The proposed project is within the Eel River Hydrologic Unit (HU) and the Van Duzen River watershed, which is a tributary to the Eel River. The Eel River is within the southern portion of the Northern California Coastal Basin. Tributary streams generally follow parallel courses between the northwest slopes of the California Coast Ranges. The Eel River is the third largest river in California with a drainage area of 3,684 square miles. The four primary tributaries are the Van Duzen, South Fork Eel, North Fork Eel, and Middle Fork Eel rivers. The Eel River receives a significant amount of sediment due to natural hillslope erosion occurring on fragile, unconsolidated soils, and soft bedrock driven by large amounts of rainfall.

Hely Creek drains a watershed basin of approximately 3.6 square miles of forested terrain. The creek flows southwest to its confluence with the Van Duzen River approximately 300 feet downstream of the bridge. Watershed elevations range from 2,400 feet to approximately 80 feet at the bridge. The channel slope at the bridge site is estimated to be 16.5 percent. The 50-year and 100-year flood frequency discharges are estimated to be 1,204 cubic feet per second (cfs) and 1,400 cfs, respectively.

Little Larabee Creek drains a watershed basin of approximately 13.3 square miles of forested terrain. The creek flows northwest to its confluence with the Van Duzen River approximately 350 feet downstream of the bridge. Watershed elevations range from 4,000 feet to approximately 625 feet at the bridge. The channel slope at the bridge site is estimated to be 14 percent. The 50-year and 100-year flood frequency discharges are estimated to be 4,144 cfs and 4,767 cfs, respectively.

Butte Creek and its tributaries, which includes Horse, Swift, and Mule creeks, drain a watershed basin of approximately 15.7 square miles of forested terrain. Butte Creek flows north upstream of the bridge and then northeast to its confluence with the Van Duzen River approximately one mile downstream of the bridge. Watershed elevations range from 4,000 feet to approximately 2,300 feet at the bridge. The channel slope at the bridge site is estimated to be 12.3 percent. The 50-year and 100-year flood frequency discharges are estimated to be 5,112 cfs and 5,852 cfs, respectively.

Water Quality

The Van Duzen River is listed on the Clean Water Act Section 303(d) List due to impairment to water quality by sediment (U.S. EPA 1999). The U.S. EPA enforces regulations that require the establishment of TMDLs for 303(d) waterbodies to attain and maintain water quality standards. The overall goal of establishing a TMDL is to ensure that all "beneficial uses" are protected and water quality objectives are met. Water quality objectives and beneficial uses are identified for all the water bodies in the North Coast Region in the *Water Quality Control Plan, for the North Coast Region (Basin Plan)* (NCRWQCB 2018).

Beneficial uses listed in the *Basin Plan* for the Van Duzen River Hydrologic Area include, but are not limited to,

- Drinking water supplies (MUN)
- Industrial (IND)
- Recreational (REC)
- Commercial and sport fishing (COMM)
- Cold water freshwater habitat (COLD)
- Migration of aquatic organisms (MIGR)
- Spawning, reproduction, and early development (SPWN)
- Wildlife habitat (WILD)
- Preservation of rare and endangered species (RARE)

The *Basin Plan* has identified the following narrative water quality objective for sediment;

- The suspended sediment load and suspended sediment discharge rate to surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Water quality objectives that may be relevant to the proposed project are identified in the *Basin Plan* and are listed below in Table 9 (NCRWQCB 2018).

Table 9. Water Quality Objectives for the Van Duzen River Hydrologic Area

Parameter	Objective
Temperature	(+/-) 5 ºF of background
Dissolved Oxygen (Daily Minimum Objective) (mg/L)	6.0 (COLD) -9.0 (SPWN)
Hydrogen Ion (pH)	6.5 - 8.5 (lower and upper range)

Discussion of CEQA Environmental Checklist Question 2.12a-e)—Hydrology and Water Quality

A "No Impact" determination was made for Questions b), d), and e) listed within the CEQA Environmental Checklist Hydrology and Water Quality section. Determinations were based on scope, description, and locations of the proposed project, as well as the *Water Quality Assessment Report* (Caltrans 2019h), *Floodplain Evaluation Report Summary* (Caltrans 2018a), and *Stormwater Data Report* (Caltrans 2020e). See below for further discussion of the "*Less Than Significant Impact*" determination made for Questions a) and c).

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

The project has the potential to result in temporary impacts to water quality during construction activities, including concrete pours and groundwater dewatering during excavations. However, these impacts would be minimized with implementation of the specific Water Pollution Control BMP Measures discussed below.

Suspended Particulates (Turbidity)

Soil disturbance during construction could result in short-term increases in turbidity to receiving waters (Hely Creek, Little Larabee Creek, and Butte Creek). To maintain water quality and to minimize the movement of soils and sediment into the channel, site specific erosion and pollution control measures would be implemented, such as fiber rolls and silt fence for perimeter control. A Stormwater Pollution Prevention Plan (SWPPP) would be developed for the project. Disturbed soil areas would be effectively stabilized over both the short-term and long-term. Risk of long-term impacts on physical and chemical characteristics of the aquatic environment would be low.

Oil, Grease and Chemical Pollutants

Construction activities have the potential for accidental release of oil, grease, wash water, solvents, cement, or other construction materials to receiving waters. During construction, materials and wastes could be tracked offsite by vehicles and then deposited onto roads where it may be picked up and transported into waterways. Also, saw cutting, grinding, drilling, concrete mixing, painting, and paving during construction can produce residues.

It is Caltrans' standard practice to cover drainage inlets and protect receiving waters with sediment barriers during paving, saw-cutting, grooving and grinding activities. These activities are avoided during precipitation. Debris and residues would be vacuumed or swept. Drip pans or absorbent pads would be used under vehicle and equipment operation over water and during fueling and maintenance. Spill kits and cleanup materials must be kept on site. With these preventative measures, the risks of accidental release of pollutants to surface waters would be minimized.

Temperature, Oxygen, and Other Parameters

The project would require removal of riparian vegetation for the construction of temporary equipment access roads and staging areas. The project would also require vegetation removal along the shoulders of the road near culverts to accommodate the work. Vegetation adjacent to the bridges provides shade, so removal could lead to increases in water temperatures and thus result in decreases in the concentration of dissolved oxygen (DO). The amount of vegetation removed adjacent to the bridges and waterways would be the minimum necessary to complete the work. Given the type and distance of the vegetation, it is unlikely this minimal amount of clearing would result in any long-term water temperature increases. Permanent impacts would be avoided by revegetation planting and slope stabilization measures in areas disturbed by the proposed project. These measures would be in accordance with the final Erosion Control Plans prepared by the Caltrans District 1 Landscape Architect.

Given that potential impacts would be temporary and minimized with the implementation of the Standard Measures and Best Management Practices identified in Section 1.4, the project is not anticipated to violate any water quality standards or waste discharge requirements or substantially degrade surface or ground water quality; therefore, a "Less Than Significant Impact" determination was made for Question a).

c) Would the project 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?

As discussed under Question a) above, there would be potential for temporary increases in suspended particulates and turbidity during storm events due to disturbed soil areas in close proximity to receiving waters; however, this would be minimized with the implementation of site-specific erosion and pollution control measures. The project is not anticipated to result in substantial erosion or siltation on- or off-site.

c) Would the project 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:

(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

The replacement and widening of the roadway approaches and bridge structures would add new impervious surface areas, which has the potential to increase runoff water. Total net new impervious (NNI) area resulting from the project would be 0.3 acre (approximately 0.1 acre at each bridge location).

The total new impervious surface (NIS) for all three bridge locations is 1.4 acres. The NIS is the sum of the net new impervious (NNI) and the replaced impervious surface (RIS), which includes any area where existing impervious surfaces were replaced to a depth at which the underlying soil or pervious subgrade was exposed during construction.

These additions of new impervious surface area would result in a negligible increase in flow and volume of runoff. The project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

c) Would the project 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:

(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?

Existing drainage patterns at each location will be preserved to avoid any adverse hydromodification. The rate and volume of stormwater discharged to adjacent waterbodies would be controlled by using vegetated ditches and rock energy dissipaters, as necessary. The project is not anticipated to create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

As discussed above, the combined NIS area resulting from the proposed project would be greater than 1 acre. Therefore, post-construction treatment BMP's are required under the Caltrans Municipal Separate Storm Sewer System (MS4) Permit Order No. 2012-011-DWQ (NPDES No. CAS 000003). Bioswales and biostrips would be created at all bridge locations, placed adjacent to highway shoulders, fill slopes, revegetated access areas, and drainage systems. Proposed treatment areas are shown on the project layouts in Appendix A.

Bioswales are vegetated, typically trapezoidal channels, which receive and convey storm water flows. Pollutants are removed by filtration through the vegetation, uptake by plant biomass, sedimentation, adsorption to soil particles, and infiltration through the soil. They are effective at trapping litter, heavy metals, and suspended solids (Caltrans 2012). Given that the increase in surface runoff would be negligible, and stormwater would be treated with biofiltration, the project would not provide substantial additional sources of polluted runoff.

c) Would the project 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:

(iv) impede or redirect flood flows?

Hely Creek would be graded to realign the thalweg of the creek away from the eastern bridge abutment where there is localized scour and bank instability. Engineered streambed material would simulate the channel material at the site with the intent to maintain the existing characteristics of the channel. Redirecting the stream flow would be localized to the vicinity of the bridge. The proposed project would not result in significant floodplain encroachment at any of the bridge locations and is not expected to impede or redirect flood flows.

Given that the project is not anticipated to substantially increase erosion, siltation or surface runoff, provide sources of polluted runoff, exceed existing drainage capacity or impede or redirect flood flows, a "*Less Than Significant Impact*" determination was made for Question c)(i)(ii)(iii)(iv).

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.11. Land Use and Planning

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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 would 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 project is consistent with existing zoning, plans, and other applicable land use controls.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.12. Mineral Resources

Question:	Potentially Significant Impact	Less Than Significant with Mitigation	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 upon the scope, description, and location of the proposed project. As there are no designated mineral resource areas of state or regional importance in the project area, and the project would not impede the extraction of any known mineral resources (Division of Mine Reclamation 2016), there would be no impact.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.13. Noise

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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 ground borne vibration or ground borne 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 *Air Quality and Noise Analysis for the Three Bridges Project*, dated February 7, 2020 (Caltrans 2020b). The proposed project does not construct a new highway in a new location or substantially change the vertical or horizontal alignments. Traffic volumes, composition and speeds would remain the same. Therefore, permanent noise impacts are not anticipated. Noise generated during construction would be temporary and would be minimized by the Standard Measures and Best Management Practices featured in Section 1.4.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.14. Population and Housing

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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 upon the scope, description, and location of the proposed project. The project involves the replacement and widening of existing bridge structures and would not directly or indirectly induce substantial unplanned population growth in the area by constructing housing or creating new employment, nor would it induce population growth by providing new access or opening a new area to development. As the proposed project would not involve acquisition of land occupied by homes or residences and would not result in displacement of people or housing, potential impacts on population and housing are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.15. Public Services

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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 upon the scope, description, and location of the proposed project as well as the *Transportation Management Plan Update* prepared for this project, dated August 25, 2017 (Caltrans 2017g). Although there would be temporary traffic delays during construction, all emergency response agencies in the project area would be notified of the project construction schedule and would have access to SR 36 throughout the construction period. The proposed project would not result in an increased demand for space in schools, parks, or public facilities in the area. Access to schools would not be affected because the Transportation Management Plan (TMP) would ensure school bus routes are not impeded. As such, potential impacts on Public Services are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.16. Recreation

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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 upon the scope, description, and location of the proposed project. The project would involve the widening and/ or replacement of existing bridge structures and would not result in an increased demand for park resources that could cause deterioration of existing parks or recreational facilities. Additionally, the proposed project does not include the construction of park resources or recreational facilities or the expansion of such facilities. Therefore, potential impacts on recreation are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.17. Transportation

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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) Would the project conflict or be inconsistent with CEQA Guidelines section 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 are based on the scope, description, and locations of the proposed project as well as the *Transportation Management Plan Update* prepared for this project, dated August 25, 2017 (Caltrans 2017g). Although there would be temporary traffic delays on SR 36 during construction, there would not be any permanent changes to transportation or traffic. During construction, bicycles would be accommodated through the construction area at all times. All emergency response agencies in the project area would be notified of the project construction schedule and would have access to SR 36 throughout the construction period. Therefore, the project would not result in inadequate emergency access.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.18. Tribal Cultural Resources

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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 Section 21074 as either a site, feature, place, 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 Section 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				✓

Regulatory Setting

In addition to the laws identified in Section 2.5 (Cultural Resources), the primary law governing tribal cultural resources is AB 52 (Chapter 532, Statutes of 2014).

Environmental Setting

The project area is in the ancestral territory of the Nongatl. The drainages associated with this group include the Van Duzen River, Yager Creek, a small portion of the Eel River, and the upper reaches of the Mad River (Raskin and Roscoe, 2013). A Native American Heritage Commission (NAHC) sacred lands search request for the project resulted in negative findings for sacred lands. Caltrans conducted Native American consultation through letters and emails sent to tribal representatives of the Bear River Band of the Rohnerville Rancheria, Big Lagoon Rancheria, Blue Lake Rancheria, Cher-Ae Heights Rancheria, Karuk Tribe, Hoopa Valley Tribe, Round Valley Tribes, Tsnungwe Tribe, and the Wiyot Tribe.

The Bear River Band of the Rohnerville Rancheria Tribal Historic Preservation Officer (THPO) Erika Cooper expressed interest in the project. As discussed in Section 2.5, records indicate the presence of a large prehistoric site, and a possible ethnographic village known to contain groundstone, diagnostic tools, and midden soil. Archaeological investigations were conducted in the project areas of direct impact. A cultural monitor on behalf of the Bear River Band of Rohnerville Rancheria was present during all Phase II field excavations in 2019.

Results of the project archaeological investigations are documented in the Archaeological Survey Report (Caltrans 2019a), Extended Phase I Report (Caltrans 2019e), Archaeological Evaluation Report (Caltrans 2020a) and Historic Property Survey Report (Caltrans 2020c).

Discussion of CEQA Environmental Checklist Question 2.20a-b)—Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, 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 (CRHR), or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

As discussed in Section 2.5, archaeological testing of cultural sites in the project area was confined to the ADI, so the sites cannot be formally evaluated. They are presumed eligible for the CRHR for the purposes of the project.

Impacts to cultural sites within the ADI would not alter the characteristics that might make them eligible to the CRHR. The portions of these sites within the ADI demonstrated a low diversity of artifact types, a lack of cultural features and no evidence of discrete activity areas. Phase II testing revealed no new or significant data in the areas of the site that would be impacted by construction. Untested portions of the sites outside of the ADI would be protected as Environmentally Sensitive Areas (ESAs) during construction. The ESAs will be identified along the right of way line to contain the equipment staging and work activities to the evaluated portions of the sites. Monitoring of ESA fencing and protection measures will be conducted during ground-disturbing activities at Little Larabee Creek Bridge and Butte Creek Bridge locations.

Native American monitoring and prehistoric archaeological monitoring would be conducted on this project, as consultation with local tribes—specifically the Bear River Band of Rohnerville Rancheria—revealed interest in the project location, and previous construction activities at the locations have a history or established record of Native American and archaeological monitoring. The monitoring would occur during construction with visual inspection on foot around the project limits by either a Caltrans appointed archaeological monitor, or a Caltrans archaeological monitor and a Bear River Band of Rohnerville Rancheria appointed monitor.

With the implementation of ESAs, Native American and archaeological monitoring, and other Standard Measures and Best Management Practices featured in Section 1.4, the project is not anticipated to result in a substantial adverse change in the significance of a tribal cultural resource. Given this, a "*Less Than Significant Impact*" determination was made for Question a).

> ***Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, 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:***

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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Caltrans has determined the resources in the project area are not significant resources as defined in Question b). Therefore, a "*No Impact*" determination was made for this question.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.19. Utilities and Service Systems

Question	Potentially Significant Impact	Less Than Significant with Mitigation	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?				✓

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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. As discussed in Chapter 1, the project would require the relocation of existing utilities; however, this would not result in significant environmental effects. The project would not result in a new source of wastewater or solid waste or create a new demand for water supplies; therefore, impacts to Utilities and Service Systems are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.20. Wildfire

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very 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 that 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?				✓

"No Impact" determinations in this section are based on the scope, description, and location of the proposed project. The project corridor is located within State Responsibility Area (SRA). The project is within lands classified as high and very high fire hazard severity zones (CALFIRE 2019). The project would widen or replace existing bridges and would not require new infrastructure that would exacerbate fire risks. The proposed work would not impair an adopted emergency response plan or emergency evacuation plan, exacerbate wildfire risks, or expose people or structures to significant risks; therefore, potential wildfire impacts are not anticipated.

Mitigation Measures

Based on the determinations made in the CEQA Environmental Checklist, mitigation measures have not been proposed for the project.

2.21. Mandatory Findings of Significance

Question	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?				✓
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that 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) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				✓

The California Environmental Quality Act of 1970 (CEQA) requires preparation of an Environmental Impact Report (EIR) when certain specified impacts may result from construction or implementation of a project. The analysis indicated the potential impacts associated with this project would not require an EIR. Mandatory Findings of Significance are not required for projects where an EIR has not been prepared.

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, Section 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. The analysis indicates the activities associated with the proposed project do not have the potential to have a "significant" direct, indirect, or cumulative impact on any resource. Given this, 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 consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings, interagency coordination meetings, and field visits. This chapter summarizes the results of 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

Table 10. Coordination with Resource Agencies and Public

Coordination Effort	Date	Personnel
Level 1 coordination meeting	August 23, 2017	Alexandra Laughtin, Caltrans Biologist Dotrik Wilson, Caltrans Environmental Senior Douglas Adams, Caltrans Environmental Coordinator Greg Schmidt, USFWS liaison JoAnne Loehr, CDFW Mike Kelly, NMFS Reed Crane, Caltrans Biologist
USACE field review of State Route (SR) 36 projects	March 21, 2019	Cassie Nichols, Caltrans Environmental Coordinator Dan Breen, USACE Robert Meade, Caltrans USACE Liaison
Section 4(f) coordination via telephone and email	May 7, 2019 – April 2, 2021	Hank Seeman, Humboldt County Environmental Services Julie East, Caltrans Environmental Senior Kellie Eldridge, Caltrans Environmental Coordinator Amanda Lee, Caltrans Environmental Coordinator Jason Meyer, Caltrans Environmental Senior

Coordination Effort	Date	Personnel
Interagency field review	June 13, 2019	Ali Thiel, Caltrans Biologist Greg Schmidt, USFWS Jamie Jackson, CDFW Kellie Eldridge, Caltrans Environmental Coordinator Mike Greer, Dokken Engineering Mike Kelly, NMFS Siraj Sarieddine, Caltrans Design
Email coordination regarding the CA Wild and Scenic Rivers Act	July 2, 2019 – July 16, 2019	Heather Baugh, California Natural Resources Agency (CNRA) Kellie Eldridge, Caltrans Environmental Coordinator
Email coordination regarding the National Wild and Scenic Rivers Act	July 2, 2019 – July 17, 2019	Stephen Bowes, National Park Service (NPS) Kellie Eldridge, Caltrans Environmental Coordinator
Written correspondence with CDW and NCRWQCB regarding parcel acquisition and a cooperative agreement as wetland mitigation for transportation projects in the Lower Eel watersheds	August 26, 2019 – October 7, 2019 (ongoing)	Brandon Larsen, Caltrans Office Chief -North Region Environmental-District 1 Tina Bartlett, CDFW Gil Falcone, NCRWQCB Jonathan Warmerdam, NCRWQCB
Coordination with CDFW regarding incidental take of coho salmon and potential mitigation through American bullfrog eradication	September 25, 2019 - to present (ongoing)	Stephanie Frederickson, Caltrans Senior Resource Specialist CDFW Headquarters
Federal Endangered Species Act (FESA) Technical Assistance	April 9, 2020	Greg Schmidt, USFWS Stephanie Fredrickson, Caltrans Senior Resource Specialist Hilary Sundeen, Caltrans Biologist Amanda Lee, Caltrans Environmental Coordinator
Hely Creek Site Visit with Humboldt County	May 15, 2020	Pat Boyle, Humboldt County Senior Park Caretaker Summer Daugherty, Humboldt County Senior Environmental Analyst Amanda Lee, Caltrans Environmental Coordinator
Coordination with CDFW through office hours, meetings, and email correspondence	May 28, 2020 - ongoing	Jennifer Olson, CDFW Liaison Rick Macala, CDFW Senior Hydraulic Engineer and Fish Passage Engineering Liaison Allan Renger, CDFW, Coastal Fisheries Program Manager David Kajtaniak, CDFW Environmental Scientist Hilary Sundeen, Caltrans Biologist Jennifer Brown, Caltrans Biologist Celeste Redner, Caltrans Hydraulics Engineer

Coordination Effort	Date	Personnel
Hely Creek Site Visit with EPIC	July 27, 2020	Tom Wheeler, EPIC Executive Director Brandon Larsen, Caltrans North Region Environmental Office Chief Amanda Lee, Caltrans Environmental Coordinator Jason Meyer, Caltrans Senior Environmental Planner Jen Buck, Caltrans Project Manager
Site visit to discuss CDFW comments on Draft Environmental Document	August 31, 2020	Jennifer Olson, CDFW Liaison Rick Macala, CDFW Senior Hydraulic Engineer and Fish Passage Engineering Liaison Celeste Redner, Caltrans Hydraulics Engineer Hilary Sundeen, Caltrans Biologist Amanda Lee, Caltrans Environmental Coordinator Jason Meyer, Caltrans Senior Environmental Planner
State Historic Preservation Officer (SHPO) Concurrence on Finding of No Adverse Effect	September 22, 2020	Julianne Polanco, State Historic Preservation Officer (SHPO) David Price, Caltrans Section 106 Coordinator Tina Fulton, Caltrans Archaeologist Jill Hupp, Caltrans PRC 5024 Coordinator
Level 1 Meeting	October 21, 2020	Jennifer Olson, CDFW Liaison Mike Kelly, NMFS Liaison Hilary Sundeen, Caltrans Biologist Amanda Lee, Caltrans Environmental Coordinator Stephanie Frederickson, Caltrans Senior Resource Specialist Jason Meyer, Caltrans Senior Environmental Planner Jennifer Brown, Caltrans Biologist Daniel Sessions, Caltrans Structures Design Engineer Mike McCracken, Caltrans Structures Construction Engineer Ryan Pommerenck, Hydroacoustic Noise Specialist Jen Buck, Caltrans Project Manager Caren Coonrod, Caltrans Design Branch Chief Celeste Redner, Caltrans Hydraulics Engineer
NMFS Technical Assistance meeting	December 7, 2020	Mike Kelly, NMFS Liaison Jennifer Brown, Caltrans Biologist Stephanie Frederickson, Caltrans Senior Resource Specialist Jason Meyer, Caltrans Senior Environmental Planner Amanda Lee, Caltrans Environmental Coordinator
Salmonid Data Assistance via Email	December 17-30, 2020	Allan Renger, CDFW David Kajtaniak, CDFW Jennifer Brown, Caltrans Biologist

Coordination Effort	Date	Personnel
Technical Assistance via Email	December 21-22, 2020	Mike Kelly, NMFS Liaison Jennifer Brown, Caltrans Biologist
Technical Assistance Meeting	January 5, 2021	Mike Kelly, NMFS Liaison Jennifer Brown, Caltrans Biologist
Mitigation Planning Meeting	January 26, 2021	Jennifer Olson, CDFW Liaison Mike Kelly, NMFS Liaison Jason Meyer, Caltrans Senior Environmental Planner Jennifer Brown, Caltrans Biologist Stephanie Frederickson, Caltrans Senior Resource Specialist Amanda Lee, Caltrans Environmental Coordinator Celeste Redner, Caltrans Hydraulics Engineer Rick Macala, CDFW Senior Hydraulic Engineer
USFWS Liaison Office Hours: NSO and MAMU consultation discussion	February 5, 2021	Greg Schmidt, USFWS Liaison Stephanie Fredrickson, Caltrans Senior Resource Specialist Jennifer Brown, Caltrans Biologist
Salmonid species presence, take estimates and mitigation Meeting	February 18, 2021	Jennifer Olson, CDFW Liaison David Kajtaniak, CDFW Mike Kelly, NMFS Liaison Jennifer Brown, Caltrans Biologist Stephanie Frederickson, Caltrans Senior Resource Specialist Amanda Lee, Caltrans Environmental Coordinator Jason Meyer, Caltrans Senior Environmental Planner Jason Frederickson, Caltrans Environmental Construction Liaison
NMFS Section 7 Consultation Initiation	April 19, 2921	Mike Kelly, NMFS Liaison Jennifer Brown, Caltrans Biologist Jason Meyer, Caltrans Senior Environmental Planner
USWFS Section 7 Consultation Initiation	May 3, 2021	Greg Schmidt, USFWS Liaison Jennifer Brown, Caltrans Biologist Jason Meyer, Caltrans Senior Environmental Planner

Coordination with Property Owners

Permits to enter were obtained in 2017, 2018, and 2019 to access several properties within the project Environmental Study Limits to perform environmental studies.

A copy of the draft document and Notice of Determination was sent to owners and occupants of properties within and adjacent to the project, including Humboldt Redwood Company, private landowners, and Humboldt County Environmental Services—the agency that manages Van Duzen County Park.

Coordination with Tribes

Native American Consultation was conducted by Caltrans archaeologist Tina Fulton. Letters and emails were sent to tribal representatives of the Bear River Band of the Rohnerville Rancheria, Big Lagoon Rancheria, Blue Lake Rancheria, Cher-Ae Heights Rancheria, Karuk Tribe, Hoopa Valley Tribe, Round Valley Tribes, Tsnungwe Tribe, and the Wiyot Tribe.

Erika Cooper, the Tribal Historic Preservation Officer (THPO) for the Bear River Band of the Rohnerville Rancheria, was interested in the project and appointed Robert Pepetone to be the cultural monitor who was present during all Phase II field excavations, which occurred between September 17 to 25, 2019, and September 30 to October 4, 2019.

Chapter 4. List of Preparers

The following individuals performed the environmental work on the project:

California Department of Transportation, District 1

Amanda Lee	Associate Environmental Planner (Coordinator)
Barbara Wolf	Senior Environmental Planner (Greenhouse Gas, Climate Change)
Brandon Larsen	Supervising Environmental Planner (Environmental Office Chief)
Hilary Sundeen	Associate Environmental Planner (Biologist)
Jason Meyer	Senior Environmental Planner (Environmental Project Manager)
Jen Buck	Transportation Engineer (Project Manager)
Jennifer Brown	Associate Environmental Planner (Biologist)
Karen Radford	Associate Government Program Analyst (Technical Editor)
Laura Lazzarotto	Landscape Architect (Aesthetics)
Matt Smith	Transportation Engineer (Lead Project Engineer)
Ryan Pommerenck	Transportation Engineer (Air, Noise, Greenhous Gas, Hydroacoustic)
Samantha Hadden	Design Stormwater Coordinator (Water Quality)
Steve Werner	Engineering Geologist (Hazardous Waste)
Tariq Chechi	Transportation Engineer (Project Manager)
Tim Keefe	Senior Environmental Planner (Cultural Resources)
Tina Fulton	Associate Environmental Planner (Archaeologist)
Youngil Cho	Air Quality Specialist (Energy)

Consultants

Eric Tjossem	RMM Environmental Planning, Inc. (Arborist)
Kim Scott	Cogstone Resource Management Inc. (Paleontology)
Kyle Wear	RMM Environmental Planning, Inc. (Botany, Wetlands)
Jordan Mayor	International Consulting Firm (ICF) (Forest Ecologist)
Margaret Widdowson	International Consulting Firm (ICF) (Botany, Wetlands)
Michael Greer	Dokken Engineering (Design Consultant)

Chapter 5. Distribution List

Federal and State Agencies

Daniel Breen, Senior Regulatory Project Manager, U.S. Army Corps of Engineers

Gordon Leppig, Senior Environmental Scientist, California Department of Fish & Wildlife (CDFW)

Greg Schmidt, USFWS Caltrans Liaison, U.S. Fish and Wildlife Service

Isabella Roman, Department of Toxic Substances Control

Jeff Jahn, Supervisory Fish Biologist, National Marine Fisheries Service (NMFS)

Jennifer Olson, Senior Environmental Scientist, California Department of Fish & Wildlife

Mike Kelly, Caltrans Liaison, NMFS

Rick Macala, Caltrans Fish Passage Engineering Liaison, CDFW

Susan Stewart, Environmental Scientist, North Coast Regional Water Quality Control Board

Regional/County/Local Agencies

Hank Seemann, Deputy Director, Humboldt County Environmental Services

Tribal Officials

Erika Cooper, Tribal Historic Preservation Officer (THPO)- Bear River Band of the Rohnerville Rancheria

Property Owners and Members of the Public

Ardalan Sedghi, Property Owner

Cynthia Carol Rees and Scott Clayton Willits, Property Owner

Gisele Albertine, Public

Glen and Kay Brown, Property Owner

Humboldt Redwood Company LLC

Kim Bancroft, Public

Tom Wheeler, Executive Director, Environmental Protection Information Center (EPIC)

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Personal Communications

Gregory Schmidt, Fish & Wildlife Biologist, Endangered Species Program, U.S. Fish and Wildlife Service

Jamie Jackson, Senior Environmental Scientist Specialist, Coastal Conservation Planning – Northern Region, California Department of Fish and Wildlife

Jason Frederickson, Caltrans Environmental Construction Liaison

JoAnn Loehr, Senior Environmental Scientist Specialist, Coastal Conservation Planning – Northern Region, California Department of Fish and Wildlife

Keith Lackey, Humboldt Redwood Company

Mike Kelly, Fisheries Biologist, National Marine Fisheries Service

David Kajtaniak, Fisheries Biologist, California Department of Fish and Wildlife

Samantha H. Kannry, Department of Animal Science, UC Davis

Appendix A. Project Layouts

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	36	11.4/34.5	1	

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON

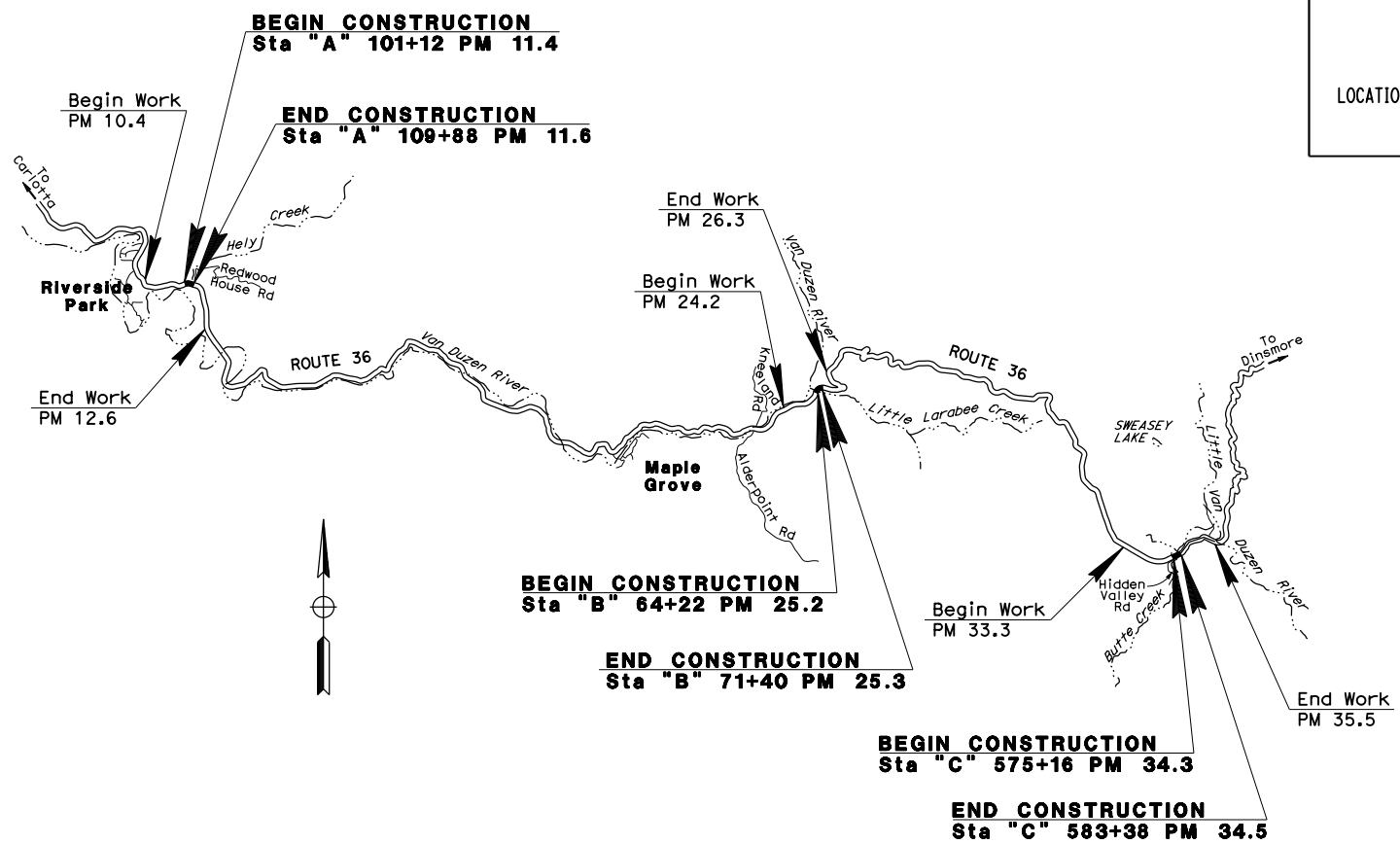
STATE HIGHWAY

IN HUMBOLDT COUNTY BETWEEN CARLOTTA AND DINSMORE ON STATE ROUTE 36

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2018

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
X-X	TYPICAL CROSS SECTIONS
XX-XX	LAYOUTS
XX-XX	PROFILES AND SUPERELEVATION DIAGRAMS
XX-XX	DRAINAGE PLANS, PROFILES, DETAILS AND QUANTITIES
XX-XX	PAVEMENT DELINEATION PLANS, DETAILS AND QUANTITIES
XX-XX	SUMMARY OF QUANTITIES
XX-XX	REVISED STANDARD PLANS

LOCATION MAP



THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NO SCALE

PROJECT ENGINEER REGISTERED CIVIL ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

DOKKEN ENGINEERING
1450 FRAZEE ROAD, STE 100
SAN DIEGO, CA 92108

CONTRACT No.	01-0C500
PROJECT ID	0112000292

APPROVED AS TO IMPACT ON STATE FACILITIES AND CONFORMANCE WITH APPLICABLE STATE STANDARDS AND PRACTICES AND THAT TECHNICAL OVERSIGHT WAS PERFORMED.

CONSULTANT DESIGN MANAGER	CALTRANS DESIGN OVERSIGHT APPROVAL	REGISTRATION No.	LICENSE Exp DATE	DATE SIGNED
JOSE J. OSTOJEK	CAREN COONROD			

LAST REVISION 00-00-00 — DATE PLOTTED => 30-MAR-2021 — TIME PLOTTED => 14:09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	36	11.46	.	.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

DOKKEN ENGINEERING
1450 FRAZEE ROAD
SUITE 100
SAN DIEGO, CA 92108

NOTE:

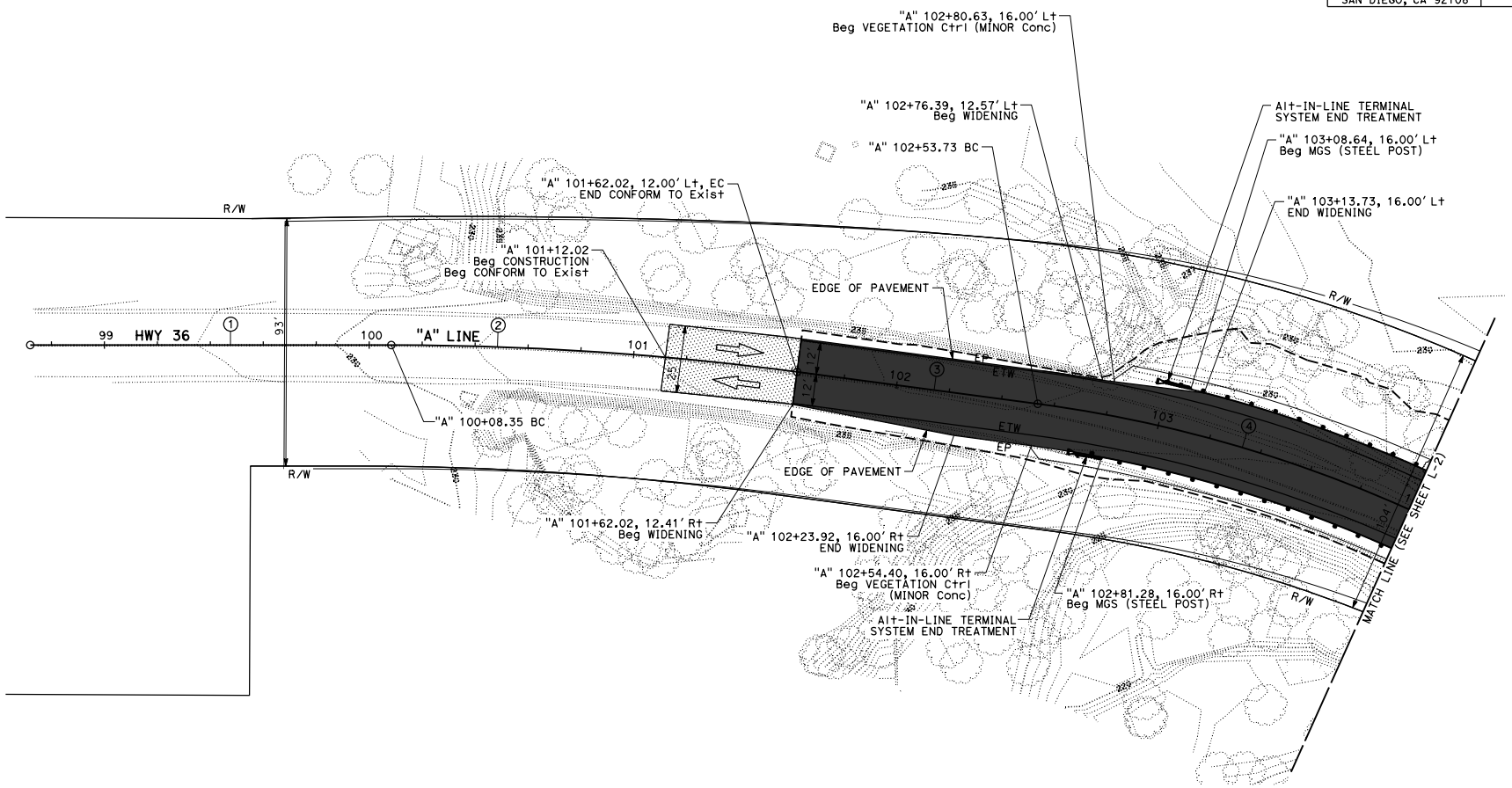
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND

- FULL ROAD CONSTRUCTION
- COLD PLANE AND OVERLAY
- BRIDGE IMPROVEMENT (SEE STRUCTURE PLANS)
- (#) LINE/CURVE DATA NUMBER

LINE/CURVE DATA

No. ⊛	R	Δ/BEARING	T	L
1	-	N66°17′56"E	-	136.35′
2	1165.00′	7°33′28"	76.95′	153.67′
3	-	N73°51′23"E	-	91.72′
4	504.00′	33°14′43"	150.47′	292.44′



HELY CREEK

LAYOUT

SCALE: 1"=20′ **L-1**

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY	CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR .

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION Caltrans

LAST REVISION .-.-.-..

DATE PLOTTED => 30-MAR-2021
TIME PLOTTED => 14:09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	36	11.46	.	.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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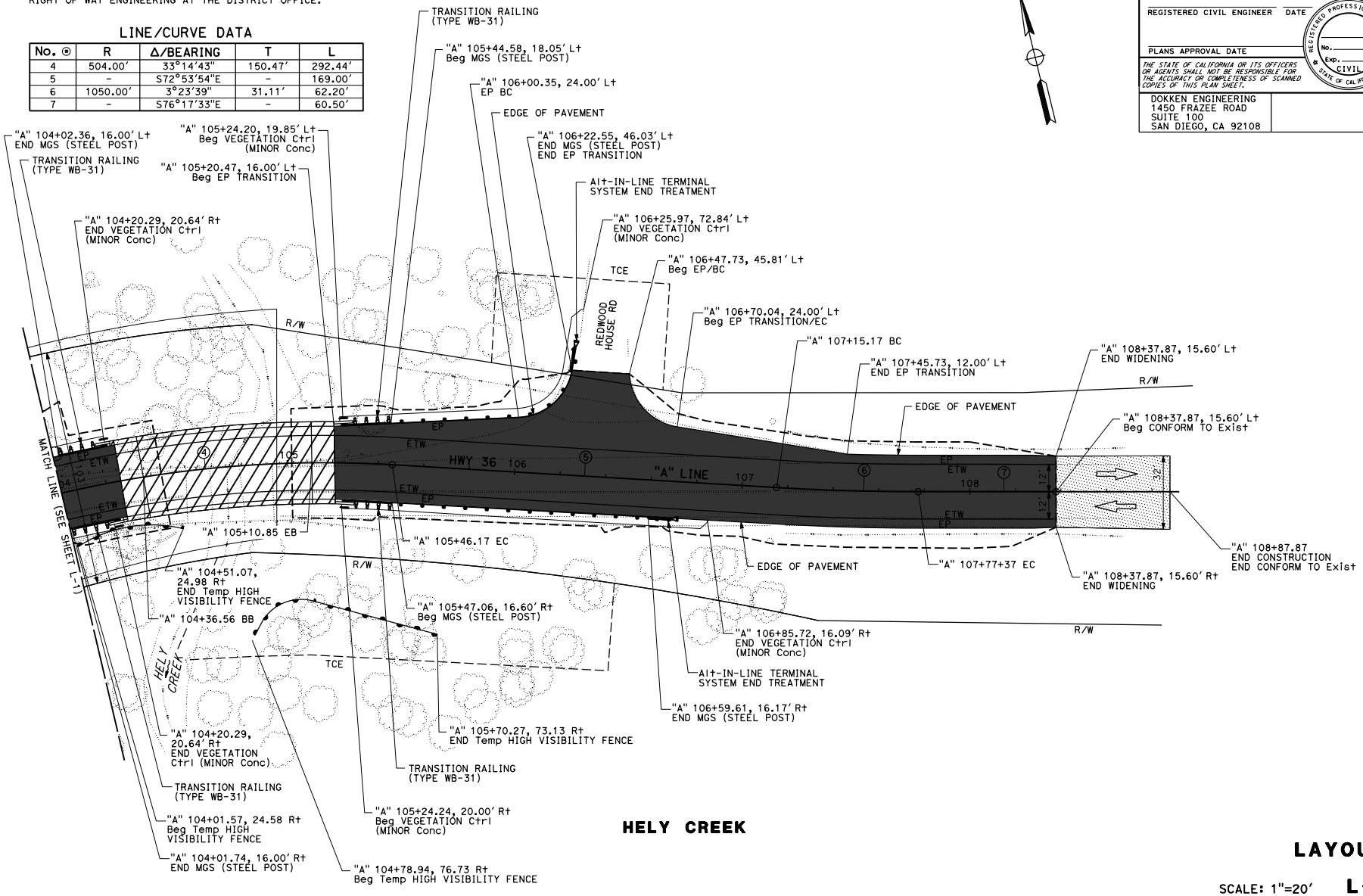
DOKKEN ENGINEERING
1450 FRAZEE ROAD
SUITE 100
SAN DIEGO, CA 92108

NOTE:

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

LINE/CURVE DATA

No. ⊛	R	Δ/BEARING	T	L
4	504.00′	33°14′43"	150.47′	292.44′
5	-	S72°53′54"E	-	169.00′
6	1050.00′	3°23′39"	31.11′	62.20′
7	-	S76°17′33"E	-	60.50′



HELY CREEK

LAYOUT

SCALE: 1"=20′ **L-2**

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION | DATE PLOTTED => 30-MAR-2021 | TIME PLOTTED => 14:09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	36	25.27	.	.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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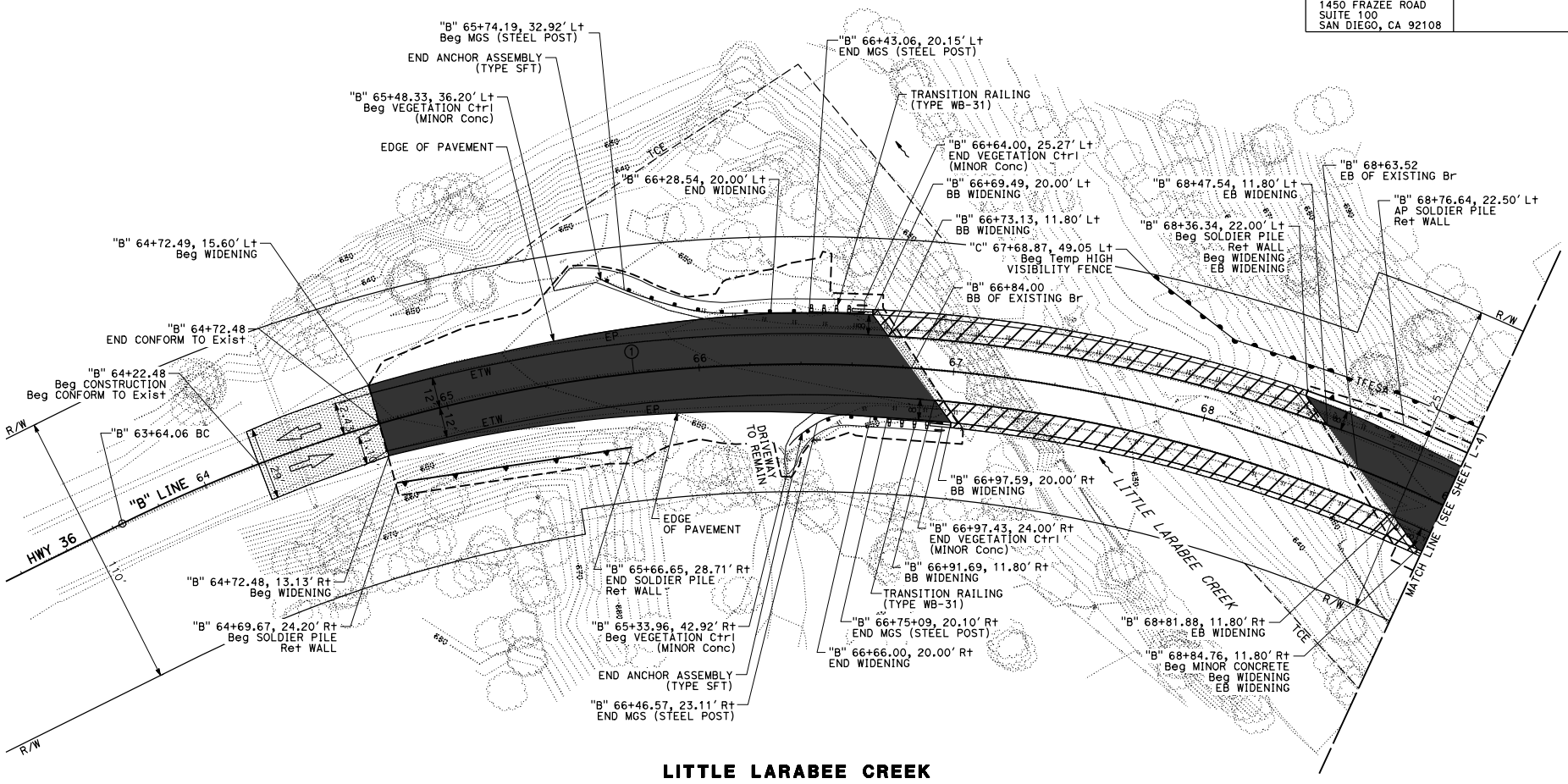
DOKKEN ENGINEERING
1450 FRAZEE ROAD
SUITE 100
SAN DIEGO, CA 92108

NOTE:

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

CURVE DATA

No. ⊙	R	Δ	T	L
1	600.00′	92°40′00″	628.60′	628.60′



LITTLE LARABEE CREEK

LAYOUT

SCALE: 1"=20′ **L-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR . | CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED

LAST REVISION .-.-.-.. | DATE PLOTTED => 30-MAR-2021 | TIME PLOTTED => 14:10

BORDER LAST REVISED 7/2/2010 | USERNAME => s134473 | DGN FILE => 0112000292ea03.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0312 | PROJECT NUMBER & PHASE 0112000292

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	36	25.27	.	.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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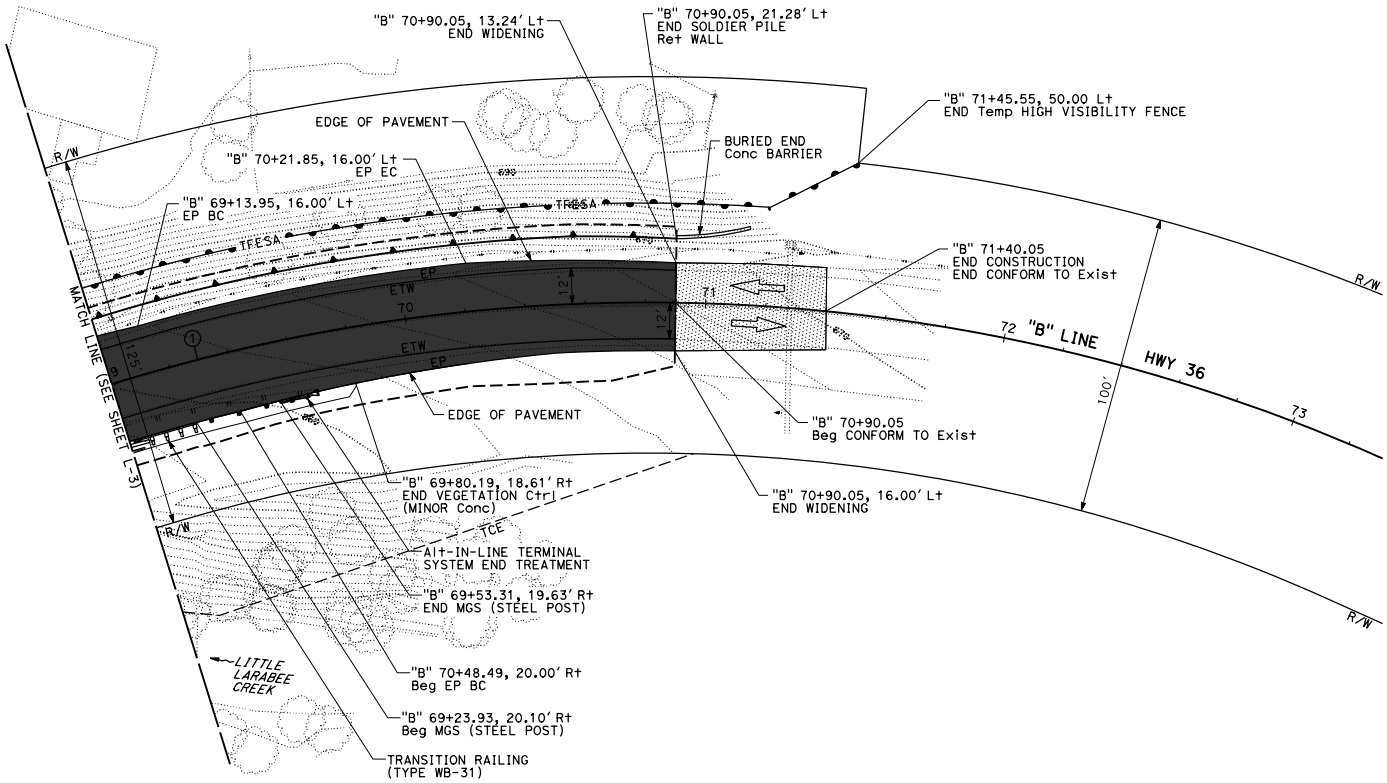
DOKKEN ENGINEERING
1450 FRAZEE ROAD
SUITE 100
SAN DIEGO, CA 92108

NOTE:

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

CURVE DATA

No. ⊙	R	Δ	T	L
1	600.00′	92°40′00″	628.60′	628.60′



LITTLE LARABEE CREEK

LAYOUT

SCALE: 1"=20′ **L-4**

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY	CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR .

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION .-.-.-..

DATE PLOTTED => 30-MAR-2021
TIME PLOTTED => 14:10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	36	34.52	.	.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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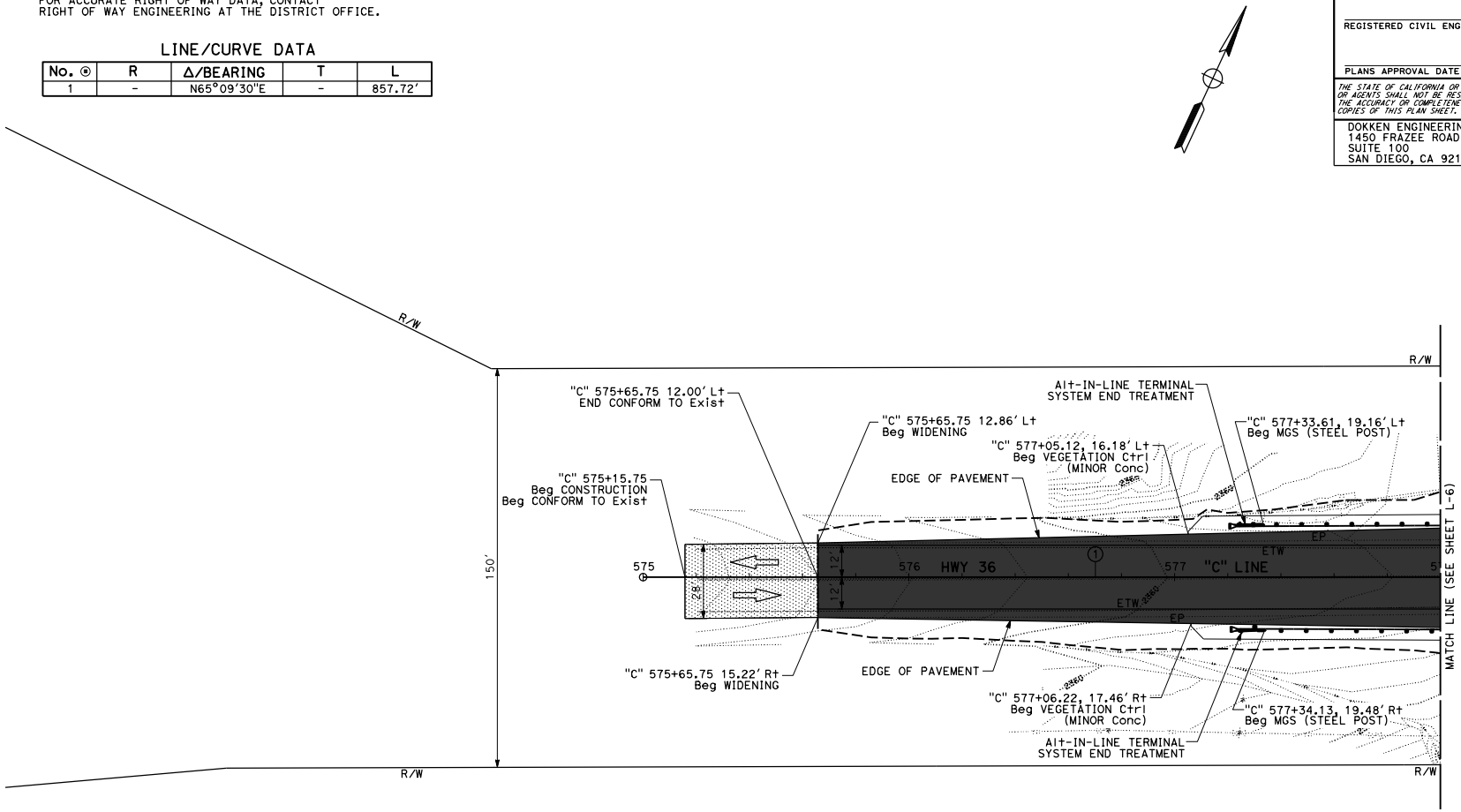
DOKKEN ENGINEERING
1450 FRAZEE ROAD
SUITE 100
SAN DIEGO, CA 92108

NOTE:

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

LINE/CURVE DATA

No. ⊙	R	Δ/BEARING	T	L
1	-	N65°09'30"E	-	857.72'



BUTTE CREEK

LAYOUT

SCALE: 1"=20' **L-5**

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR .

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION .-.-.. DATE PLOTTED => 30-MAR-2021 TIME PLOTTED => 14:10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	36	34.52	.	.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

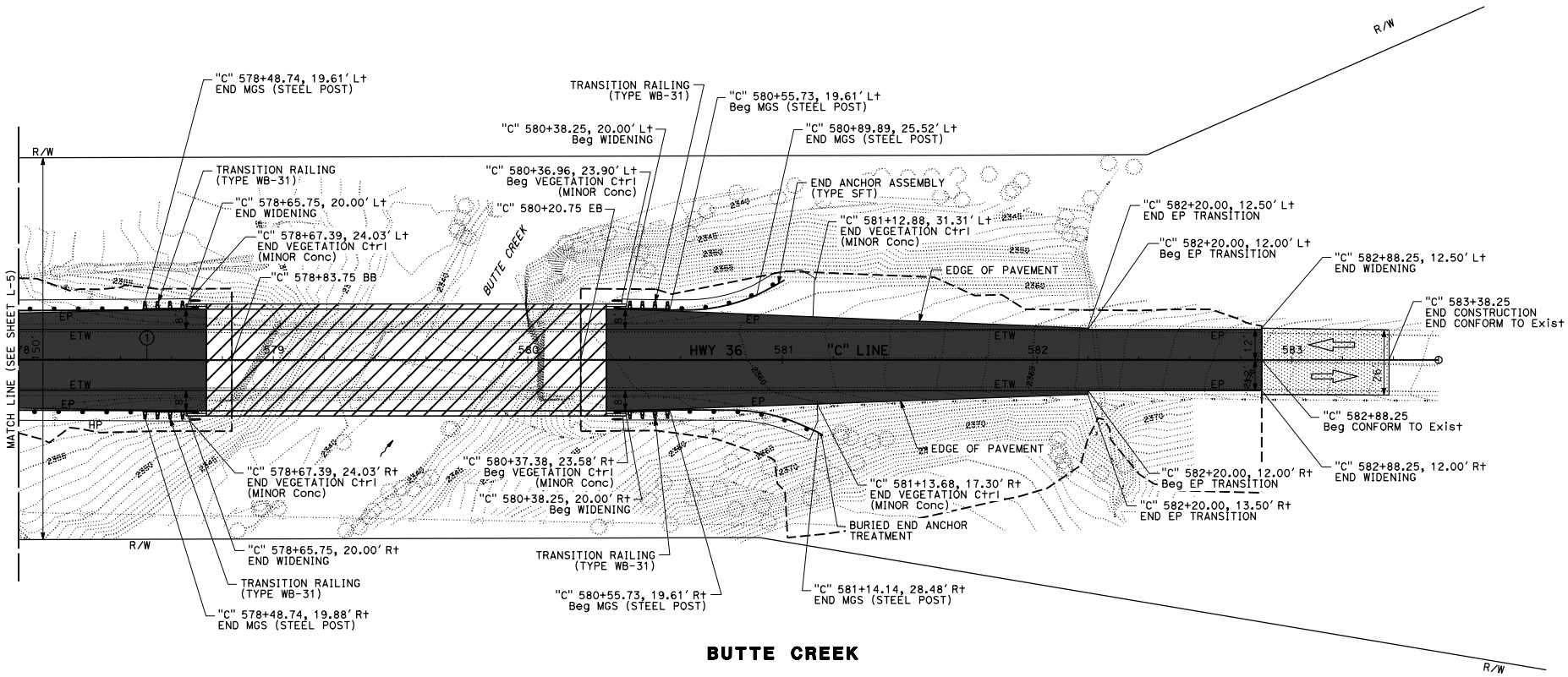
DOKKEN ENGINEERING
1450 FRAZEE ROAD
SUITE 100
SAN DIEGO, CA 92108

NOTE:

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

LINE/CURVE DATA

No. ⊙	R	Δ/BEARING	T	L
1	-	N65°09'30"E	-	857.72'



BUTTE CREEK

LAYOUT

SCALE: 1"=20' **L-6**

REVISED BY	DATE REVISED
CALCULATED-DESIGNED BY	CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR	.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION .-.-.-.. DATE PLOTTED => 30-MAR-2021 TIME PLOTTED => 14:10

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.

August 2020

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*."

Caltrans will make every effort to ensure nondiscrimination in all of its services, programs and activities, whether they are federally funded or not, and that services and benefits are fairly distributed to all people, regardless of race, color, or national origin. In addition, Caltrans will facilitate meaningful participation in the transportation planning process in a nondiscriminatory manner.

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/civil-rights/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 Civil Rights, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at <Title.VI@dot.ca.gov>.

Original signed by
Toks Omishakin
Director

Appendix C. USFWS, NMFS, CNDDB, and CNPS Species Lists

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: April 01, 2021
Consultation Code: 08EACT00-2020-SLI-0137
Event Code: 08EACT00-2021-E-00558
Project Name: Hely Creek Bridge

Subject: Updated 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

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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 Tracking Number 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

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

Consultation Code: 08EACT00-2020-SLI-0137
Event Code: 08EACT00-2021-E-00558
Project Name: Hely Creek Bridge
Project Type: TRANSPORTATION
Project Description: Bridge Replacement
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.49971070592958,-123.97478684089799,14z

Counties: Humboldt County, California

Endangered Species Act Species

There is a total of 4 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.

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. 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. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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: April 01, 2021
Consultation Code: 08EACT00-2020-SLI-0139
Event Code: 08EACT00-2021-E-00556
Project Name: Little Larabee Creek

Subject: Updated 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

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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 Tracking Number 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

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

Consultation Code: 08EACT00-2020-SLI-0139
Event Code: 08EACT00-2021-E-00556
Project Name: Little Larabee Creek
Project Type: TRANSPORTATION
Project Description: Bridge widening
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.47712707082849,-123.78171419093752,14z

Counties: Humboldt County, California

Endangered Species Act Species

There is a total of 3 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.

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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.

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. 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. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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: April 01, 2021
Consultation Code: 08EACT00-2020-SLI-0140
Event Code: 08EACT00-2021-E-00557
Project Name: Butte Creek Bridge

Subject: Updated 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:

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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 Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

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This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Consultation Code: 08EACT00-2020-SLI-0140
Event Code: 08EACT00-2021-E-00557
Project Name: Butte Creek Bridge
Project Type: TRANSPORTATION
Project Description: Bridge Replacement
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.441839488293056,-123.66797572318384,14z

Counties: Humboldt County, California

Endangered Species Act Species

There is a total of 3 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.

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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.

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NAME	STATUS
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Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Quad Name **Owl Creek**
Quad Number **40123-E8**

ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Redcrest**
Quad Number **40123-D8**

ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Bridgeville**
Quad Number **40123-D7**

ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -

Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Larabee Valley**
Quad Number **40123-D6**

ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Redcrest (4012348) OR Owl Creek (4012358) OR Larabee Valley (4012346) OR Bridgeville (4012347) OR McWhinney Creek (4012461) OR Iaqua Buttes (4012368) OR Mad River Buttes (4012367) OR Yager Junction (4012357) OR Showers Mtn. (4012356) OR Blake Mountain (4012355) OR Dinsmore (4012345) OR Black Lassic (4012335) OR Blocksburg (4012336) OR Myers Flat (4012337) OR Weott (4012338) OR Bull Creek (4012431) OR Scotia (4012441) OR Hydesville (4012451))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAD12050	***Plethodon elongatus*** Del Norte salamander	None	None	G4	S3	WL
AAAAJ01020	***Rhyacotriton variegatus*** southern torrent salamander	None	None	G3G4	S2S3	SSC
AAABA01010	***Ascaphus truei*** Pacific tailed frog	None	None	G4	S3S4	SSC
AAABH01021	***Rana aurora*** northern red-legged frog	None	None	G4	S3	SSC
AAABH01050	***Rana boylii*** foothill yellow-legged frog	None	Endangered	G3	S3	SSC
ABNGA04010	***Ardea herodias*** great blue heron	None	None	G5	S4	
ABNKC01010	***Pandion haliaetus*** osprey	None	None	G5	S4	WL
ABNKC12020	***Accipiter striatus*** sharp-shinned hawk	None	None	G5	S4	WL
ABNKC12040	***Accipiter cooperii*** Cooper's hawk	None	None	G5	S4	WL
ABNKC12060	***Accipiter gentilis*** northern goshawk	None	None	G5	S3	SSC
ABNKC22010	***Aquila chrysaetos*** golden eagle	None	None	G5	S3	FP
ABNKD06071	***Falco peregrinus anatum*** American peregrine falcon	Delisted	Delisted	G4T4	S3S4	FP
ABNNN06010	***Brachyramphus marmoratus*** marbled murrelet	Threatened	Endangered	G3	S2	
ABPAU08010	***Riparia riparia*** bank swallow	None	Threatened	G5	S2	
AFBAA02090	***Lampetra richardsoni*** western brook lamprey	None	None	G4G5	S3S4	SSC
AFBAA02100	***Entosphenus tridentatus*** Pacific lamprey	None	None	G4	S4	SSC
AFCHA02032	***Oncorhynchus kisutch pop. 2*** coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	G5T2Q	S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AFCHA0205S	***Oncorhynchus tshawytscha pop. 17*** chinook salmon - California coastal ESU	Threatened	None	G5T2Q	S2	
AFCHA0208A	***Oncorhynchus clarkii clarkii*** coast cutthroat trout	None	None	G5T4	S3	SSC
AFCHA0209Q	***Oncorhynchus mykiss irideus pop. 16*** steelhead - northern California DPS	Threatened	None	G5T2T3Q	S2S3	
AFCHA0213B	***Oncorhynchus mykiss irideus pop. 36*** summer-run steelhead trout	None	Candidate Endangered	G5T4Q	S2	SSC
AMACC01020	***Myotis yumanensis*** Yuma myotis	None	None	G5	S4	
AMACC01070	***Myotis evotis*** long-eared myotis	None	None	G5	S3	
AMACC01110	***Myotis volans*** long-legged myotis	None	None	G4G5	S3	
AMACC05060	***Lasiurus blossevillii*** western red bat	None	None	G4	S3	SSC
AMACC08010	***Corynorhinus townsendii*** Townsend's big-eared bat	None	None	G4	S2	SSC
AMAFA01017	***Aplodontia rufa humboldtiana*** Humboldt mountain beaver	None	None	G5TNR	SNR	
AMAFF23030	***Arborimus pomo*** Sonoma tree vole	None	None	G3	S3	SSC
AMAFJ01010	***Erethizon dorsatum*** North American porcupine	None	None	G5	S3	
AMAJF01012	***Martes caurina humboldtensis*** Humboldt marten	Proposed Threatened	Endangered	G4G5T1	S1	SSC
AMAJF01020	***Pekania pennanti*** Fisher	None	None	G5	S2S3	SSC
ARAAD02030	***Emys marmorata*** western pond turtle	None	None	G3G4	S3	SSC
CARA2634CA	***North Central Coast Summer Steelhead Stream*** North Central Coast Summer Steelhead Stream	None	None	GNR	SNR	
CTT82420CA	***Upland Douglas Fir Forest*** Upland Douglas Fir Forest	None	None	G4	S3.1	
IICOL58010	***Atractelmis wawona*** Wawona riffle beetle	None	None	G3	S1S2	
IIHYM24250	***Bombus occidentalis*** western bumble bee	None	Candidate Endangered	G2G3	S1	
IIHYM24380	***Bombus caliginosus*** obscure bumble bee	None	None	G4?	S1S2	
IMBIV04220	***Anodonta californiensis*** California floater	None	None	G3Q	S2?	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IMBIV19010	***Gonidea angulata*** western ridged mussel	None	None	G3	S1S2	
IMBIV27020	***Margaritifera falcata*** western pearlshell	None	None	G4G5	S1S2	
IMGAS36130	***Ancotrema voyanum*** hooded lancetooth	None	None	G1G2	S1S2	
IMGASC5070	***Noyo intersessa*** Ten Mile shoulderband	None	None	G2	S2	
NBHEP2U010	***Ptilidium californicum*** Pacific fuzzwort	None	None	G4G5	S3S4	4.3
NBMUS4L020	***Meesia triquetra*** three-ranked hump moss	None	None	G5	S4	4.2
NLLEC5P420	***Usnea longissima*** Methuselah's beard lichen	None	None	G4	S4	4.2
PDAPI1Z0K0	***Sanicula tracyi*** Tracy's sanicle	None	None	G4	S4	4.2
PDAST1P0C0	***Calycadenia micrantha*** small-flowered calycadenia	None	None	G2	S2	1B.2
PDAST8H0H1	***Packera bolanderi var. bolanderi*** seacoast ragwort	None	None	G4T4	S2S3	2B.2
PDASTDU020	***Anisocarpus scabridus*** scabrid alpine tarplant	None	None	G3	S3	1B.3
PDASTE1050	***Erigeron maniopotamicus*** Mad River fleabane daisy	None	None	G2?	S2?	1B.2
PDBRA0K010	***Cardamine angulata*** seaside bittercress	None	None	G4G5	S3	2B.1
PDBRA2P041	***Noccaea fendleri ssp. californica*** Kneeland Prairie pennycress	Endangered	None	G5?T1	S1	1B.1
PDCAM060E0	***Downingia willamettensis*** Cascade downingia	None	None	G4	S2	2B.2
PDCAM0A010	***Howellia aquatilis*** water howellia	Threatened	None	G3	S2	2B.2
PDCAR0G0Y0	***Sabulina decumbens*** The Lassics sandwort	None	None	G1	S1	1B.2
PDCRA0A0L2	***Sedum laxum ssp. flavidum*** pale yellow stonecrop	None	None	G5T3Q	S3	4.3
PDERI04271	***Arctostaphylos manzanita ssp. elegans*** Konocti manzanita	None	None	G5T3	S3	1B.3
PDFAB0F080	***Astragalus agnicidus*** Humboldt County milk-vetch	None	Endangered	G2	S2	1B.1
PDFAB0F990	***Astragalus umbraticus*** Bald Mountain milk-vetch	None	None	G4	S2	2B.2

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PDFAB25180	***Lathyrus biflorus*** two-flowered pea	None	None	G1	S1	1B.1
PDFAB2A1F0	***Hosackia yollabolliensis*** Yolla Bolly Mtns. bird's-foot trefoil	None	None	G2	S2	1B.2
PDFAB2B1G0	***Lupinus elmeri*** South Fork Mountain lupine	None	None	G2	S2	1B.2
PDFAB2B490	***Lupinus constancei*** The Lassics lupine	None	Endangered	G1	S1	1B.1
PDFAB3Z0D0	***Thermopsis robusta*** robust false lupine	None	None	G2	S2	1B.2
PDMAL0K040	***Iliamna latibracteata*** California globe mallow	None	None	G2G3	S2	1B.2
PDMAL110E0	***Sidalcea malachroides*** maple-leaved checkerbloom	None	None	G3	S3	4.2
PDMAL110F9	***Sidalcea malviflora ssp. patula*** Siskiyou checkerbloom	None	None	G5T2	S2	1B.2
PDMAL110K9	***Sidalcea oregana ssp. eximia*** coast checkerbloom	None	None	G5T1	S1	1B.2
PDORO01010	***Kopsiopsis hookeri*** small groundcone	None	None	G4?	S1S2	2B.3
PDPLM040B6	***Gilia capitata ssp. pacifica*** Pacific gilia	None	None	G5T3	S2	1B.2
PDPLM0C0E1	***Navarretia leucocephala ssp. bakeri*** Baker's navarretia	None	None	G4T2	S2	1B.1
PDPOR05070	***Montia howellii*** Howell's montia	None	None	G3G4	S2	2B.2
PDRAN0A020	***Coptis laciniata*** Oregon goldthread	None	None	G4?	S3?	4.2
PDROS1L060	***Sanguisorba officinalis*** great burnet	None	None	G5?	S2	2B.2
PDSAX02010	***Bensoniella oregona*** bensoniella	None	Rare	G3	S2	1B.1
PDSAX0N020	***Mitellastra caulescens*** leafy-stemmed mitrewort	None	None	G5	S4	4.2
PMCYP030X0	***Carex arcta*** northern clustered sedge	None	None	G5	S1	2B.2
PMCYP03B20	***Carex praticola*** northern meadow sedge	None	None	G5	S2	2B.2
PMLIL0U0C0	***Erythronium oregonum*** giant fawn lily	None	None	G4G5	S2	2B.2
PMLIL0U0F0	***Erythronium revolutum*** coast fawn lily	None	None	G4G5	S3	2B.2

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PMORC1X050	***Piperia candida*** white-flowered rein orchid	None	None	G3	S3	1B.2
PMPOA170C0	***Calamagrostis foliosa*** leafy reed grass	None	Rare	G3	S3	4.2
PPLYC01080	***Lycopodium clavatum*** running-pine	None	None	G5	S3	4.1

Record Count: 83

California Native Plant Society Inventory of Rare and Endangered Species Results

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	CESA	FESA	Blooming Period
Allium hoffmanii	Beegum onion	Alliaceae	perennial bulbiferous herb	4.3	G4	S4	None	None	Jun-Jul
Anisocarpus scabridus	scabrid alpine tarplant	Asteraceae	perennial herb	1B.3	G3	S3	None	None	(Jun)Jul-Aug(Sep)
Arctostaphylos hispidula	Howell's manzanita	Ericaceae	perennial evergreen shrub	4.2	G4	S3	None	None	Mar-Apr
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Ericaceae	perennial evergreen shrub	1B.3	G5T3	S3	None	None	(Jan)Mar-May(Jul)
Arnica spathulata	Klamath arnica	Asteraceae	perennial rhizomatous herb	4.3	G3?	S3	None	None	May-Aug
Astragalus agnicidus	Humboldt County milk-vetch	Fabaceae	perennial herb	1B.1	G2	S2	CE	None	Apr-Sep
Astragalus rattanii var. rattanii	Rattan's milk-vetch	Fabaceae	perennial herb	4.3	G4T4	S4	None	None	Apr-Jul
Astragalus umbraticus	Bald Mountain milk-vetch	Fabaceae	perennial herb	2B.3	G4	S2	None	None	May-Aug
Bensoniella oregona	bensoniella	Saxifragaceae	perennial herb	1B.1	G3	S2	CR	None	May-Jul
Calamagrostis foliosa	leafy reed grass	Poaceae	perennial herb	4.2	G3	S3	CR	None	May-Sep
Calycadenia micrantha	small-flowered calycadenia	Asteraceae	annual herb	1B.2	G2	S2	None	None	Jun-Sep
Carex arcta	northern clustered sedge	Cyperaceae	perennial herb	2B.2	G5	S1	None	None	Jun-Sep
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	2B.2	G5	S2	None	None	May-Jul
Carex scabriuscula	Siskiyou sedge	Cyperaceae	perennial rhizomatous herb	4.3	G4G5	S4	None	None	May-Jul
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	G4T4	S3S4	None	None	Mar-Aug
Chrysosplenium glechomifolium	Pacific golden saxifrage	Saxifragaceae	perennial herb	4.3	G5?	S3	None	None	Feb-Jun(Jul)
Collomia tracyi	Tracy's collomia	Polemoniaceae	annual herb	4.3	G4	S4	None	None	Jun-Jul
Coptis laciniata	Oregon goldthread	Ranunculaceae	perennial rhizomatous herb	4.2	G4?	S3?	None	None	(Feb)Mar-May(Sep-Nov)
Cryptantha rostellata	red-stemmed cryptantha	Boraginaceae	annual herb	4.2	G4	S3	None	None	Apr-Jun
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	G4	S4	None	None	Mar-Aug
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	G4	S4	None	None	Mar-Aug
Downingia willamettensis	Cascade downingia	Campanulaceae	annual herb	2B.2	G4	S2	None	None	Jun-Jul(Sep)
Epilobium oreganum	Oregon fireweed	Onagraceae	perennial herb	1B.2	G2	S2	None	None	Jun-Sep
Epilobium septentrionale	Humboldt County fuchsia	Onagraceae	perennial herb	4.3	G4	S4	None	None	Jul-Sep
Erigeron maniopotamicus	Mad River fleabane daisy	Asteraceae	perennial herb	1B.2	G2?	S2?	None	None	May-Aug
Erythronium oregonum	giant fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S2	None	None	Mar-Jun(Jul)
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S3	None	None	Mar-Jul(Aug)
Eucephalus glabratus	Siskiyou aster	Asteraceae	perennial herb	4.3	G4	S3	None	None	Jul-Sep
Fritillaria glauca	Siskiyou fritillaria	Liliaceae	perennial bulbiferous herb	4.2	G3G4	S3	None	None	(Apr-May)Jun-Jul
Gilia capitata ssp. pacifica	Pacific gilia	Polemoniaceae	annual herb	1B.2	G5T3	S2	None	None	Apr-Aug
Hosackia yollabolliensis	Yolla Bolly Mtns. bird's-foot tre	Fabaceae	perennial herb	1B.2	G2	S2	None	None	Jun-Aug
Howellia aquatilis	water howellia	Campanulaceae	annual herb (aquatic)	2B.2	G3	S2	None	FT	Jun
Iliamna latibracteata	California globe mallow	Malvaceae	perennial herb	1B.2	G2G3	S2	None	None	Jun-Aug
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	2B.3	G4?	S1S2	None	None	Apr-Aug
Lathyrus biflorus	two-flowered pea	Fabaceae	perennial herb	1B.1	G1	S1	None	None	Jun-Aug
Lathyrus glandulosus	sticky pea	Fabaceae	perennial rhizomatous herb	4.3	G3	S3	None	None	Apr-Jun
Lilium kelloggii	Kellogg's lily	Liliaceae	perennial bulbiferous herb	4.3	G3	S3	None	None	May-Aug
Lilium rubescens	redwood lily	Liliaceae	perennial bulbiferous herb	4.2	G3	S3	None	None	Apr-Aug(Sep)
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	4.2	G5	S4	None	None	Feb-Jul
Lupinus constancei	The Lassics lupine	Fabaceae	perennial herb	1B.1	G1	S1	None	None	Jul
Lupinus elmeri	South Fork Mountain lupine	Fabaceae	perennial herb	1B.2	G2	S2	None	None	Jun-Jul(Aug)
Lycopodium clavatum	running-pine	Lycopodiaceae	perennial rhizomatous herb	4.1	G5	S3	None	None	Jun-Aug(Sep)
Meesia triquetra	three-ranked hump moss	Meesiaceae	moss	4.2	G5	S4	None	None	Jul
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	4.2	G5	S4	None	None	(Mar)Apr-Oct
Montia howellii	Howell's montia	Montiaceae	annual herb	2B.2	G3G4	S2	None	None	(Jan-Feb)Mar-May
Noccaea fendleri ssp. californica	Kneeland Prairie pennycress	Brassicaceae	perennial herb	1B.1	G5?T1	S1	None	FE	May-Jun
Packera bolanderi var. bolanderi	seacoast ragwort	Asteraceae	perennial rhizomatous herb	2B.2	G4T4	S2S3	None	None	(Jan-Apr)May-Jul(Aug)

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	CESA	FESA	Blooming Period
Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	1B.2	G3	S3	None	None	(Mar)May-Sep
Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	4.2	G4G5	S4	None	None	(Mar-Apr)May-Aug
Platanthera stricta	slender bog-orchid	Orchidaceae	perennial herb	4.2	G5	S3	None	None	May-Aug
Pleuropogon refractus	nodding semaphore grass	Poaceae	perennial rhizomatous herb	4.2	G4	S4	None	None	(Mar)Apr-Aug
Ptilidium californicum	Pacific fuzz wort	Ptilidiaceae	liverwort	4.3	G4G5	S3S4	None	None	May-Aug
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	4.3	G5?	S3	None	None	Mar-Jul(Aug)
Ribes roezlii var. amictum	hoary gooseberry	Grossulariaceae	perennial deciduous shrub	4.3	G5T4	S4	None	None	Mar-Apr
Sabulina decumbens	The Lassics sandwort	Caryophyllaceae	perennial herb	1B.2	G1	S1	None	None	Jul
Sanguisorba officinalis	great burnet	Rosaceae	perennial rhizomatous herb	2B.2	G5?	S2	None	None	Jul-Oct
Sanicula tracyi	Tracy's sanicle	Apiaceae	perennial herb	4.2	G4	S4	None	None	Apr-Jul
Sedum laxum ssp. flavidum	pale yellow stonecrop	Crassulaceae	perennial herb	4.3	G5T3Q	S3	None	None	May-Jul
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	4.2	G3	S3	None	None	(Mar)Apr-Aug
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	1B.2	G5T2	S2	None	None	(Apr)May-Aug
Sidalcea oregana ssp. eximia	coast checkerbloom	Malvaceae	perennial herb	1B.2	G5T1	S1	None	None	Jun-Aug
Thermopsis robusta	robust false lupine	Fabaceae	perennial rhizomatous herb	1B.2	G2	S2	None	None	May-Jul
Tiarella trifoliata var. trifoliata	trifoliate laceflower	Saxifragaceae	perennial rhizomatous herb	3.2	G5T5	S2S3	None	None	(May)Jun-Aug
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)	4.2	G4	S4	None	None	
Wyethia longicaulis	Humboldt County wyethia	Asteraceae	perennial herb	4.3	G4	S4	None	None	May-Jul

Appendix D. Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites".

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project . . . "requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use".

Section 4(f) further requires coordination with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer is also needed.

Section 6009(a) of SAFETEA-LU amended Section 4(f) legislation at 23 United States Code (USC) 138 and 49 USC 303 to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). This amendment provides that once the U.S. Department of Transportation (USDOT) determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, results in a de minimis impact on that property, an analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete. FHWA's final rule on Section 4(f) *de minimis* findings is codified in 23 Code of Federal Regulations (CFR) 774.3 and CFR 774.17.

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to 23 USC 326 and 327 and a Memorandum of Understanding executed between FHWA and Caltrans (dated December 23, 2016), including *de minimis* impact determinations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

The activities associated with the project would occur within Van Duzen County Park. Consultation with Humboldt County Environmental Services is ongoing, and the Section 4(f) analyses are on the following pages.

DEPARTMENT OF TRANSPORTATION
NORTH REGION ENVIRONMENTAL
1656 UNION STREET
EUREKA, CA 95502-3700
(707) 572-7039
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TTY 711

Making Conservation a California Way of Life.

April 2, 2021

Mr. Hank Seemann, Deputy Director
Humboldt County Environmental Services
1106 2nd Street
Eureka, CA 95501

Dear Mr. Seemann:

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) are proposing a project to upgrade bridge rails and shoulder widths at three locations on State Route (SR) 36 between Post Miles (PMs) 11.40 and 34.50. These upgrades would require the widening of one bridge and the replacement of two others. One of the bridges to be replaced, Hely Creek (PM 11.46), is adjacent to Van Duzen County Park between Swimmer's Delight and Pamplin Grove, and project activities would involve work on county park land.

Section 4(f) of the Department of Transportation Act of 1966 was designed to preserve publicly owned parklands, recreation areas, waterfowl and wildlife refuges, and significant historic sites, and is applicable whenever a U.S. Department of Transportation (USDOT) action involves the "use" of these sites. Because the proposed project is federally funded and proposes the "use" of a Humboldt County owned Section 4(f) resource, concurrence from Humboldt County on the Section 4(f) determination is needed for the project.

There is "use" of a Section 4(f) resource when a resource is Permanently Incorporated into a transportation facility, when there is Temporary Occupancy of the resource that does not meet the five criteria of temporary use (temporary duration, minor scope, no adverse physical impact or interference with activities or purposes of the resource, land is fully restored, and documented agreement with appropriate officials), or when there is Constructive Use of the resource (i.e., when the project's proximity impacts are so severe that the protected activities, features or attributes that qualify the resource for protection are substantially impaired).

Under 49 USC 303(d)1, based on the "use" of the 4(f) resource, Caltrans has determined the proposed project would result in a *de minimis* impact to Van Duzen County Park, as the project

would not adversely affect the activities, features, or attributes of the park that make it eligible under Section 4(f). A *de minimis* impact determination is not an exemption from Section 4(f); it is an authorization for a minor use of a Section 4(f) property, without having to make a finding that there are no feasible and prudent avoidance alternatives.

As part of the Section 4(f) process, the public must be afforded the opportunity to review and comment on the 4(f) evaluation. The evaluation was circulated as an attachment to the CEQA Initial Study between June 26, 2020 and August 3, 2020. No comments were received regarding the Section 4(f) determination, however comments received on the Initial Study have been incorporated into the project resulting in modifications to the scope of work within Van Duzen County Park and reduced impacts to Section 4(f) resources.

The following sections provide project information and supporting documentation for the *de minimis* determination.

Project Description:

The existing Hely Creek bridge does not meet current rail or shoulder width design standards. Due to the existing bridge type and design, it is not feasible to widen the bridge. As a result, the existing bridge would be replaced with a longer, wider structure. Work would include placing shoulder backing, upgrading guardrail, shifting drainages, temporary water diversion, and constructing temporary access roads. Work activities would require vegetation and tree removal (please see attached project layout). Due to property rights in the area, Caltrans would obtain temporary construction easements (TCEs), and is proposing to acquire right of way adjacent to the highway.

Description of 4(f) Resources:

Van Duzen County Park is a recreational area in northern California, situated among the redwoods between SR 36 and the Van Duzen River. The park is composed of two main areas – Pamplin Grove and Swimmer's Delight – that are connected by a hiking trail. The park offers various recreational opportunities such as picnicking, camping, hiking, and swimming. The park is accessed either through the two main areas, which require a fee, or pullouts along SR 36 which provide free access to the park via a hiking trail.

Section 4(f) Property "Use":

In order to "rectify" state right of way, Caltrans would Permanently Incorporate approximately 0.30 acre of County Park land into the state highway right of way. SR 36 currently traverses the northern limits of the Park. The Permanent Incorporation would not divide or split the park in two, as SR 36 follows the northern boundary of the Park. In addition, Caltrans would need to obtain an approximately 0.20-acre TCE to construct a temporary road to access Hely Creek and the underside of the bridge (see attached right of way map). Caltrans will coordinate separately with Humboldt County on the acquisition process for the right of way and TCE.

A group of larger-diameter redwoods are growing immediately adjacent to the existing bridge's southwestern abutment, within the area that would be permanently acquired for state right of way. Due to the proximity to the existing structure and the location of the new bridge abutment, the roots of the trees are likely growing under the roadway. As a result, the roots may be impacted during construction. Because the extent and depth of roots growing under the roadway is unknown, the extent of impacts would be determined during construction. All feasible measures would be taken to preserve the trees; however, a portion or all may need to be removed, as determined by a certified arborist or licensed forester monitor during construction.

Other anticipated "use" of Van Duzen County Park is expected to be Temporary Occupancy, and would include:

- Temporary closure of a maintenance vehicle pullout to the west of Hely Creek Bridge for the duration of the project (2 years). This pullout acts as a free access point to the county park trail system and a nearby swimming hole.

- Temporary closure of the hiking trail that connects Pamplin Grove and Swimmer's Delight at the maintenance vehicle pullout. The trail is adjacent to SR 36 at this location and passes through the pullout. Because this pullout would be closed for the project, the trail would be closed at this location for the duration of the project.

- Temporary increased noise during construction activities adjacent to the trail and nearby river segment.

- Vegetation and tree removal for construction of the temporary access road crane pads, and operation of the crane boom, and bridge construction. Trees to be removed on park land would include 3 Douglas-firs, 2 redwoods and 1 tanoak, all less than 2-feet in diameter at breast height (DBH):

Tree Number	Species	DBH (feet)
10985	Coast Redwood	1.8
10984	Tanoak	0.6
10988	Douglas Fir	1.5
10989	Douglas Fir	0.6
10993	Coast Redwood	0.7
11215	Douglas Fir	1.6

Tree locations are shown in the attached Park Tree Impact Map. In response to comments received on the draft Initial Study, the temporary access road and crane pad on the southeast side of the bridge have been modified to reduce impacts to the root zones of a 5.5-foot diameter coast redwood tree (tree number 10991) and a 2-foot diameter tanoak (tree number 10992). With additional input from construction staff, Caltrans has reevaluated the feasibility of limiting the swing radius of the crane boom, to determine that these trees do not need to be cleared for construction and will instead be protected as an Environmentally Sensitive Area (ESA). The crane boom radius was also reduced to avoid removal of a 2.4-foot diameter coast redwood (tree number 10986) and a 4.2-foot diameter coast redwood (tree number 10987).

Constructive Use impacts are not anticipated.

In order to avoid potential impacts to Van Duzen County Park, the following measures would be incorporated into the project:

- No work would be conducted on the trail, and the trail and pullout would be re-opened after construction.

- Disturbed soil areas would be recontoured post-construction and re-seeded or revegetated.

- A certified arborist or licensed forester monitor would be on-site during construction to monitor activities that could impact tree roots and advise on appropriate best management practices (BMPs) to be implemented.

- Environmentally Sensitive Areas would have Temporary High Visibility Fencing (THVF) installed before start of construction to demarcate areas where vegetation is being preserved and root systems of trees protected.

Caltrans evaluated the alternative of shifting the alignment of the bridge northward in order to explore the possibility of avoiding impacts to the County Park. However, the north side of the highway is constrained by the presence of large-diameter trees and a historic resource. Caltrans determined that the alternative of shifting the alignment northward is not feasible due to constructability and the geometrics for the turn radius. The proposed centerline radius at Hely Creek is 504 feet which allows the design vehicle (65-foot California Legal truck) to stay completely in the lane through the turn. The increased curve would accommodate the widening without impacting the cluster of redwood trees near the west abutment on the south side of the bridge. Although getting trucks safely through the project area was considered, the controlling factor for the proposed design alignment is the half-width construction scenario. The first half of the bridge would be constructed as close as possible to existing bridge while keeping one lane of traffic on the existing bridge, in order to keep the highway open during construction. Additionally, shifting the alignment north would still result in impacts to large diameter trees. Construction of a new alignment would create disturbance in undisturbed areas while the footprint would still encompass area surrounding the existing bridge for demolition and associated construction access. To the extent feasible, Caltrans has minimized impacts to Van Duzen County park with the proposed project.

<u>*De minimis* Determination</u>:

After considering potential "use" of park resources and measures to avoid impacts, Caltrans has determined that the proposed project would result in a *de minimis* impact.

Though Caltrans is proposing to acquire right of way in the county park, the approximately 0.30-acre portion is adjacent to SR 36, and is not used for recreational activities. The TCE area required for the access road would remain in county park hands and would be restored after construction.

The project would temporarily close a pullout that provides access to the park and its resources. However, the main areas of the park – Swimmer's Delight and Pamplin Grove – could still be accessed and would not be affected by project activities. In addition, another county trail access point is located approximately 0.6 mile to the east and would not be affected by project activities. Though the pullout and trail segment would be temporarily closed for the duration of the project, there would be no change to these features, and they would be re-opened after construction.

Areas disturbed by vegetation and tree removal would be located near SR 36, and would be restored after construction. Redwood trees over 2 feet in diameter at breast height would be avoided along the temporary access road, and BMPs would be implemented to reduce impacts to tree roots. Vegetation removal for the access road may be visible from the county trail; however, this would affect only a short section of the trail and would be temporary in nature. All feasible measures would be taken to preserve the group of trees growing adjacent to the existing bridge abutment.

Based on the activities associated with the project, Caltrans determined the type of "use" of County Park resources would be *de minimis* because the project would not adversely affect the activities, features, or attributes of the park that make it eligible under Section 4(f).

Please sign below to indicate Humboldt County's concurrence with Caltrans' *de minimis* determination for the activities located on County Park land associated with bridge work on SR 36 at Hely Creek.

Hank Seemann _____ April 2, 2021 _____

Hank Seemann Date

Deputy Director, Humboldt County Environmental Services

If you have questions or need additional information, please contact me at **Jason.Meyer@dot.ca.gov** or (707) 572-7039.

Sincerely,

Jason Meyer

Jason Meyer
Senior Environmental Planner

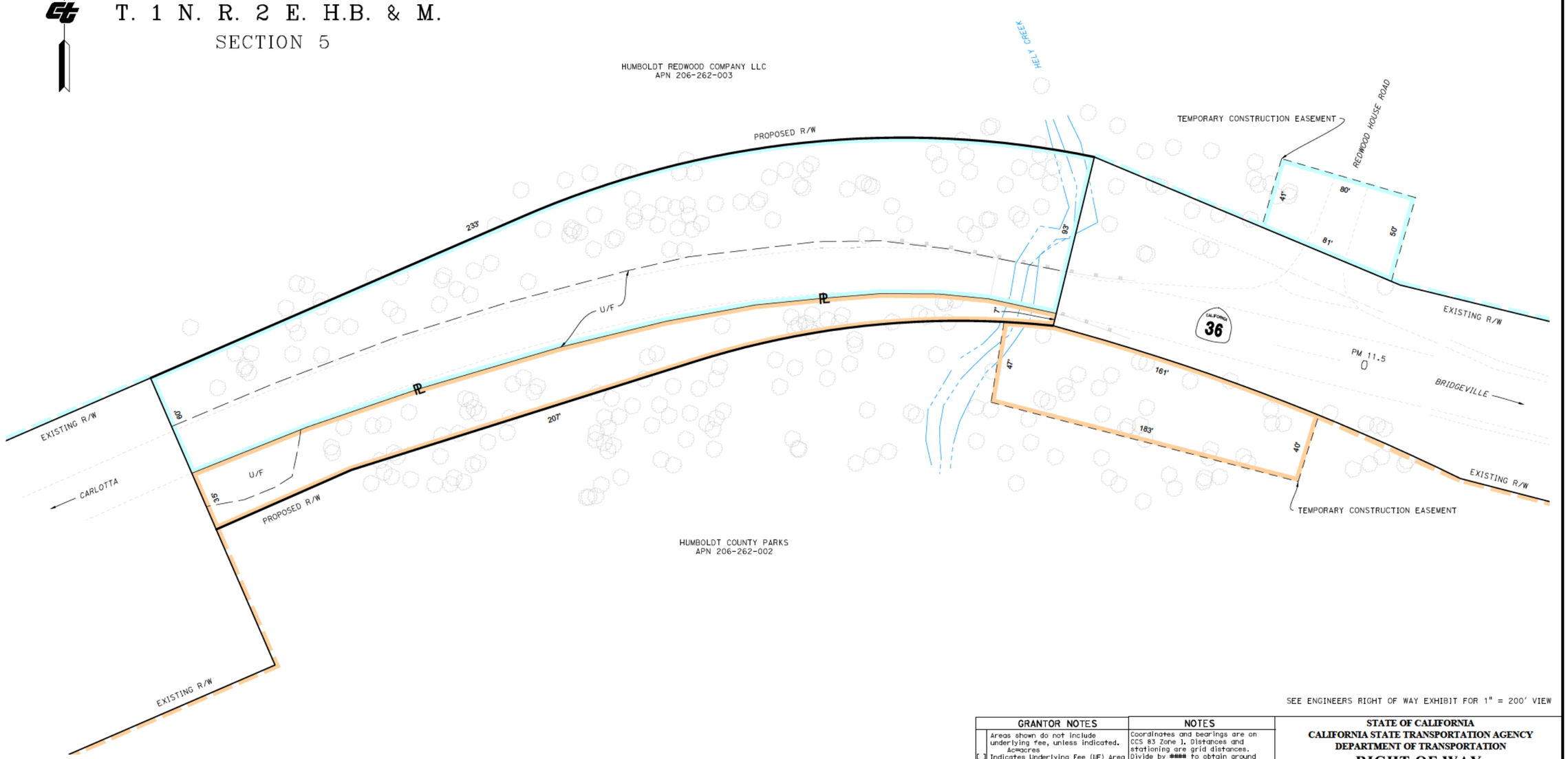
Attachment(s):
1. Right of Way Map
2. Hely Creek Project Layout
3. Park Tree Impact Map

NOTE: The State of California or its officers or agents shall not be responsible for the accuracy or completeness of digital images of this map.

COUNTY OF HUMBOLDT

T. 1 N. R. 2 E. H.B. & M.

SECTION 5



SEE ENGINEERS RIGHT OF WAY EXHIBIT FOR 1" = 200' VIEW

PARCEL#	TITLE CODE ①	GRANTOR/GRANTEE	AREAS (square feet or as noted) TOTAL	REQUIRED [UF]	EXCESS [UF]	REMAINDER	REMARKS	RECORDATION TYPE ②	DATE	DOC.# ③
206-262-003	FEE	HUMBOLDT REDWOOD COMPANY LLC	LARGE	1.00 AC [0.40 AC]		LARGE				
	TCE			0.08 AC [0.00 AC]			TEMPORARY CONSTRUCTION EASEMENT			
206-262-002	FEE	HUMBOLDT COUNTY PARKS	LARGE	0.30 AC [0.03 AC]		LARGE				
	TCE			0.20 AC [0.00 AC]			TEMPORARY CONSTRUCTION EASEMENT			

GRANTOR NOTES

Areas shown do not include underlying fee, unless indicated.
Ac=acres
[ ] Indicates Underlying Fee (UF) Area
[t] Indicates Indeterminate UF
① TITLE CODES:
A=Access Rights Only
F=Fee
E=Easement (Ease)
TCE=Temp Construction Ease
T=Other Temp Ease (see Remarks)
O=Other (see Remarks)
② TYPE:
GD=Grant deed
ED=Easement deed
QC=Quitclaim
DD=Director's deed
DE=Director's easement deed
DK=Director's quitclaim deed
FOC=Final Order of Condemnation
HE=Highway easement deed
REL=Relinquishment
VAC=Vacation
JUA=Joint use agreement
CCUA=Consent to common use agreement
③ Document or Instrument number

NOTES

Coordinates and bearings are on CCS 83 Zone 1. Distances and stationing are grid distances. Divide by #### to obtain ground distances.
All distances are in feet unless otherwise noted.

LEGEND

Access Prohibited
Access Superseded
Existing R/W Superseded
Access Opening (Private)
(R) Indicates Radial Bearing
Indicates Found Monument as noted
Indicates calculated point. (Does not imply monument set)
Title to State
Required for Others

STATE OF CALIFORNIA
CALIFORNIA STATE TRANSPORTATION AGENCY
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY

COST ESTIMATE MAP

01-HUM-36-11.46

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FOR PREVIOUS R/W INFORMATION SEE MAP(S) 01-HUM-36-11.6

FULL SIZE MAP SCALE: 1" = 30'

FEET 0 15 30 60 90

TO DESIGN: 07/16/2019 **EA(s):** 0C500 **FA#:**
DRAFTED BY: PEC **CHECKED BY:** CRJ

DISTRICT	COUNTY	ROUTE	SHEET PM	SHEET NO.	TOTAL SHEETS
1	HUM	36	11.5	1	1

PROJECT ID: 0112000292

PROJECT SURVEYOR: CRJ			
DATE	REVISIONS		
07/16/2019	ORIGINAL MAP		

LICENSE: 6621			
SURVEYOR		LICENSE	
CRJ (PEC)		6621	

SURVEYOR	LICENSE	DATE	REVISIONS

0C500_CEM_v3_PEC_20190716.dwg
\\sv01cadd\vnx1\SURV1\01\0C500\RWE\PROJ_FLDR\ESTIMATE\CEM_v3_PEC
7/16/2019 10 29 18 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	36	11.46	.	.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

DOKKEN ENGINEERING
1450 FRAZEE ROAD
SUITE 100
SAN DIEGO, CA 92108

NOTE:

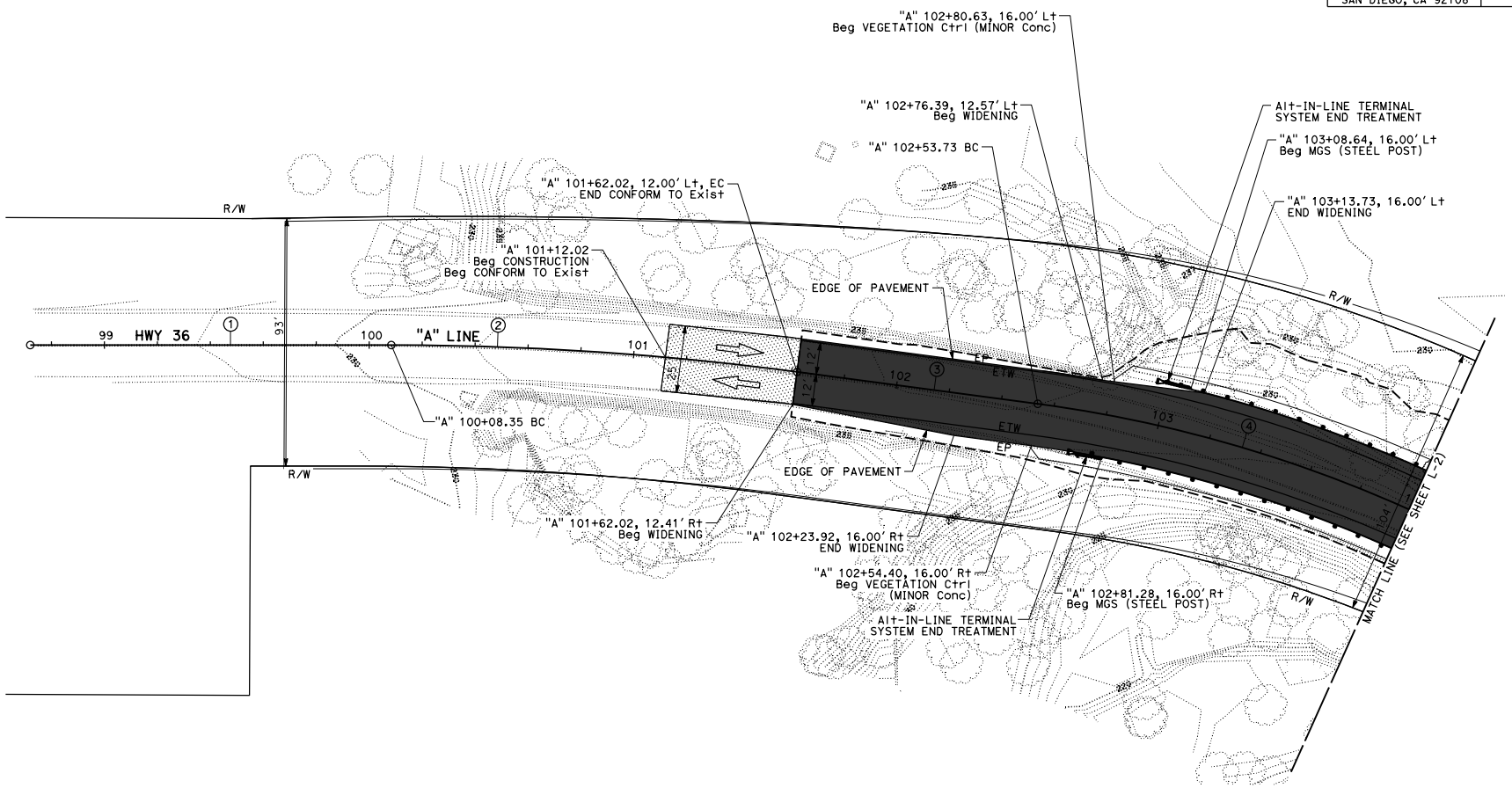
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND

- FULL ROAD CONSTRUCTION
- COLD PLANE AND OVERLAY
- BRIDGE IMPROVEMENT (SEE STRUCTURE PLANS)
- (#) LINE/CURVE DATA NUMBER

LINE/CURVE DATA

No. ⊛	R	Δ/BEARING	T	L
1	-	N66°17′56"E	-	136.35′
2	1165.00′	7°33′28"	76.95′	153.67′
3	-	N73°51′23"E	-	91.72′
4	504.00′	33°14′43"	150.47′	292.44′



HELY CREEK

LAYOUT

SCALE: 1"=20′ **L-1**

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY	CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR .

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION Caltrans

LAST REVISION .-.-.-..

DATE PLOTTED => 30-MAR-2021
TIME PLOTTED => 14:09

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	36	11.46	.	.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

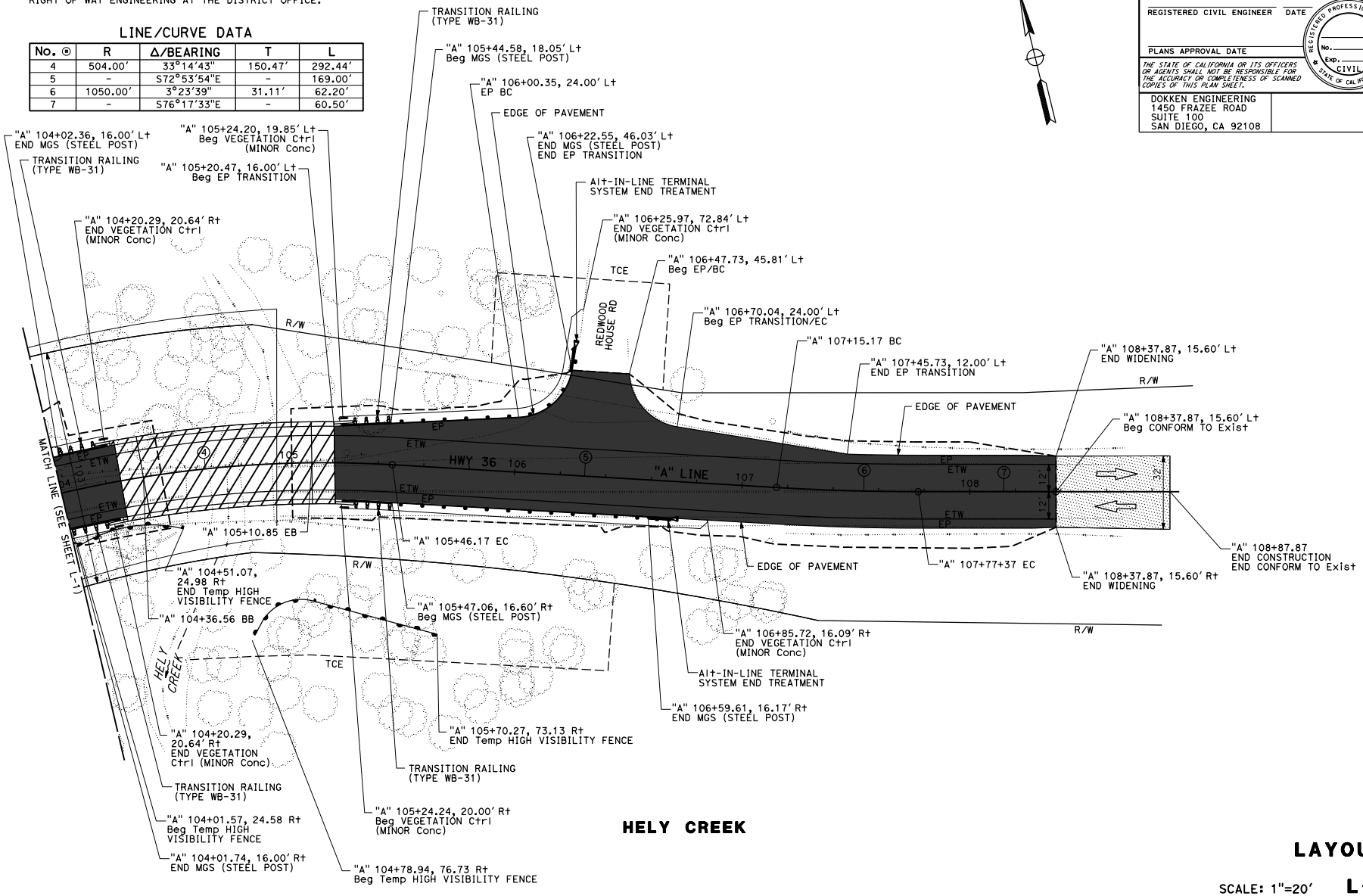
DOKKEN ENGINEERING
1450 FRAZEE ROAD
SUITE 100
SAN DIEGO, CA 92108

NOTE:

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

LINE/CURVE DATA

No. ⊛	R	Δ/BEARING	T	L
4	504.00′	33°14′43"	150.47′	292.44′
5	-	S72°53′54"E	-	169.00′
6	1050.00′	3°23′39"	31.11′	62.20′
7	-	S76°17′33"E	-	60.50′



HELY CREEK

LAYOUT

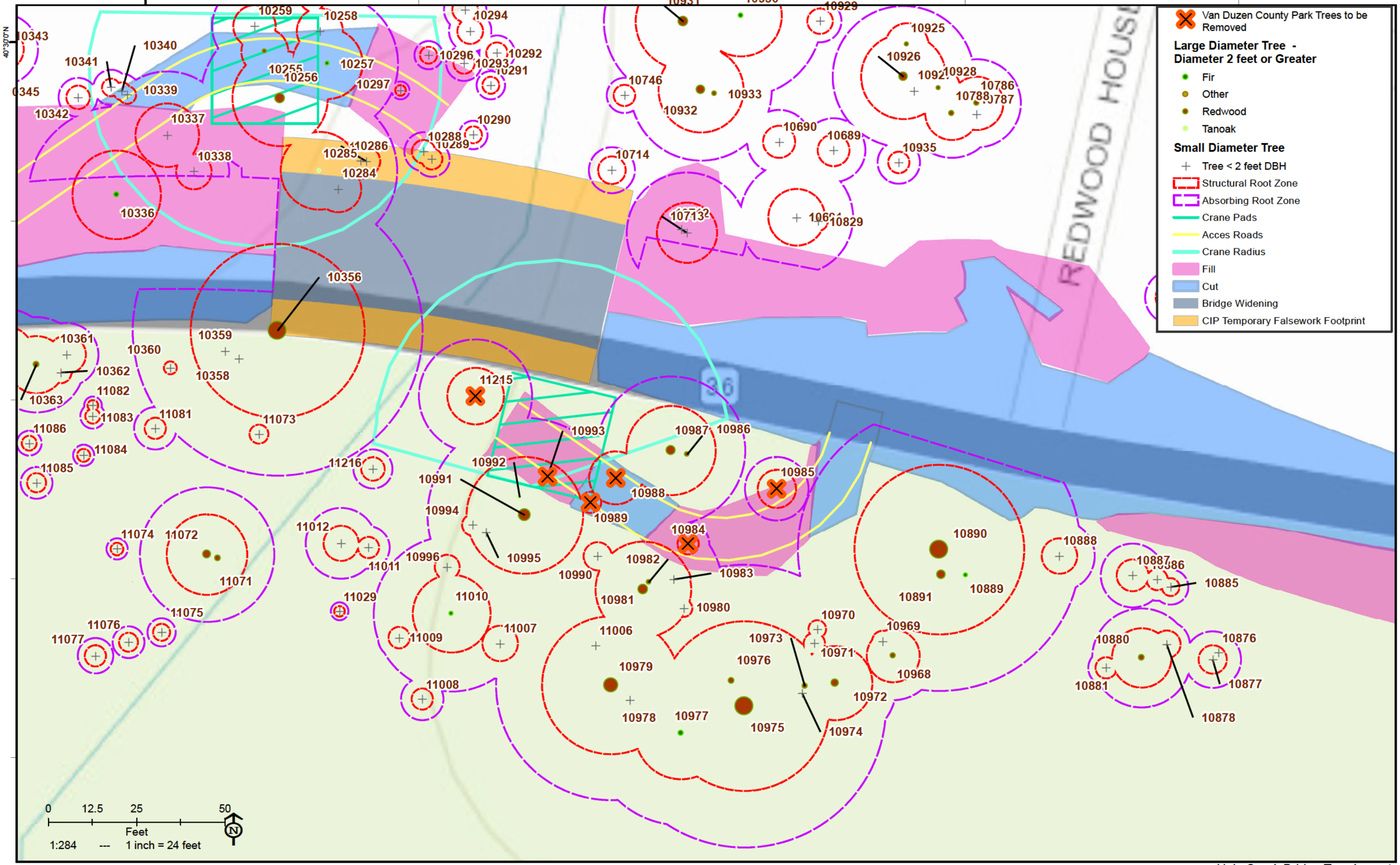
SCALE: 1"=20′ **L-2**

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

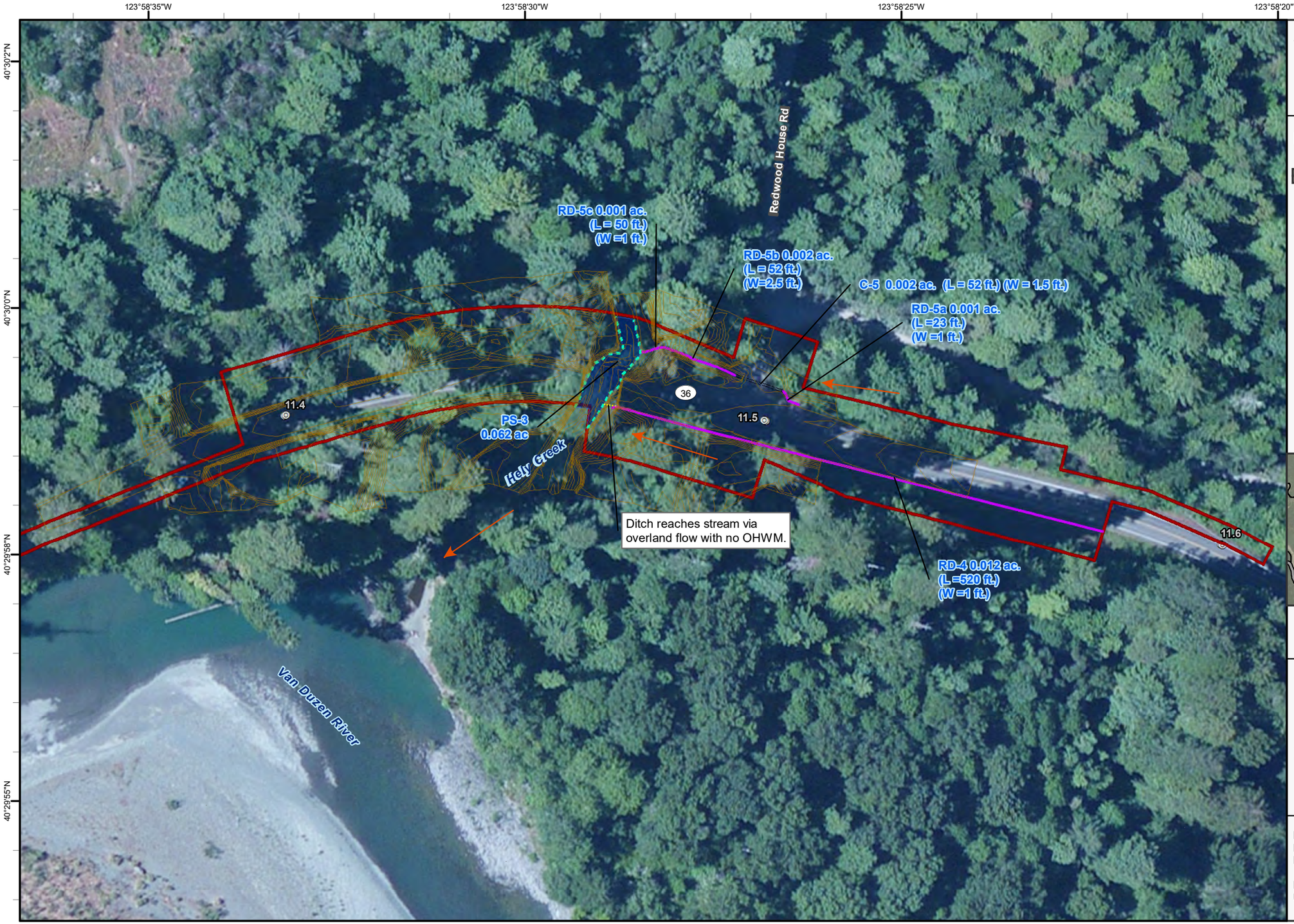
Caltrans

LAST REVISION | DATE PLOTTED => 30-MAR-2021 | TIME PLOTTED => 14:09



Hely Creek Bridge Tree Impacts
HUM-36 Three Bridges Project, Humboldt County EA 01-0C500

Appendix E. Aquatic Resources Delineation Maps



California Department of Transportation
Three Bridges Replacement and Widening
Aquatic Resource Delineation
Caltrans EA Number:
EA 01-0C500/E-FIS 0112200092
October 2019

- Environmental Study Limit (9.610 acres)
- State Highway Post Mile
- Contours (2ft Interval)
- Data Point
- OHWM
- Flow Direction

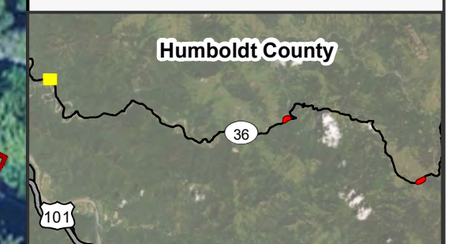
Aquatic Resources

Wetland Waters

- Wetland Ditch (0.028 acres)

Non-Wetland Waters

- Perennial Stream (0.659 acres)
- Intermittent Stream (0.007 acres)
- Ephemeral Stream (0.003 acres)
- Roadside Ditch (0.038 acres)
- Down Drain
- Culvert (0.011) acres)



0 50 100 200
Feet
1:1,200 --- 1 inch = 100 feet

Notes:
Acreages shown for each aquatic resource type refer to the entire survey area.

Source: Caltrans & ICF (2019)
Elevation Source:
Imagery Source: ESRI/Digital Globe (2018)

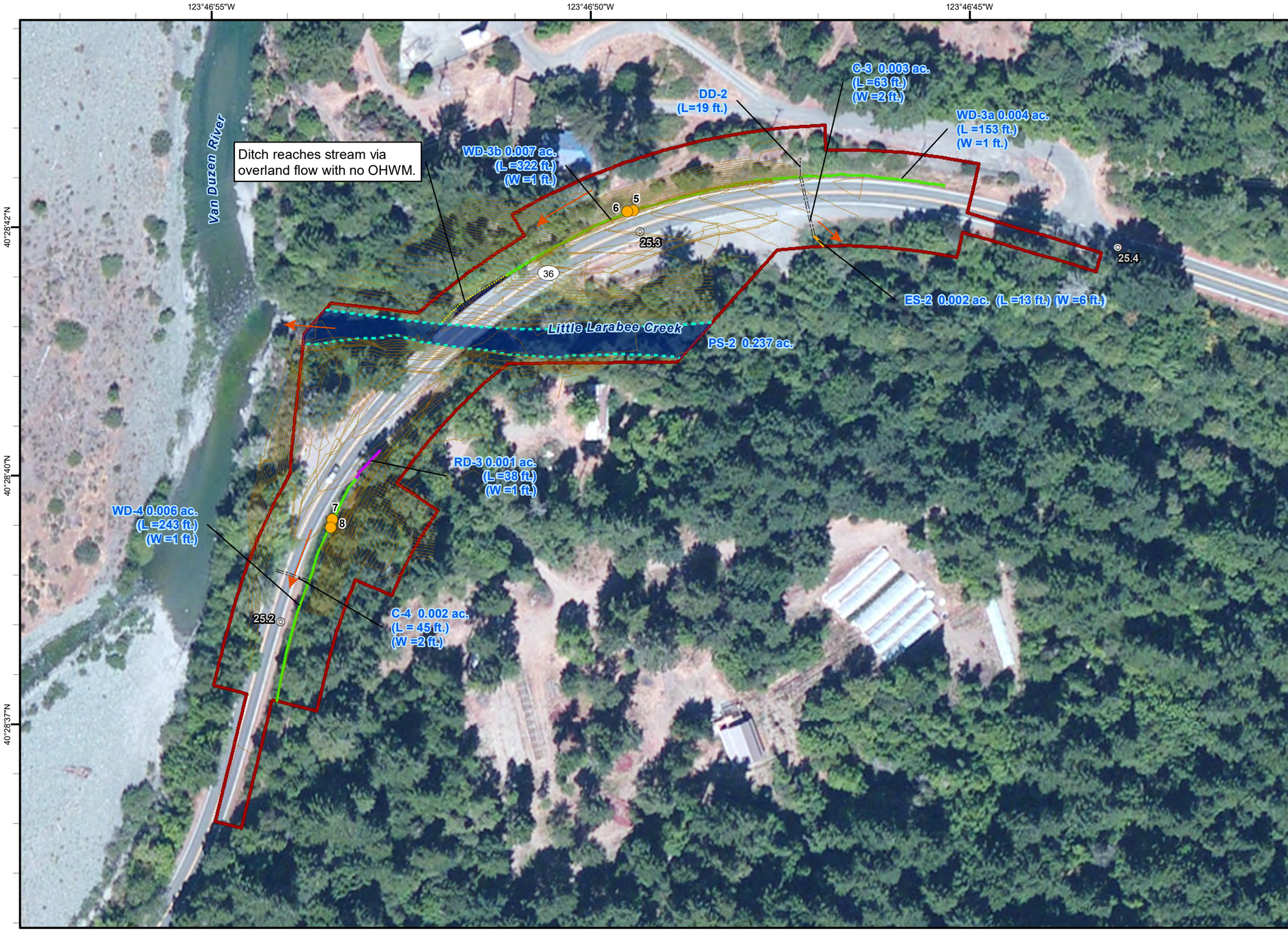
Coordinate System:
California State Plane Zone I NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983

USGS Topo Quad: Owl Creek / Redcrest
PLSS: T1N R2E Section 5

Project Contact: Margaret Widdowson, ICF
Delineated By: Kyle Wear, RMM
Delineation Dates: July 10th; September 14th, 2019

Drawn By: Daniel Schiff, ICF
USACE Field Verification:

Path: \\PDCCITRDSGIS1\Projects_1\Caltrans\00356_19_Three_Bridges\Figures\ARDR\AquaticResources_20190917.mxd; Author: ; Date: 10/18/2019



California Department of Transportation
Three Bridges Replacement and Widening
Aquatic Resource Delineation
Caltrans EA Number:
EA 01-0C500/E-FIS 0112200092
October 2019

- Environmental Study Limit (9.610 acres)
- State Highway Post Mile
- Contours (2ft Interval)
- Data Point
- OHWM
- Flow Direction

Aquatic Resources

Wetland Waters

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Non-Wetland Waters

- Perennial Stream (0.659 acres)
- Intermittent Stream (0.007 acres)
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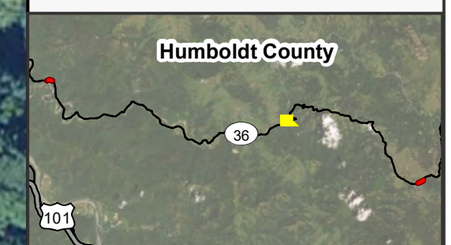
- Roadside Ditch (0.038 acres)
- Down Drain
- Culvert (0.011) acres)



0 50 100 200
Feet
1:1,200 --- 1 inch = 100 feet

Notes:
Acreages shown for each aquatic resource type refer to the entire survey area.

Source: Caltrans & ICF (2019)
Elevation Source:
Imagery Source: ESRI/Digital Globe (2018)

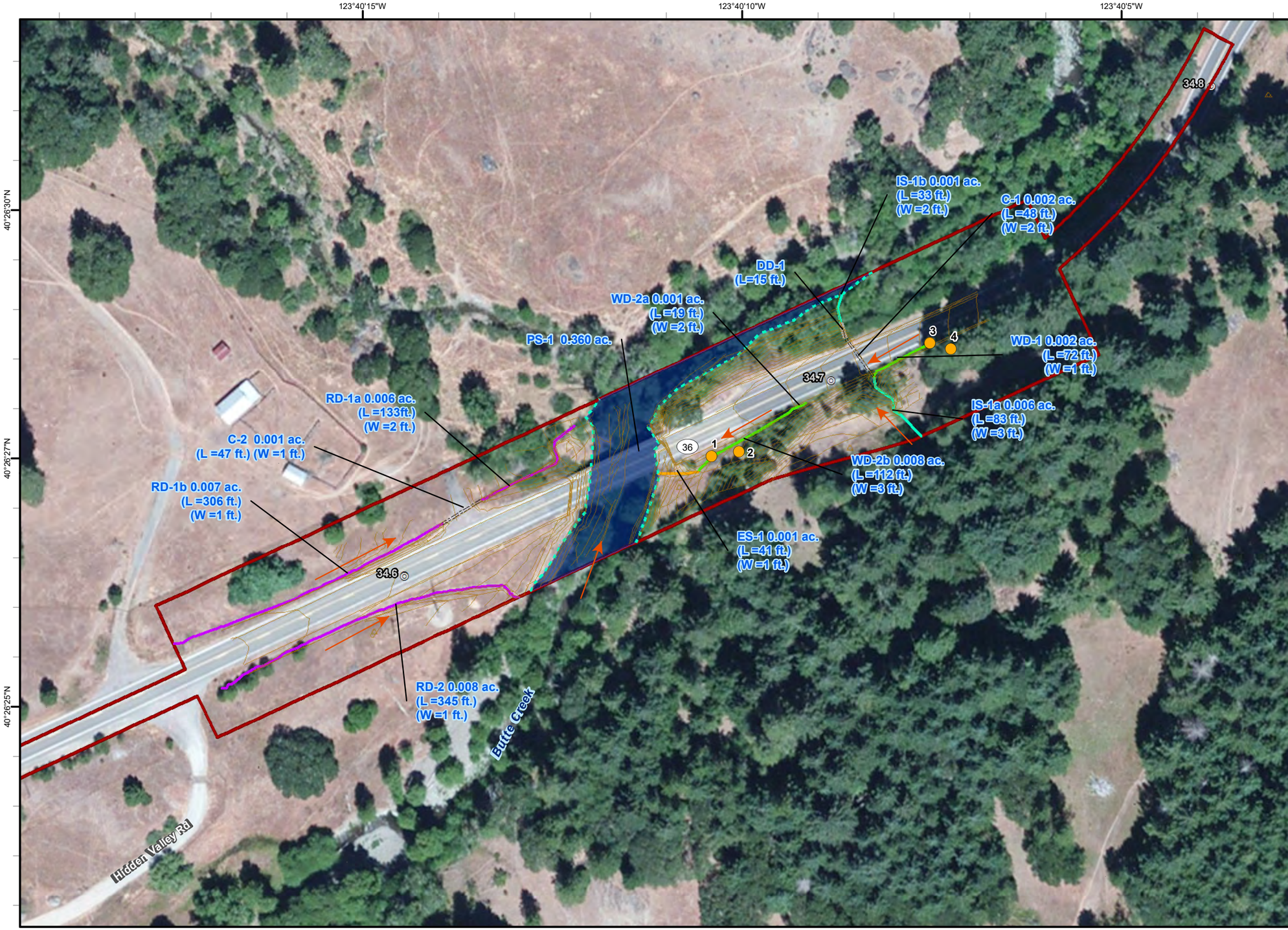
Coordinate System:
California State Plane Zone I NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983

USGS Topo Quad: Bridgeville
PLSS: T1N R3E Section 12

Project Contact: Margaret Widdowson, ICF
Delineated By: Kyle Wear, RMM
Delineation Dates: July 10th; September 14th, 2019

Drawn By: Daniel Schiff, ICF
USACE Field Verification:

Path: \\PDCCITRDSGIS1\Projects_1\Caltrans\00356_19_Three_Bridges\Figures\ARDR\AquaticResources_20190917.mxd; Author: ; Date: 10/18/2019



California Department of Transportation
Three Bridges Replacement and Widening
Aquatic Resource Delineation
Caltrans EA Number:
EA 01-0C500/E-FIS 0112200092
October 2019

- Environmental Study Limit (9.610 acres)
- State Highway Post Mile
- Contours (2ft Interval)
- Data Point
- OHWM
- Flow Direction

Aquatic Resources

Wetland Waters

- Wetland Ditch (0.028 acres)

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- Perennial Stream (0.659 acres)
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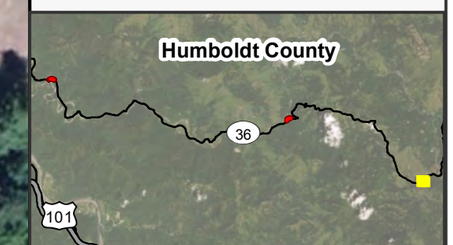
- Roadside Ditch (0.038 acres)
- Down Drain
- Culvert (0.011) acres)



0 50 100 200
Feet
1:1,200 --- 1 inch = 100 feet

Notes:
Acreages shown for each aquatic resource type refer to the entire survey area.

Source: Caltrans & ICF (2019)
Elevation Source:
Imagery Source: ESRI/Digital Globe (2018)

Coordinate System:
California State Plane Zone I NAD83 (Feet)
Projection: Lambert_Conformal_Conic
Datum: North American 1983

USGS Topo Quad: Larabee Valley
PLSS: T1N R4E Section 25

Project Contact: Margaret Widdowson, ICF
Delineated By: Kyle Wear, RMM
Delineation Dates: July 10th; September 14th, 2019

Drawn By: Daniel Schiff, ICF
USACE Field Verification:

Path: \\PDCCITRDSGIS1\Projects_1\Caltrans\00356_19_Three_Bridges\Figures\ARDR\AquaticResources_20190917.mxd; Author: ; Date: 10/18/2019

Appendix F. Special Status Species Table

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Amphibians Del Norte salamander	*Plethodon elongatus*	--/WL/--	Associated with late seral mixed conifer forest. Cool, moist, stable microclimate, a deep litter layer.	Present	Although not detected, suitable habitat exists in the ESL.
Foothill yellow-legged frog (North Coast Clade)	*Rana boylii*	--/SSC/--	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Present	This species has been observed in the ESL.
Northern red-legged frog	*Rana aurora*	--/SSC/--	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Present	Species has been observed in ESL.
Pacific tailed frog	*Ascaphus truei*	--/SSC/--	Occurs in montane hardwood-conifer, redwood, Douglas-fir, and ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 59ºF (15ºC).	Present	Although not detected, suitable habitat exists in the ESL.
Southern torrent salamander	*Rhyacotriton variegatus*	--/SSC/--	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old-growth forest. Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rock within trickling water.	Present	Although not detected, suitable habitat exists in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Reptiles					
Western pond turtle	*Emys marmorata*	--/SSC/--	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to .31 mile (0.5 km) from water for egg-laying.	Present	Species was observed in the ESL.
Birds					
American peregrine falcon	*Falco peregrinus anatum*	DL/FP/--	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Present	Nesting habitat is present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.
Bald eagle	*Haliaeetus leucocephalus*	DL/SE/--	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Present	Nesting habitat is present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.
Bank swallow	*Riparia riparia*	--/ST/--	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Present	Nesting habitat may be present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Cooper's hawk	*Accipiter cooperii*	--/WL/--	Found in woodlands, chiefly open interrupted or marginal type. Nest sites mainly in riparian growth of deciduous trees, as in canyon bottoms on river flood-plains; also, in live oaks.	Present	Nesting habitat is present in the BSA. No signs of nesting or potential nest structures have been detected in the ESL.
Golden eagle	*Aquila chrysaetos*	--/FP/--	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Present	Nesting habitat is present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.
Little willow flycatcher	*Empidonax traillii brewsteri*	--/SE/--	Prefers mountain meadows and riparian habitats. Nests near the edges of vegetation clumps and near streams in mountain meadows and riparian habitats.	Absent	Suitable nesting habitat does not exist in the ESL.
Marbled murrelet	*Brachyramphus marmoratus*	FT/SE/--	(Nesting) forages in nearshore ocean waters; nests along coast, from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth coniferous trees.	Present	Nesting habitat is present in the BSA. No signs of nesting or potential nest structures or occurrence records have been detected in the ESL. Nesting habitat observed in the BSA includes mature stand of trees at Pamplin Grove (approximately 0.20 mile from Hely Creek ESL).
Northern goshawk	*Accipiter gentilis*	--/SSC/--	Within, and in vicinity of, coniferous forest. Uses old nests and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.	Present	Nesting habitat is present in the BSA. No signs of nesting habitat or potential nest structures have been detected in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Northern spotted owl	*Strix occidentalis caurina*	FT/ST/--	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	Present	This species was detected in the BSA. Suitable nesting and roosting habitat is within the ESL. Recent detections were reported during 2019 protocol- level surveys for the project. An individual NSO was detected approximately 260 feet upslope of Caltrans Station 3 at Hely Creek. A second detection of NSO was reported at Little Larabee Creek Caltrans Station 3; this individual was heard approximately 600 feet from the station.
Osprey	*Pandion haliaetus*	--/WL/--	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Present	Nesting habitat is present in the BSA. No signs of nesting or potential nest structures have been detected in the ESL.
Sharp-shinned hawk	*Accipiter striatus*	--/WL/--	Found in numerous forest types. Generally found on north-facing slopes with plucking perches. Nest sites are usually within 275 feet of water.	Present	Nesting habitat is present in the BSA. No signs of nesting or potential nest structures have been detected in the ESL.
Western snowy plover	*Charadrius alexandrines nivosus*	FT/SSC/--	Breeds above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons estuaries; rarely observed along lower perennial gravel bars.	Absent	Suitable breeding habitat does not exist in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Western yellow-billed cuckoo	*Coccyzus americanus*	FT/SE/--	(Nesting) riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Absent	Suitable breeding habitat does not exist in the ESL.
Fish					
Coast cutthroat trout	*Oncorhynchus clarkii*	--/SSC/--	Small, low gradient coastal streams and estuaries from the Eel River to the Oregon border. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	Present	Suitable habitat for the species exists in the ESL.
Chinook salmon - California Coastal ESU and Critical Habitat	*Oncorhynchus tshawytscha*	FT/--/--	Coastal, spring and fall river runs between Redwood Creek in Humboldt County and Russian River in Sonoma County.	Present	Suitable habitat for the species exists in the ESL. Presumed present at Little Larabee Creek ESL and presumed absent within Hely Creek and Butte Creek ESL.
Coho salmon - Southern Oregon /Northern California Coast ESU and Critical Habitat	*Oncorhynchus kisutch*	FT/ST/--	Streams, rivers between Cape Blanco, Oregon, and Punta Gorda, Humboldt County, CA.	Present	Suitable habitat for the species exists in the ESL. Presumed present at Hely Creek ESL and presumed absent within Little Larabee Creek and Butte Creek ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Eulachon	*Thaleichthys pacificus*	FT/--/--	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	Absent	Suitable habitat does not exist in the ESL.
Green sturgeon Northern DPS	*Acipenser medirostris*	FSC/--/--	The Northern DPS is known to spawn in the Klamath River in California, as well as the Rogue River in Oregon. Northern DPS fish have also been observed in the Trinity and Eel rivers, as well as in the Umpqua River (OR), though it is not yet clear if they routinely spawn in those locations. Southern DPS Green Sturgeon are found in the Sacramento and San Joaquin rivers and Delta. They primarily spawn in the upper mainstem of the Sacramento River, although some spawning activity has recently been documented in the Feather and Yuba rivers.	Absent	Suitable habitat does not exist in the ESL.
Green sturgeon Southern DPS	*Acipenser medirostris*	FT/SSC/--	The most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, and Trinity Rivers. Spawns at temps between 46ºF-57 (8-14ºC). Preferred spawning substrate is large cobble, can range from clean sand to bedrock.	Absent	Suitable habitat does not exist in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Pacific lamprey	*Entosphenus tridentatus*	--/SSC/--	Found in Pacific Coast streams north of San Luis Obispo County. Swift-current, gravel-bottomed areas for spawning with water temps between 54-64ºF (12-18ºC). Ammocoetes need soft sand or mud.	Present	Suitable habitat for the species exists in the ESL.
Steelhead-Northern California DPS and Critical Habitat	*Oncorhynchus mykiss irideus*	FT/--/--	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead	Present	Suitable habitat for the species exists in the ESL. Juvenile steelhead (unknown population) observed during snorkel surveys in 2019 in ESL at Hely and Little Larabee creeks. Low potential for occurrence at all the creeks,
Summer-run steelhead trout pop. 36	*Oncorhynchus mykiss irideus*	--/SC(E)/-	Northern California coastal streams south to Middle Fork Eel River. Cool, swift, shallow water and clean loose gravel for spawning, and suitably large pools in which to spend the summer.	Present	Suitable habitat for the species exists in the ESL. Juvenile steelhead (unknown population) observed during snorkel surveys in 2019 in the ESL at Hely and Little Larabee creeks. Potential for occurrence at Little Larabee Creek and Butte Creek.
Mammals					
Fisher - West Coast DPS	*Pekania pennanti*	SSC/ST/--	Intermediate to large-tree stands of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Present	Habitat present within the BSA consists of large redwood trees, cavities, snags, and logs.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Humboldt marten	*Martes caurina humboldtensis*	FSC/SE/--	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	Present	Habitat present within the BSA consists of large redwood trees, cavities, snags, and logs. However, the project is outside the current range of this species.
Little brown bat	*Myotis lucifugus*	--/--/--	Uses a variety of habitats. Hibernates in mines or caves. Will use buildings for roosts. Forages near water. Females return to same nursery colonies year after year.	Present	This species was detected in the ESL. No maternity roosts have been observed in the ESL.
Long-eared Myotis	*Myotis evotis*	--/--/--	Found in all brush, woodland, and forest habitats from sea level to about 9,000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Present	This species was not detected in the ESL, but the project is within the known range of this species. No roosts have been observed in the ESL.
Long-legged Myotis	*Myotis Volans*	--/--/--	Most common in woodland and forest habitats above 4,000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	Present	This species was not detected in the ESL, but the project is within the known range of this species. No roosts have been observed in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Sonoma tree vole	*Arborimus pomo*	--/SSC/--	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood, and montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock, or spruce.	Present	Suitable habitat is present on-site. No signs of Sonoma tree vole use were observed in the ESL.
Townsend's big-eared bat	*Corynorhinus townsendii*	--/SSC/--	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites are limiting factor. Extremely sensitive to human disturbance.	Present	This species was detected in the ESL.
Western red bat	*Lasiurus blossevillii*	--/SSC/--	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Present	This species was not detected in the ESL, but the project is within the known range of this species. No roosts have been observed in the ESL.
Yuma myotis	*Myotis yumanensis*	--/--/--	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings, or crevices.	Present	This species was not detected in the ESL, but the project is within the known range of this species. No roosts have been observed in the ESL.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Invertebrates					
Obscure bumblebee	*Bombus caliginosus*	--/--/--	Inhabits open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests. Food plant genera include *Baccharis, Cirsium, Lupinus, Lotus, Grindelia* and *Phacelia*.	Absent	Marginal habitat is present on-site. No prairie or meadow habitat would be impacted by proposed project.
Western pearlshell mussel	*Margaritifera falcata*	--/--/--	Perennial rivers, streams, and creeks at depths of 1.5 to 5 feet, in areas with boulders and gravel substrate, with some sand, silt and clay. Prefers clear, cold water, and has been found at multiple elevations, including waterways above 5,000 feet and even 8,000 feet. Species occurs in waterways with low velocities, low shear stress, and stable substrates. Frequently found in eddies, pools, and areas with stones or boulders that likely shelter mussel beds from scour during flood events.	Absent	Suitable habitat does not exist on-site.
Western bumblebee	*Bombus occidentalis*	--/SC(E)/--	Typically nests underground in abandoned rodent burrows or other cavities, mostly in open west-southwest slopes bordered by trees although a few nests have been reported from above ground locations such as in logs among railroad ties.	Absent	Nesting on-site is not likely to occur in the low-lying wetland environments of the project area.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Plants					
Bald Mountain milk-vetch	*Astragalus umbraticus*	--/--/2B.3	Cismontane woodland, lower montane coniferous forest. Dry open oak and pine woodlands; sometimes on roadsides. 689-4,002 ft (210-1220 m)	Present	Suitable habitat may be present along disturbed areas, species was not present during botanical surveys.
Baxbaum sedge	*Carex buxbaumii*	--/--/4.2	Bogs and fens, meadows and seeps, marshes and swamps.	Present	Species detected during botanical surveys.
Beaked tracyina	*Tracyina rostrate*	--/--/1B.2	Open grassy meadows usually within oak woodland and grassland habitats. 150-2,609 ft (150-795 m)	Absent	Suitable habitat does not exist in the ESL None detected during floristic surveys for the project.
Beegum onion	*Allium hoffmanii*	--/--/4.3	Lower coniferous forest. Serpentine substrates. 3608-5905 ft (1,100-1,800 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Bensoniella	*Bensoniella oregona*	--/--/1B.1	Bogs and fens, lower montane coniferous forest, meadows and seeps. Wet meadows and openings in forest. 30,856-4,560 ft (9,405-1,390 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
California globe mallow	*Iliamna latibracteata*	--/--/1B.2	North Coast coniferous forest, chaparral, lower montane coniferous forest, riparian scrub (streambanks). Seepage areas in silty clay loam. 197-5,430 (60-1655 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
California pinefoot	*Pityopus californicus*	--/--/4.2	Broad-leaved upland forest, upper montane coniferous forest, North Coast coniferous forest, lower montane coniferous forest. Deep shade with few other understory species, often under a layer of duff, in rocky to clay loam soils. 49-7,30 ft (15-2,225 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Cascade downingia	*Downingia willamettensis*	--/--/2B.2	Cismontane woodland, valley and foothill grasslands, vernal pools. Lake margins. 49-3,641 ft (15-1,110 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Clustered lady's-slipper	*Cypripedium fasciculatum*	--/--/4.2	North Coast coniferous forest, lower montane coniferous forest. In serpentine seeps and on moist streambanks. 328-7,989 ft (100-2,435 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Coast checkerbloom	*Sidalcea oregana ssp. eximia*	--/--/1B.2	Meadows and seeps, North Coast coniferous forest, lower montane coniferous forest. Near meadows, in gravelly soil. 16-5,922 ft (5- 1,805 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Coast fawn lily	*Erythronium revolutum*	--/--/2B.2	Bogs and fens, broad-leaved upland forest, North Coast coniferous forest. Mesic sites; streambanks. 196-4,910 ft (60-1405 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Great burnet	*Sanguisorba officinalis*	--/--/2B.2	Bogs and fens, meadows and seeps, broad-leaved upland forest, marshes and swamps, North Coast coniferous forest, riparian forest. Rocky serpentine seepage areas and along stream 16-4,593 (5-1,400 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Giant fawn lily	*Erythronium oregonum*	--/--/2B.2	Cismontane woodland, meadows and seeps. Openings, sometimes on serpentine; rocky sites. 985-4708 ft (300-1435 m).	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Heart-leaved twayblade	*Listera cordata*	--/--/4.2	Bogs and fens, lower montane coniferous forest, north coast coniferous forest. 5-1370 m.	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Howell's manzanita	*Arctostaphylos hispidula*	--/--/4.2	Open sites on rocky serpentine or sandstone. 393-4,101 (120-1250 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Howell's montia	*Montia howellii*	--/--/2B.2	Meadows, North Coast coniferous forest, vernal pools. Vernally wet sites; often on compacted soil. 33-3,230 ft (10-1005 m).	Present	Suitable habitat may be present along disturbed areas, species was not present during botanical surveys.
Humboldt County fuchsia	*Epilobium septentrionale*	--/--/4.3	Broad-leaved upland forest, North Coast coniferous forest. Dry, sandy, or rocky ledges. 148-5,905 ft. (45-1800 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Humboldt County milk-vetch	*Astragalus agnicidus*	--/SE/1B.1	Broad-leafed upland forest, North Coast coniferous forest. Disturbed openings in partially timbered forest lands; also, along ridgelines; south aspects. 525-2,199 ft (160-670 m)	Present	Suitable habitat may be present along disturbed areas, but species was not present during botanical surveys.
Humboldt County wyethia	*Wyethia longicaulis*	--/--/4.3	Broad-leaved upland forest, coastal prairie, lower montane coniferous forest. Along streams, seepage areas, sometimes on serpentine. 2,460-5,002 ft (750-1,525 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Klamath arnica	*Arnica spathula*	--/--/4.3	Lower montane coniferous forest. Open, dry disturbed oak/conifer woodland; generally on serpentine. 2,99.2-5,904 ft (640-1,800 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Kneeland Prairie pennycress	*Noccaea fendleri ssp. californica*	FE/--/1B.1	Coastal prairie. Serpentine rock outcrops. 760-820 m. Rocky cliffs and ocean-facing bluffs. 0-4101.6 ft (0-1,220 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Konocti manzanita	*Arctostaphylos manzanita ssp. elegans*	--/--/1B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Volcanic soils. 715.5-4,172.4 ft (225-1,830 meters.)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Leafy reed grass	*Calamagrostis foliosa*	--/Rare/4.2	Coastal bluff scrub, North Coast coniferous forest.	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Leafy-stemmed mitrewort	*Mitellastra caulescens*	--/--/4.2	Broad-leaved upland forest, lower montane coniferous forest, meadows and seeps, North Coast coniferous forest. Mesic sites. 11.4-3,876 ft (5-1,700 m)	Present	Species present in the ESL.
Mad River fleabane daisy	*Erigeron manipotamicus*	--/--/1B.2	Meadows and seeps (open and dry), lower montane coniferous forest. Open slopes, disturbed areas (road cuts); tan-colored, rocky soils. 2918.4-4,936.4 ft (1,280-1,505 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
maple-leaved checkerbloom	*Sidalcea malachroides*	--/--/4.2	Broad-leaved upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, riparian forest. Woodlands and clearings near coast; often in disturbed areas. 13.12-2,509.2 ft (4-765 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Methuselah's beard lichen	*Usnea longissima*	--/--/4.2	North Coast coniferous forest, broad-leaved upland forest. Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 147.6-4,805.2 ft (45-1,465 m) in California.	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Mountain lady's slipper	*Cripedium montanum*	--/--/4.2	Lower montane coniferous forest, broad-leaved upland forest, cismontane woodland, North Coast coniferous forest. On dry, undisturbed slopes. 606.8—7,298 ft (185-2,225 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Northern clustered sedge	*Carex arcta*	--/--/2B.2	Bogs and fens, North Coast coniferous forest. Mesic sites. 197-4,609 ft (60-1,405 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Northern meadow sedge	*Carex practicola*	--/--2B.2	Meadows and seeps. Moist to wet meadows. 49.2—10496 ft (15-3,200 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Oregon fireweed	*Epilobium oreganum*	--/--/1B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest mesic.	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Oregon golodtread	*Coptis laciniata*	--/--/4.2	North Coast coniferous forest, meadows and seeps. Mesic sites such as moist streambanks. 0-3,280 (0-1,000 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Pacific fuzzwort	*Meesia triquetra*	--/--/4.2	Bogs and fens, meadows and seeps, upper montane coniferous forest, subalpine coniferous forest. Moss growing on mesic soil. Saturated bogs, fens, seeps and meadows in coniferous to subalpine forests. 4,329.6—9692.4 ft (1,300-2,955 m)	Low	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Pacific gilia	*Gilia capitata ssp. Pacifica*	--/--/1B.2	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland. 16-4,413 ft (5-1345 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
pale yellow stonecrop	*Sedum laxum ssp. flavidum*	--/--/4.3	North Coast, the Klamath Mountain Range and North Coast Range regions. It tends to grow in rocky outcrops, at elevations from 2,600-6,600 feet	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Rattan's milk-vetch	*Astragalus rattanii var. rattanii*	--/--/4.3	Open grassy hillsides, gravelly flats in the valleys, and gravel bars of stream beds. 98.4-1,066 ft (30-825 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Red-stemmed cryptantha	*Cryptantha rostellata*	--/--/4.2	Often gravelly, volcanic openings; often roadsides. 131.2—2,624 ft (40-800 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Redwood lily	*Lilium rubescens*	--/--/4.2	Chaparral, lower montane coniferous forest, broad-leaved upland forest, upper montane coniferous forest, North Coast coniferous forest. Sometimes on serpentine. 98.4-6,264.8 ft (30-1,910 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Robust false lupine	*Thermopsis robusta*	--/--/1B.2	North Coast coniferous forest, broad-leaved up-land forest. Ridgetops; sometimes on serpentine. 1,197.2-4,608 ft (365-1,405 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Running-pine	*Lycopodium clavatum*	--/--/4.1	Lower montane coniferous forest, North Coast coniferous forest, marshes and swamps. Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 147.6—4,018 ft (45-1,225 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Scabrid alpine tarplant	*Anisocarpus scabridus*	--/--/1B.3	Upper montane coniferous forest. Open stony ridges, metamorphic scree slopes of mountain peaks, and cliffs in or near red fir forest 5,084—7,708 ft (1,550-2,350 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Seaside bittercress	*Cardamine angulate*	--/--/2B.1	North Coast coniferous forest, lower montane coniferous forest. Wet areas, streambanks. 295.2-508.4 ft (90-155 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Seacoast ragwort	*Packera bolanderi var. bolanderi*	--/--/2B.2	Coastal scrub, North Coast coniferous forest. Sometimes along roadsides. 30-3,002 ft (30-915 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Siskiyou checkerbloom	*Sidalcea malviflora ssp. Patula*	--/--/1B.2	Coastal bluff scrub, coastal prairie, North Coast coniferous forest. Open coastal forest; roadcuts. 16-4,118 ft (5-1255 m)	Present	Suitable habitat may be present along disturbed areas, species was not present during botanical surveys.
Siskiyou fritillaria	*Fritillaria glauca*	--/--/4.2	Serpentinite, talus slopes. Alpine boulder and rock field, subalpine coniferous forest, upper montane	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
			coniferous forest.		
Siskiyou sedge	*Carex scabriuscula*	--/--/4.2	Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland.	Present	Suitable habitat may be present in the understory of adjacent forest, but species was not present during botanical surveys.
Slender bog-orchid	*Platanthera stricta*	--/--/4.2	Lower montane coniferous forest, meadows and seeps. Mesic sites. 2,280-7,544 ft (1,000-2,300 m).	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Small groundcone	*Kopsiopsis hookeri*	--/--/2B.3	North Coast coniferous forest. Open woods, shrubby places, generally on *Gaultheria shallon*. 394-4,708 ft (120-1,435 m)	Present	Suitable habitat may be present in the understory of adjacent forest, but species was not present during botanical surveys.
Small-flowered calycadenia	*Calycadenia micrantha*	--/--/1B.2	Chaparral, valley and foothill grasslands, meadows and seeps. Rocky talus or scree; sparsely vegetated areas. Occasionally on roadsides; sometimes serpentine.	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
South Fork Mountain lupine	*Lupinus elmeri*	--/--/1B.2	Lower montane coniferous forest. 4,395.2-5,904 ft (1,340-1,800 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
The Lassics lupine	*Lupinus constancei*	--/SE/1B.1	Lower montane coniferous forest. Serpentine barrens. 5,526.8-5,707 ft (1,685-1,740 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
The Lassics sandwort	*Sabulina decumbens*	--/--/1B.2	Lower montane coniferous forest, upper montane coniferous forest. Endemic to serpentine. Only known from upper, north-facing slopes under Jeffrey pines. 5,182.4-5,510.4 (1,580-1,680 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Tracy's collomia	*Collomia tracyi*	--/--/4.3	Lower montane coniferous forest, broad-leaved upland forest. On rock outcrops. On serpentine at least	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
			sometimes. 984-6,888 ft (300-2,100 m)		
Tracy's sanicle	*Sanicula tracyi*	--/--/4.2	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest. Dry gravelly slopes or flats, usually in or at the margin of oak woodland with scattered trees. In openings. 328-5,198.8 ft (100-1,585 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Trailing black current	*Ribes laxiflorum*	--/--/4.2	North Coast coniferous forest. Clambering over logs and stumps in moist, wet places. Redwood forests. 16.4-4,575.6 ft (5-1,395 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
Two-flowered pea	*Lathyrus biflorus*	--/--/1B.1	Lower montane coniferous forest. Endemic to serpentine. 4,492-4,542.8 ft (1,370-1,385 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Water howellia	*Howellia aquatilis*	FT/--/2B.2	Freshwater marshes and swamps. In clear ponds with other aquatics and surrounded by ponderosa pine forest and sometimes riparian associates. 3,542.4-4,510 ft (1,080-1,375 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.
White-flowered rein orchid	*Piperia candida*	--/--/1B.2	North Coast coniferous forest, lower montane coniferous forest, broad leafed upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 3,543-5,300 ft (45-1,615 m)	Present	Suitable habitat exists in the ESL. The species was not detected during surveys.

Common Name	*Scientific Name*	Status** USFWS/ CDFW/ CRPR	General Habitat Description	Habitat Present/ Absent	Potential for Occurrence and Rationale
Western lily	*Lilium occidentale*	FE/SE/1B.1	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, North Coast coniferous forest, marshes and swamps. Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 9-361 ft (3-110 m).	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.
Yolla Bolly Mtns. bird's-foot trefoil	*Hosackia yollabolliensis*	--/--/1B.2	Upper montane coniferous forest, meadows and seeps. 5,182.4-7,002.8 ft (1,580-2,135 m)	Absent	Suitable habitat does not exist in the ESL. None detected during floristic surveys for the project.

Federal: -- = No status definition. FE = Endangered. FPT = Proposed for federal listing as threatened under the Federal Endangered Species Act. FT = Listed as threatened under the Federal Endangered Species Act. FC = Candidate for Federal listing (taxa for which the U.S. Fish and Wildlife Service has sufficient biological information to support a proposal to list as Endangered or Threatened). DL = Delisted. FSC = Species of Concern (Species of Concern is an informal term. It is not defined in the federal Endangered Species Act. The term commonly refers to species that are declining or appear to be in need of conservation)

State: -- = No status definition. SE = Listed as endangered under the California Endangered Species Act. ST = Listed as threatened under the California Endangered Species Act. SC = Proposed for state listing as threatened under the California Endangered Species Act FP = Fully protected, species may not be taken or possessed without a permit from the FG Commission and/or the CDFW, SSC = Species of Special Concern, WL = Watch List that includes "Taxa to Watch".

California Rare Plant Rank (CRPR): -- = No status definition. Rank 1A = Plants presumed extinct in California. Rank 1B = Plants are rare and endangered in California. Rank 2 = Plants endangered in California, but more common elsewhere. Rank 3= Plants that need consideration per CEQA due to lack the necessary information to assign them to one of the other ranks or to reject them. Rank 4 = Plants of limited distribution or infrequent throughout a broader area in California, so that their vulnerability or susceptibility to threat appears low at this time, from a statewide perspective. However, these taxa warrant regular monitoring for evidence of decline and subsequent transfer to a more sensitive rank.

"Likelihood of Occurrence within the Study Area", unless noted within the analysis, is derived from the following formula:

None: Species, habitat, or community was not observed during biological field surveys conducted at an appropriate time for identification of the species; or species is restricted to habitats that do not occur within the Study Area.

Low: No records exist of the species occurring within the Study Area or its "vicinity" (within 5 miles); or on-site habitats needed to support the species are of poor quality.

Moderate: Both a historical record exists of the species within the vicinity of the Study Area and the habitat requirements associated with the species occur within the Study Area. The validity of a historical occurrence is weighted by the condition of on-site habitat at the time of occurrence versus existing habitat conditions.

High: Both a valid historical record exists of the species within the Study Area or its "immediate vicinity" (within 1 mile) and the habitat requirements associated with the species occur within the Study Area and are of high quality.

Observed: Species, habitat, or community was observed within the Study Area at the time of the biological field survey.

Appendix G. List of Plant Species Observed Within the ESL

Plants Species Observed in the Survey Area

Scientific Name	Common Name
Abies grandis	grand fir
Acer macrophyllum	bigleaf maple
Alnus rhombifolia	white alder
Alnus rubra	red alder
Arbutus menziesii	madrone
Frangula purshiana	cascara
Fraxinus latifolia	Oregon ash
Notholithocarpus densiflorus var. *densiflorus*	tanoak
Pinus ponderosa	Ponderosa pine
Pseudotsuga menziesii	Douglas-fir
Quercus garryana	Oregon white oak
Quercus kelloggii	California black oak
Populus trichocarpa	black cottonwood
Ribes menziesii	canyon gooseberry
Salix lasiandra	Pacific willow
Sequoia sempervirens	coast redwood
Umbellularia californica	California-bay
Amelanchier alnifolia	western serviceberry
Baccharis pilularis	coyote brush
Berberis aquifolium	tall Oregon-grape
Corylus cornuta ssp. *californica*	California hazelnut
Crataegus gaylussacia	Klamath hawthorn
Gaultheria shallon	salal
Genista monspessulana	French broom
Holodiscus discolor	oceanspray
Oemleria cerasiformis	oso berry
Prunus virginiana var. *demissa*	western chokecherry
Rosa californica	rose
Rubus parviflorus	thimbleberry
Rubus spectabilis	salmonberry
Salix lasiolepis	arroyo willow
Salix sitchensis	Sitka willow
Salix sp.	willow

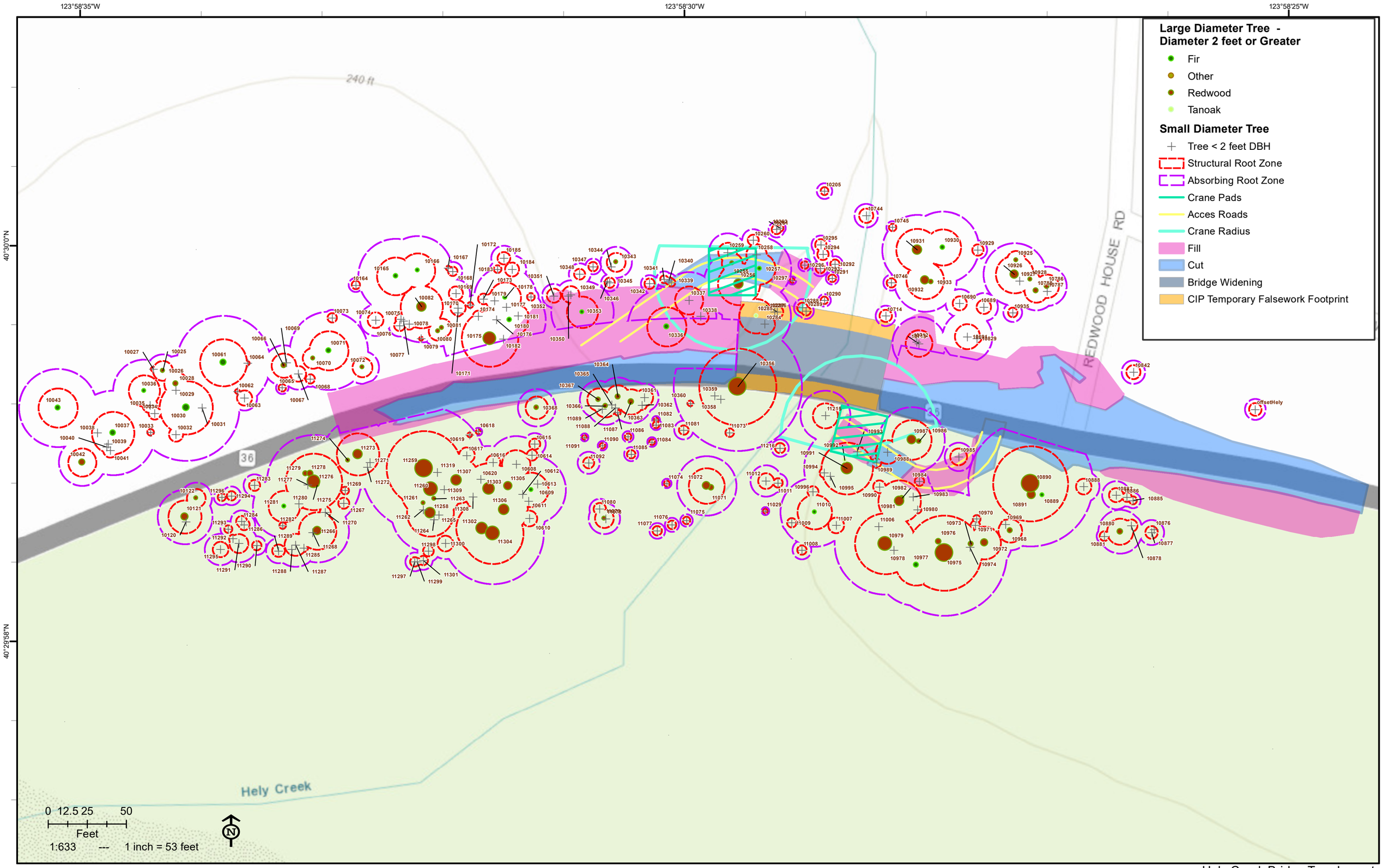
Scientific Name	Common Name
Sambucus racemosa var. *racemosa*	red elderberry
Symphoricarpos albus	snowberry
Vaccinium ovatum	evergreen huckleberry
Vaccinium parvifolium	red huckleberry
Clematis sp.	clematis
Hedera helix	English ivy
Lonicera hispidula	hairy honeysuckle
Rubus armeniacus	Himalayan blackberry
Rubus ursinus	California blackberry
Toxicodendron diversilobum	poison-oak
Achillea millefolium	common yarrow
Acmispon americanus var. *americanus*	lotus
Aira caryophyllea	European hairgrass
Anaphalis margaritacea	pearly everlasting
Anthemis cotula	mayweed
Anthoxanthum odoratum	sweet vernal grass
Arrhenatherum elatius	tall oatgrass
Artemisia douglasiana	mugwort
Athyrium filix-femina	lady fern
Avena barbata	slender wild oat
Bellis perennis	English daisy
Briza maxima	rattlesnake grass
Brodiaea elegans	harvest brodiaea
Bromus hordeaceus	soft chess
Carduus pycnocephalus	Italian thistle
Carex buxbaumii	Buxbaum's sedge (CRPR 4.2)
Carex gynodynama	Olney’s hairy sedge
Carex leptopoda	short-scaled sedge
Carex nudata	river sedge
Carex obnupta	slough sedge
Carex sp.	sedge
Cerastium glomeratum	mouse ear chickweed
Chlorogalum pomeridianum	wavy-leaved soaproot
Cichorium intybus	chicory
Circaea alpina ssp. *pacifica*	enchanter’s nightshade
Cirsium vulgare	bull thistle
Clarkia sp.	clarkia

Scientific Name	Common Name
Collomia grandiflora	large flowered collomia
Collomia heterophylla	varied-leaf collomia
Cynoglossum grande	hound's-tongue
Cynosurus echinatus	hedgehog dogtail grass
Cyperus eragrostis	nut-grass
Danthonia californica	California oatgrass
Darmera peltata	Indian rhubarb
Daucus carota	Queen Anne's lace
Delphinium sp.	larkspur
Deschampsia elongata	slender hairgrass
Dichelostemma ida-maia	firecracker flower
Dipsacus fullonum	teasel
Elymus caput-medusae	Medusa head
Elymus glaucus ssp. *glaucus*	blue wildrye
Epilobium ciliatum	northern willow herb
Equisetum telmateia ssp. *braunii*	giant horsetail
Eschscholzia californica	California poppy
Festuca californica	California fescue
Foeniculum vulgare	fennel
Fragaria vesca	wood strawberry
Galium aparine	goose grass
Galium sp.	bedstraw
Gastridium phleoides	nit grass
Goodyera oblongifolia	rattlesnake plantain
Hieracium albiflorum	white hawkweed
Holcus lanatus	common velvet grass
Hordeum marinum	Mediterranean barley
Hydrophyllum tenuipes	Pacific waterleaf
Hypericum perforatum	St. John's-wort
Hypochaeris radicata	hairy cat's-ear
Iris douglasiana	Douglas iris
Iris purdyi	Purdy's iris
Juncus bolanderi	Bolander's rush
Juncus bufonius	common toad rush
Juncus effusus	common rush
Juncus ensifolius	dagger-leaf rush
Juncus patens	spreading rush

Scientific Name	Common Name
Juncus sp.	rush
Lapsana communis	nipplewort
Lathyrus latifolius	everlasting pea
Lathyrus polyphyllus	Oregon pea
Lathyrus tingitanus	Tangier pea
Lathyrus vestitus	wood pea
Leucanthemum vulgare	ox-eye daisy
Ligusticum apiifolium	lovage
Lilium sp.	lily
Linum bienne	western blue flax
Logfia gallica	narrow-leaved filago
Lolium perenne [Festuca perennis]	perennial rye grass
Lotus corniculatus	birdfoot trefoil
Lupinus bicolor	miniature lupine
Lupinus latifolius	broad leaved lupine
Lupinus rivularis	riverbank lupine
Luzula sp.	wood rush
Lysimachia latifolia	Pacific star flower
Lythrum sp.	loosestrife
Madia exigua	small tarweed
Maianthemum dilatatum	false lily-of-the-valley
Maianthemum racemosa	feathery false lily of the valley
Marah oreganus	coast man-root
Melilotus albus	white sweetclover
Mentha pulegium	pennyroyal
Mimulus guttatus	seep-spring monkey flower
Montia parvifolia	streambank spring beauty
Navarretia sp.	navarretia
Nasturtium officinale	watercress
Nemophila parviflora	small-flowered nemophila
Oenanthe sarmentosa	Pacific water-parsley
Osmorhiza berteroi	sweet-cicely
Oxalis oregana	redwood sorrel
Parentucellia viscosa	yellow parentucellia
Petasites frigidus var. *palmatus*	western coltsfoot
Plantago lanceolata	English plantain
Plantago major	common plantain

Scientific Name	Common Name
Polypodium glycyrrhiza	licorice fern
Polystichum munitum	sword fern
Prosartes hookeri	Hooker's fairy bells
Prunella vulgaris	self-heal
Pteridium aquilinum var. *pubescens*	bracken fern
Ranunculus sp.	buttercup
Rumex crispus	curly dock
Sanicula crassicaulis	Pacific snakeroot
Schedonorus arundinacea [Festuca]	tall fescue
Scoliopus bigelovii	slink-pod
Silene laciniata	catchfly
Spergularia rubra	purple sand spurry
Spiranthes porrifolia	lady's tresses
Stachys ajugoides	hedge nettle
Struthiopteris spicant	deer fern
Tellima grandiflora	fringe cups
Thalictrum fendleri var. *polycarpum*	meadow rue
Tiarella trifoliata var. *unifoliata*	sugar scoop
Torilis arvensis	rattlesnake weed
Trichostema sp.	vinegar or turpentine weed
Trifolium dubium	little hop clover
Trifolium fucatum	sour clover
Trifolium repens	white clover
Trifolium resupinatum	reversed clover
Trifolium subterraneum	subterranean clover
Trillium albidum	giant wakerobin
Trillium ovatum	western trillium
Triteleia hyacinthina	white hyacinth
Vancouveria sp.	inside-out flower
Verbena lasiostachys	western verbena
Veronica americana	American brooklime
Vicia sativa	common vetch
Vinca major	greater periwinkle
Viola glabella	stream violet
Viola sempervirens	evergreen violet
Vulpia myuros [Festuca]	rattail sixweeks grass
Zeltnera sp.	centaury

Appendix H. Tree Root Zone Impact Map



Hely Creek Bridge Tree Impacts
HUM-36 Three Bridges Project, Humboldt County EA 01-0C500

Appendix I. Comments and Caltrans' Response

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State of California
Department of Fish and Wildlife

M e m o r a n d u m

Date: August 3, 2020

To: Amanda Lee, Environmental Coordinator
California Department of Transportation
amanda.lee@dot.ca.gov

From: Curt Babcock, Habitat Conservation Program Manager
Northern Region

DocuSigned by:
Curt Babcock
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Subject: HUM 36 Three Bridges Project (SCH# 2020060581)

On June 26, 2020, CDFW received a draft Initial Study/Mitigated Negative Declaration (IS/MND) from the California Department of Transportation (Lead Agency) for the Three Bridges Project (Project), Humboldt County, California. CDFW understands that the Lead Agency will accept comments on the project through August 3, 2020. As a Trustee Agency for the State's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and the habitat necessary to sustain their populations. As a Responsible Agency, CDFW administers the California Endangered Species Act (CESA) and other provisions of the Fish and Game Code (FGC) that conserve the State's fish and wildlife public trust resources. CDFW offers the following comments and recommendations in our role as a Trustee and Responsible Agency under the California Environmental Quality Act (CEQA; California Public Resource Code §21000 *et seq*.).

Project Description

The Lead Agency proposes to replace two bridges and widen one bridge on State Route (SR) 36 in Humboldt County. The Project also includes widening shoulders and modifying bridge rails to meet current design standards. The bridges include:

- Hely Creek Bridge (Bridge No. 04-0092) at Post Mile (PM) 11.46
- Little Larabee Creek Bridge (Bridge No. 04-0102) at PM 25.27
- Butte Creek Bridge (Bridge No. 04-0116) at PM 34.52

The bridges at Hely Creek and Butte Creek would be replaced with wider bridges, and the existing bridge at Little Larabee Creek would be widened. All bridge widths would be increased from current widths to 12 feet with 4- or 8-foot shoulders. Bridge approaches would be widened to accommodate transitions from the bridge to the existing roadway and upgrading bridge rails.

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Project Design and Lake or Streambed Alteration Agreement

CDFW's Conservation Engineering Branch reviewed the IS/MND and provided a summary of information requests and preliminary comments to Caltrans staff via email on July 28, 2020. As currently proposed, certain Project components have the potential to cause potentially significant impacts to Hely, Little Larabee, and Butte Creeks via impacts of new rock riprap installation, and Project components that would facilitate continuing scour, streambank instability, and limit natural movement of sediment, debris, and flood conveyance.

Therefore, CDFW has the following recommendations that would likely be incorporated as measures in the Project's Lake or Streambed Alteration Agreement to prevent potentially significant impacts, and should be incorporated into the IS/MND:

Hely Creek:

1. The current proposed bridge at Hely Creek should be lengthened by moving the abutments away from the channel overbanks. This will eliminate the need for riprap, lessen shear stresses that cause localized scour and streambank instability, and will allow more natural movement of sediment, debris, and flood conveyance.
2. The Project should allow the low-flow channel at Hely Creek bridge to naturally meander rather than realigning the channel.
3. The Project should avoid rock riprap on the abutment slopes at Hely Creek. Local abutment scour and contraction scour can be avoided by lengthening the bridge opening per recommendation 1.
4. Remove existing rock riprap along riverbank left from previous scour countermeasure efforts.
5. Remove the existing spread footings 5-feet below original grade or below the calculated Total Scour Depth, whichever is greater.

Little Larabee Creek:

1. The Project proposes installation of rock riprap placed along abutment slopes. CDFW is unclear as to whether this riprap is new, or if rock riprap currently exists at the abutment slopes. The Project should avoid installation of new rock riprap. However, if the proposed rock riprap is an in-kind replacement, CDFW recommends the Project include vegetated rock riprap as part of the design. Caltrans should refer to their Design Information Bulletin No. 87-01 "*Hybrid Streambank Revetments: Vegetated Rock Slope Protection*" and the Federal Highway Administration's Hydraulic Engineering Circular No. 23 - "*Bridge Scour and Stream Instability Countermeasures: Experience, Selection, and Design Guidance*", volume 1, Third Edition for more guidance on vegetated rock riprap designs.

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Butte Creek:

1. The Project should avoid use of rock riprap
2. If rock riprap would be needed to protect the abutments from scour failure, the bridge should be lengthened appropriately to reduce shear stresses along the abutment slopes in order to greatly reduce localized abutment scour and contraction scour.
3. The proposed bridge should be lengthened to fully span the bankfull channel width.
4. Remove the existing piles 5-feet below original grade or below the calculated Total Scour Depth, whichever is greater.

Nesting Birds

The IS/MND states:

> *"Partially constructed and unoccupied nests within the construction area would be removed and disposed of on a regular basis throughout the breeding season (February 1 to September 15) to prevent their occupation. Nest removal would be repeated weekly under guidance of a qualified biologist to ensure nests are inactive prior to removal. Removed nest material would be prevented from falling into waterways. Exclusionary devices would not be used to prevent birds nesting on the existing bridge structures as these devices have the potential to entrap or harm night roosting bats."*

Nesting birds are generally protected by Fish and Game Code sections 3503 and 3503.5. Nest removal of partially constructed nests is not a preferred method of avoiding impacts to nesting birds, because it results in birds expending reproductive effort to construct nests that are later destroyed. Further, removal of in-progress nests causes potential to inadvertently remove nests with eggs if nests are not removed at regular intervals or nests are constructed more rapidly than anticipated. It is preferable to implement bird-and bat-safe exclusion methods such as one way exits for bats (installed after the maternity season but before hibernation), and products that create surfaces or angles that birds will not attempt use for nesting or that nests will not adhere to, as described in Ontario Ministry of Natural Resources and Forestry (2017) and other similar resources. Netting material should not be used as it is highly likely to result in take of birds and bats.

Surface modifications may also make the bridges less attractive to day-roosting bats, such as the single day-roosting State Species of Special Concern (SSC) Townsend's big-eared bat (*Corynorhinus townsendii*) that was consistently observed using the southeast side of the bridge in summer 2019 surveys.

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Pacific Lamprey

The IS/MND references the 2010 document "Best Management Practices to Minimize Adverse Effects to Pacific Lamprey (*Entosphenus tridentatus*)" (USFWS 2010). CDFW recommends reviewing and implementing the updated guidance provided in the more recent document, "Best management guidelines for native lampreys during in-water work" (Lamprey Technical Workgroup 2020) to the greatest extent feasible.

Sonoma Tree Vole

Regarding Sonoma tree vole (*Arborius pomo*), a State SSC, the IS/MND states:

> "*No species-specific surveys were performed for this species; however, trees slated for removal were investigated for signs of tree vole use.*"

The IS/MND does not disclose whether signs of tree vole use were observed, nor provide information on methods (duration, location, effort level) of the investigations. CDFW recommends that the IS/MND quantify the amount of potential Sonoma tree vole habitat that will be removed and determine whether this impact is potentially significant. Potential habitat should be avoided to the greatest extent feasible.

Large Diameter Trees

The IS/MND proposes to remove twelve "large-diameter" trees. At least four of these trees are coast redwoods (*Sequoia sempervirens*) greater than 50-inch diameter at breast height (DBH), ranging from 50 – 72-inch DBH. Trees greater than 36-inch DBH may be considered late-seral, because they begin to show signs of decadence (large limbs, broken tops, hollows) which makes them favored habitat for a suite of sensitive species. Late-seral stands also begin to take on epiphytic species which are otherwise found only in old growth stands. It can take hundreds of years after tree removal before a stand begins to manifest the complexity and species diversity exhibited by stands with large, old trees. Removal of late-seral or large-diameter old trees a is a potentially significant impact. These trees are essentially irreplaceable due the amount of time it takes to achieve their size, the unique micro-ecosystem supported by their upper canopy habitat, and their overall rarity on the landscape.

According to the IS/MND, the Project could also result in impacts to the Structural Root Zone (SRZ) and Absorber Root Zone (ARZ) of an additional three large diameter trees: a 99 inch DBH Coast Redwood (tree 10356), a 54 inch DBH Coast Redwood (tree 10981) and an approximately 30 inch DBH Coast Redwood (tree 10982).

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The IS/MND states:

> *"The project could result in moderate impacts (7.8 – 22.8%) to the ARZ of an additional three coast redwoods (Trees 10356, 10981, 10982) (Table 4). Tree 10356 would also have permanent impacts to 12.7% of its SRZ, and trees 10981 and 10982 could experience branch trimming within approximately 30 feet of the ground surface for crane operations."*

These impacts appear to be potentially significant. The Lead Agency should propose appropriate mitigation for these impacts, which may be available on the proposed wetland mitigation parcel referenced in the IS/MND.

Off-site Mitigation

Regarding impacts to wetlands, the IS/MND states:

> *"Mitigation for permanent wetlands impacts would be implemented off-site. The appropriate measures would be identified and coordinated with the USACE, NCRWQCB, CDFW and any other administering agencies. Caltrans is currently assessing a property on State Route 36 as a possible mitigation site for this project, with opportunities for wetland preservation and protection and wetland creation. The property identified is approximately 115 acres, has high value wetland features and watershed area and contains valuable upland mature forest habitat. Caltrans would propose a Cooperative Agreement with the NCRWQCB and CDFW to purchase the parcel in CDFW's name to satisfy wetland mitigation needs for this project and other projects on SR 36 and US 101 within the Lower Eel River Watershed. Caltrans has been in coordination with these agencies to move forward with this effort. Given that temporarily impacted areas would be restored and permanent impacts would be mitigated, a determination was made that the project would have a "Less Than Significant Impact with Mitigation" on wetlands and other waters.*

CDFW has been working with Caltrans to facilitate acquisition of the parcel mentioned in the IS/MND for mitigation purposes, and strongly supports purchase and protection in perpetuity of the wetland, potential wetland, and upland mature forest habitats on this parcel as mitigation for Project impacts. Preservation of and management for late-seral forest habitat conditions on this property would also provide mitigation for potentially significant Project impacts to large diameter trees. Additionally, this mitigation approach would benefit species such as Pacific fisher and Sonoma tree vole, if further analysis determines that Project impacts to these species are potentially significant.

The IS/MND should better describe the mitigation parcel and the habitat values and management strategies that its acquisition and protection in perpetuity will provide. At a

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minimum, the IS/MND should better quantify potentially significant impacts to late-seral/large diameter trees, in addition to the impacts that have already been quantified for wetland and riparian habitat, and compare these impacts to habitat values and potential (habitat acreages and quality of wetland, potential wetland, and upland mature forest) of the property that the Lead Agency intends to acquire for mitigation purposes.

This analysis can be used to develop appropriate performance standards for offsite mitigation acreages and/or ratios if the property mentioned in the IS/MND is not acquired and the Lead Agency must search for an alternate mitigation site.

For any potentially significant impact, CDFW recommends the Lead Agency include details of proposed mitigations, including performance standards, such as mitigation ratios, and a draft MMRP in the IS/MND prior to notification for adoption.

Coho Salmon and Summer Steelhead

Take of Southern Oregon/Northern California Coast (SONCC) ESU of Coho Salmon (*Oncorhynchus kisutch*), a state Threatened Species, and summer-run Northern California steelhead (*Oncorhynchus mykiss irideus*), a state Candidate Endangered species, is anticipated as a result of the project. This is a potentially significant impact and will require State take authorization and full mitigation pursuant to CESA. The amount of take is not estimated in the IS/MND. Further coordination with CDFW will be required to ensure that the Biological Opinion or Incidental Take Permit application contains sufficient mitigation to ensure impacts are fully mitigated. Off-site eradication of non-native American bullfrog (*Lithobates catesbeianus*) has been proposed as mitigation for Project-related take of State-listed salmonids. Bullfrogs are known to prey upon juvenile salmonids and other aquatic species of special concern such as Western pond turtle (Garwood et al. 2010). As with the mitigation approach for wetland, riparian, and other habitats discussed above, CDFW recommends the IS/MND better describe the anticipated impacts and estimated State-defined take that will occur as a result of the Project, and the mitigation value of the proposed bullfrog eradication project, to be used as a performance standard for mitigation commitments for the Project.

Summary of Recommendations

1. Incorporate changes in bridge length, avoiding installation of rock riprap, and adjustments to abutments and footings as described above and per prior CDFW Conservation Engineering recommendations.

2. Implement bird and bat-safe exclusion measures instead of regularly removing partially constructed nests during the nesting season.

3. Use more recent guidance (Lamprey Technical Workgroup 2020) to develop BMPs for Pacific lamprey.

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4. Impacts to large diameter trees may be potentially significant. The proposed mitigation parcel could provide adequate mitigation value, but this should be addressed and quantified in the IS/MND.

5. The IS/MND should better describe the anticipated take of State-listed salmonids from the Project, and the mitigation value of the proposed bullfrog eradication project, to be used as a performance standard for mitigation commitments for the Project.

These changes are necessary for CDFW to determine that the Project will have a less than significant impact on biological resources.

Thank you for the opportunity to comment on this draft IS/MND. CDFW staff are available to meet with you to consult with or address the contents of this letter in greater depth. If you have questions on this matter or would like to discuss these recommendations, please contact Senior Environmental Scientist Specialist Jennifer Olson at (707) 499-5081 or by email at jennifer.olson@wildlife.ca.gov.

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Caltrans' Response to CDFW (Curt Babcock)

Project Design and Lake or Streambed Alteration Agreement

Hely Creek

1. The proposed bridge layout has been through several iterations with length ranging from 50 feet to 100 feet. Several factors were considered in refining the design including roadway geometrics and the surrounding large-diameter redwood trees. The current design does propose a longer bridge than existing, and the east side of channel and bank would be opened by pushing Abutment 2 further out. A portion of Abutment 1 will be left in place to minimize disturbance within the root zone of the cluster of large diameter redwood trees immediately adjacent to the abutment.
2. Because the new bridge would be longer, grading of the banks of Hely Creek is needed to provide a stable transition to the finished grade of the embankment. Caltrans hydraulics has been in coordination with Rick Macala of CDFW to design the realignment. Slight bank shaving and slight channel realignment is proposed in the northwest quadrant of the bridge, in the vicinity of the proposed access road. The creek would be graded to realign the thalweg away from the eastern bridge abutment where there is localized scour and bank instability. The channel thalweg would be shifted approximately 10 feet to the west to flow under the center of the bridge. The length of the proposed realignment is approximately 55 feet. Large wood root wad revetment would be placed at the northeast quadrant of the bridge to help maintain the new alignment of the channel and provide habitat and embankment protection.
3. The project development team (PDT) has assessed the use of RSP on the banks of Hely Creek and has determined it is not required to prevent scour. RSP will not be added at this location. See updated layouts in Appendix A.
4. Existing RSP will be removed at this location per CDFW's recommendation.
5. As discussed above, a portion of Abutment 1 will be left in place. Caltrans will remove the existing spread footings at Abutment 2, a minimum of 5-feet below original grade, below the calculated Total Scour Depth, whichever is greater. This would be incorporated into the specifications for construction.

Little Larabee Creek

1. There is existing RSP below the bridge at this location. No new RSP would be incorporated at this bridge per CDFW's recommendation, however the existing RSP on the western end of the bridge would be repaired. Except in the areas directly below the bridge, vegetation (willows) would be incorporated into the interstitial space as the new RSP is installed.

Butte Creek

1. The PDT has assessed the use of RSP on the banks of Butte Creek and has determined it is not needed to protect the abutments from scour. RSP will not be added at this location. See updated layouts in Appendix A.
2. See response to Item 1.
3. The existing bridge at Butte Creek is a two-span, reinforced concrete structure. The new structure would cross the creek in one span, above the OHWM and 100-year flood discharge elevation. The large bedrock boulder supporting Abutment 2 would be preserved to the extent feasible.
4. Caltrans will remove the existing piles a minimum of 5-feet below original grade, or below the calculated Total Scour Depth, whichever is greater. This would be incorporated into the specifications for construction.

Nesting Birds

CDFW has expressed a preference to implement bird-and bat-safe exclusion methods such as one way exits for bats (installed after the maternity season but before hibernation), and products that create surfaces or angles that birds will not attempt use for nesting or that nests will not adhere to as opposed to partial nest removal.

Standard measures have been added to the Initial Study (Section 1.4), which propose preparation of a Bird and Bat Exclusion Plan prior to construction. This would include specifications for the installation of bat and bird exclusion devices on bridges to prevent roosting of bats and nesting of migratory or nongame birds as well as the maintenance, removal and materials used.

Nest removal (measure AS-2 of the draft Initial Study) has been removed from the project standard measures. Caltrans anticipates provisions would be included in the project Bird and Bat Exclusion Plans to address attempted nesting and occupation during construction, to be reviewed and approved by CDFW.

Pacific Lamprey

Caltrans will reference the recent guidance "Best management guidelines for native lampreys during in-water work" (Lamprey Technical Workgroup 2020) to the greatest extent feasible, per CDFW recommendation. Management guidelines will be considered in the development of the Aquatic Species Relocation Plan as part of the Construction Site Dewatering and Diversion Plan.

Sonoma Tree Vole

More information on Sonoma Tree Vole has been added to Section 2.4 of the Initial Study to describe methods (duration, location, effort level) for investigating tree vole use of the habitat in the project area. The initial investigation involved a search for resin ducts and tree vole nests in the ESL, none were found. Caltrans conducted additional surveys in 2021. The results and updated analysis are included in the document.

Large Diameter Trees

Caltrans recognizes the value of large diameter trees and redwood forest at Hely Creek and has explored ways to minimize the impacts from this project. Upon reviewing comments on the draft IS/MND, Caltrans has modified the guardrail design and cut/fill footprint to retain the 6-foot diameter Coast redwood tree (tree number 10175 as identified in the draft environmental document).

Additionally, in response to comments received on the draft Initial Study, the temporary access road on the southeast side of the bridge has been modified to relieve impacts to the root zones of a 5.5-foot diameter coast redwood tree (tree number 10991) and a 2-foot diameter tanoak (tree number 10992). With additional input from construction staff, Caltrans has reevaluated the feasibility of limiting the swing radius of the crane boom, to determine that these trees do not need to be cleared for construction and will instead be protected as an Environmentally Sensitive Area (ESA). The crane boom radius was also reduced in this area to avoid removal of a 2.4 diameter coast redwood (tree number 10986) and a 4.2 diameter coast redwood (tree number 10987). With these changes incorporated, the number of large diameter trees to be removed at Hely Creek has been reduced to 6 in total. Two of these are Coast Redwood, one with a DBH of 2.2 feet (tree number 10255) and one with a DBH of 4.5 feet (tree number 10256). Full discussion of the updated large diameter tree impacts is available in Section 2.4 of the Initial Study.

Based on the project *Tree Impact Analysis Report*, impacts to the Structural Root Zone (SRZ) and Absorber Root Zone (ARZ) of an additional three large diameter trees–a 99-inch DBH Coast Redwood (tree 10356), a 54-inch DBH Coast Redwood (tree 10981), and an approximately 30-inch DBH Coast Redwood (tree 10982)–would not result in tree mortality or require their removal. Coast redwood is considered to have a good tolerance to damage and disturbance given its propensity to resprout from branches, trunks, and cuttings; anastomose (fuse with other conspecifics); resist pathogens; and, survive fires (Olson et al., 1990; Ramage et al., 2011; O'Hara et al., 2017). It is expected, given the resiliency of Coast redwood trees and the good health of the large-diameter trees at Hely Creek, that the moderate impacts on their SRZs (<20 percent) and ARZs (<40 percent) would not substantially affect the structural integrity, health, or life expectancy of these trees (Caltrans 2020g).

As the CEQA Lead Agency, Caltrans is responsible for analysis and CEQA determinations. The impacted area would amount to 1% of the redwood forest stand in the project vicinity, which is approximately 48 acres. Caltrans has determined these impacts are less than significant, and therefore no mitigation has been proposed. Caltrans has further reduced impacts to large diameter trees in response to concerns from our partnering agencies and the public.

Off-Site Mitigation

A Mitigation and Monitoring Plan for the acquisition of the Steve Smith property and conservation of the Burke-Robey fen has been prepared and included in Appendix M.

Through technical assistance and consultation with NMFS, it is anticipated that incidental take of coho salmon and summer-run steelhead would be low. Caltrans determined the proposed American bullfrog (*Rana catesbeiana*) eradication efforts at the Mad River Pond in Humboldt County would not be commensurate with the impacts. Instead, mitigation for incidental take would be implemented on-site. Caltrans would continue to work closely with CDFW during the permitting phase of this project to determine appropriate measures to ensure all impacts to SONCC coho salmon and summer-run steelhead from the final project designs are fully mitigated.

Coho Salmon and Summer Steelhead

Because Coho Salmon and Summer Steelhead are dually listed under FESA and CESA, the project requires Section 7 consultation with NMFS and either an Incidental Take Permit or Consistency Determination from CDFW, with impacts fully mitigated under CESA. Caltrans has determined the project may affect, and is likely to adversely affect these species, and has submitted a Biological Assessment (BA) to NMFS to initiate formal consultation and assist with preparation of a Biological Opinion (BO). The BO determines whether the project would jeopardize species or adversely modify critical habitat and may include Reasonable and Prudent Alternatives (RPAs) or measures that would allow the project to move forward. An Incidental Take Statement (ITS) would be issued, including anticipated amount or extent of potential take and RPMs for minimization.

Estimated salmonid mortality that would occur as a result of the project was added to the environmental document, in Table 4. A summary of the proposed mitigation has been added to the Salmonids section, and a Conceptual Large Woody Debris Installation Plan in Appendix N of the Initial Study. Coordination with CDFW and NMFS will be ongoing for the proposed placement of LWD at Butte Creek. The installations would be designed by a licensed hydraulic engineer and plans would be provided to CDFW for review and approval prior to construction. Caltrans anticipates continued coordination with CDFW through the life of the project.

References

Caltrans 2020g. *Tree Impact Analysis for the Three Bridges Replacement and Widening Project on State Route 36, Humboldt County, California*. Eureka, CA: Unpublished.

O'Hara, K. L., L. E. Cox, S. Nikolaeva, J. J. Bauer, R. Hedges. Regeneration dynamics of coast redwood, a sprouting conifer species: A review with implications for management and restoration. Forests 8:144.

Olson, D. F. Jr., D. F. Roy, G. A. Walters. 1990. Coast Redwood. In Silvics of North America. Vol. I, Conifers, 541–551. U.S. Forest Service Agricultural Handbook.

Ramage, B. S., K. L. O'Hara, B. T. Caldwell. 2011. The role of fire in the competitive dynamics of coast redwood forests. Ecosphere 1:1–18.

Commenter: Rick Macala, Caltrans Fish Passage Engineering Liaison
CA Department of Fish and Wildlife

After reviewing these documents, a site visit at Hely Creek, and a desktop site analysis using Google Earth I have the following comments/concerns regarding this project:

Hely Creek Bridge:

1) CDFW's Conservation Engineering Branch recommends the current proposed bridge opening should be lengthened by moving the abutments away from the channel overbanks as much as possible. This would allow the natural overbanks to run through the bridge opening unimpeded. In addition, a larger bridge opening will eliminate the need of rock riprap on the abutment slopes; lessen shear stresses that cause localized scour and streambank instability; and to allow more natural movement of sediments, debris, and flood conveyance.

2) Do not realign the channel thalweg (the low flow channel). Allow the thalweg to naturally meander through the bridge in its current location. This low flow channel is not causing the localized scour on the eastern abutment. From observations during the May 28 site visit it was apparent that the protruding bank on riverbank right is causing higher flows to get redirected towards the eastern abutment and slopes causing the localized scour and bank instability. Lengthening the bridge opening will alleviate some of this issue. Also some bank contouring and hydraulic transitioning will greatly reduce the scour affect.

3) CDFW strongly opposes the use of rock riprap to be used on the abutment slopes. Lengthening the bridge opening will alleviate the local abutment scour and contraction scour and the need for armoring the abutment slopes.

4) Please remove any existing rock riprap along riverbank left from previous scour countermeasure efforts.

5) Protect in place the large woody debris that is near riverbank right on the upstream side of the existing edge of deck.

6) Remove the existing spread footings 5-feet below original grade or below the calculated Total Scour Depth, whichever is greater.

7) Assessments/analyses needed for CDFW Conservation Engineering Branch review:

a) hydraulic analyses report including existing and proposed shear stress analysis along the bed and banks of Hely Creek.

b) longitudinal profile analysis as far upstream and downstream at the hydraulic model boundaries.

c) cross section analysis for existing and proposed conditions with extra attention given to the project footprint and proposed channel bank grading.

d) the grading plan of the channel bed and banks.

e) plan view of the proposed temporary access roads.

f) project description detailing how these temporary access roads will be removed and channel banks restored, including a revegetation plan.

g) structural plans for the proposed bridge replacement.

Little Larabee Creek Bridge:

1) The proposed bridge widening at this structure is calling for installation of rock riprap along the abutment slopes. Does this structure currently have rock riprap placed along the abutment slopes? Is this a replacement in-kind? If so, then CDFW recommends that the proposed rock riprap in-kind replacement include vegetated rock riprap as part of the design. Caltrans can refer to Caltrans' Design Information Bulletin No. 87-01 "Hybrid Streambank Revetments: Vegetated Rock Slope Protection" and the Federal Highway Administration's Hydraulic Engineering Circular No. 23 - "Bridge Scour and Stream Instability Countermeasures: Experience, Selection, and Design Guidance", volume 1, Third Edition for more guidance on vegetated rock riprap designs.

2) Please provide all the assessments and analyses that were discussed for the Hely Creek Bridge (comment #7) component of the proposed project.

Butte Creek Bridge:

1) Again, CDFW strongly opposes the use of rock riprap to be used on the abutment slopes.

2) If rock riprap is needed to protect the bridge's abutment from scour failure, then the bridge should be lengthened appropriately to reduce shear stresses along the abutment slopes in order to greatly reduce localized abutment scour and contraction scour. CDFW strongly encourages that Caltrans lengthen the proposed bridge to fully span the bankfull channel width.

3) Remove the existing piles 5-feet below original grade or below the calculated Total Scour Depth, whichever is greater.

4) Please provide all the assessments and analyses that were discussed for the Hely Creek Bridge (comment #7) component of the proposed project.

Sincerely,

_____

Rick R. Macala, P.E.
Senior Hydraulic Engineer
Caltrans Fish Passage Engineering Liaison
Conservation Engineering Branch
CA Department of Fish and Wildlife
Office: 916-375-2018

Caltrans' Response to Rick Macala (CDFW)

Hely Creek Bridge

1. The proposed bridge layout has been through several iterations with length ranging from 50 feet to 100 feet. Several factors were considered in refining the design including roadway geometrics and the surrounding large-diameter redwood trees. The current design does propose a longer bridge than existing, and the east side of channel and bank would be opened up by pushing Abutment 2 further out. A portion of Abutment 1 would be left in place to minimize disturbance within the root zone of the cluster of large diameter redwood trees immediately adjacent to the abutment.
2. Caltrans hydraulics has been in coordination with you to design the realignment and large root wad revetment. Bank contouring of the protruding bank on riverbank right has been incorporated to alleviate scour and bank instability near the eastern abutment.
3. The PDT has assessed the use of RSP on the banks of Hely Creek and has determined it is not required to prevent scour. RSP will not be added at this location. See updated layouts in Appendix A.
4. Existing RSP will be removed at this location per CDFW's recommendation.
5. The large woody debris that is near riverbank right on the upstream side of the existing edge of deck would be replaced upon completion of construction.
6. As discussed above, a portion of Abutment 1 will be left in place. Caltrans will remove the existing spread footings at Abutment 2, a minimum of 5-feet below original grade or below the calculated Total Scour Depth, whichever is greater. This would be incorporated into the specifications for construction.
7. The requested assessments/analyses that are currently available have been provided. The remaining items will be provided throughout the permitting phase of the project for CDFW Conservation Engineering Branch review.

Little Larabee Creek Bridge

1. There is existing RSP below the bridge at this location. No new RSP would be incorporated at this bridge per CDFW's recommendation, however the existing RSP on the western end of the bridge would be repaired. Except in the areas directly below the bridge, vegetation (willows) would be incorporated into the interstitial space as the new RSP is installed.
2. The requested assessments/analyses that are currently available have been provided. The remaining items will be provided throughout the permitting phase of the project for CDFW Conservation Engineering Branch review.

Butte Creek Bridge

1. The PDT has assessed the use of RSP on the banks of Butte Creek and has determined it is not required to prevent scour. RSP will not be added at this location. See updated layouts in Appendix A.
2. RSP is not needed to protect the abutments from scour and is no longer proposed at this location. The existing bridge at Butte Creek is a two-span, reinforced concrete structure. The new structure would cross the creek in one span, above the ordinary high-water mark and 100-year flood discharge elevation.
3. Caltrans will remove the existing piles a minimum of 5-feet below original grade or below the calculated Total Scour Depth, whichever is greater. This would be incorporated into the specifications for construction.
4. The requested assessments/analyses that are currently available have been provided. The remaining items will be provided throughout the permitting phase of the project for CDFW Conservation Engineering Branch review.

Sent via email on date shown below

August 3, 2020

Amanda Lee
Associate Environmental Planner
North Region Environmental
California Department of Transportation
1656 Union Street
Eureka, CA 95501
Amanda.Lee@dot.ca.gov

Re: Hum-36 Three Bridges Project

Dear Ms. Lee,

Thank you for the opportunity to comment on the Hum-36 Three Bridges Project and for the tour of the Hely Bridge area of the project. The Environmental Protection Information Center (EPIC) advocates for science-based protection and restoration of Northwest California's forests, using an integrated, science-based approach, combining public education, citizen advocacy, and strategic litigation. As you know, EPIC and Caltrans have had, at times, a rocky relationship, particularly over concerns regarding impacts to park lands and old-growth redwoods from highway widening. For that reason, I appreciate the efforts that you and your team have made to answer questions about this project and your willingness to take our concerns seriously.

In reviewing this project, EPIC's primary concern is the impacts to individual old-growth trees and potential impacts to Van Duzen County Park at the Hely Bridge project site. EPIC urges that this segment of the project be reconsidered to reduce impacts to these resources to the lowest possible level.

Project Description and Overview:

The Three Bridges Project proposes to replace or upgrade three bridges along Highway 36, Hely Creek Bridge, Little Larabee Creek Bridge, and Butte Creek Bridge. The three bridges do not meet design standards for guardrails or shoulders. Hely Creek and Butte Creek bridges cannot be retrofitted to meet design requirements while Little Larabee Creek can be retrofitted to nearly meet design

requirements. Butte Creek additionally is beginning to show age-related deterioration, which is cited as justification for the project.

Hely, Little Larabee, and Butte Creek are tributaries to the Van Duzen River. Hely Creek is within Van Duzen County Park, thereby triggering the need for a Section 4(f) determination, as the project would condemn park land.

Based on our review of the project, EPIC is concerned that the bridge would take irreplaceable resources, including individual old-growth trees, and that impacts to these resources could be avoided with greater care or with alternative design.

Issues:

Purpose and Need and Alternatives Analysis:

The stated purpose and need for the project is too narrowly written and should be modified to more accurately reflect the various considerations and tradeoffs that are inherent in this project. As defined in the IS, "The purpose of the proposed project is to upgrade bridge rails to meet current design standards and improve shoulder widths." (IS at 3.)

California case law is clear. "Although a lead agency may not give a project's purpose an artificially narrow definition, a lead agency may structure its EIR alternative analysis around a reasonable definition of underlying purpose and need not study alternatives that cannot achieve that basic goal." (*In re Bay-Delta etc.* (2008) 43 Cal.4th 1143, 1166.) There are two fundamental problems with the project objective for this project. First, the stated purpose and need to too narrowly defined, thereby limiting the scope of alternatives and eliminating reasonable alternatives. Second, the project internally violates the purpose and need for the project, as the proposed project doesn't fully comply with the stated purpose. For these reasons, EPIC proposes that the project purpose and need be revised to something that incorporates both the reasoning behind meeting the design criteria and recognizes that meeting the design criteria is not always feasible or desirable.

First, it appears that the IS only considers the impact from two alternatives: the proposed project and the no-build alternative. (IS at 19.) Several additional alternatives were initially considered but eliminated from further consideration. (Id.) Less impactful designs were rejected because of (in some places) strict adherence to design criteria. We note that the choice of design vehicle impacts curve radii at Hely Creek, thereby causing more significant impacts to the environment and that a previous bridge design for the Butte Creek Bridge would build a considerably narrower bridge, but that design was rejected because a wide bridge "would better serve the purpose and need of the project." (IS at 20.)

Second, although alternatives were rejected because they do not meet design criteria, the existing project itself does not meet all of the design criteria. As recounted by the IS, "The 2015 PSSR recommended 8-foot-wide shoulders and 12-foot-wide travel lanes at all bridge locations. After further evaluation, the Project Development Team selected 4-foot-wide shoulders at the Hely Creek Bridge to avoid impacts to a cluster of redwood trees that are immediately adjacent to the existing abutment on the west side of the bridge." (IS at 19.)

The statement reflects the tradeoffs necessary to designing a project. The stated purpose and need both too narrowly limits the scope of consideration, as exemplified by the design of the project itself. EPIC believes that the purpose and need should be broadened to reflect the true purpose of the project: the creation of a safe highway that is appropriately fit into the natural and human environment.

Design Vehicle Choice May Result in More Significant Impacts

The IS notes that the choice of the design vehicle influences impacts as the curve radius needs to be wider, thereby requiring the removal of large trees: "The proposed centerline radius at Hely Creek is 504 feet which allows the design vehicle to stay completely in the lane through the turn. Additionally, shifting the alignment north would still result in impacts to several large diameter redwood trees." (IS at 20.) This is the only mention of the design vehicle. In response to a question by EPIC, Caltrans has communicated that the design vehicle is a 65' California Legal Truck. EPIC questions whether this is the appropriate design vehicle. Caltran's Truck Network Map shows that this section of Highway 36 as open to California Legal Trucks with a KPRA advisory of 30 feet (as opposed to a 40' KPRA for a regular California Legal Truck). Hely Bridge is not the sole pinch point that has justified this restriction. Because the restriction would remain in place after this project, Caltrans should consider whether a curve radius for a truck with a KRPA of 30' would result in reduced impacts. Again, strict adherence to a design manual is not always best.

Loss of Individual Old-Growth Trees is a Significant Impact

EPIC fundamentally disagrees with the IS' conclusion that this project would not present significant impacts as "[n]o old-growth redwoods would be affected." (IS at 104.) Caltrans fails to provide a definition of old-growth, although numerous trees affected by the project would meet other definitions of old-growth. Based on other ordinarily used definitions, this statement is false.

The IS correctly notes that the terminology concerning what is or isn't "old-growth" is confused and controversial. Old-growth can and has been used to both refer to stands of trees and to individual trees. For stands, some definitions of old-growth include areas that are part of a larger contiguous stand of old-growth, although the trees in this area may be younger. (As old-growth redwood forests can have small

naturally occurring opening.) Here, if this was the case, a fair argument could be made that this area is part of the Van Duzen-Pamplin Grove stand(s), particularly as there are still large, mature "remnant" trees remaining. As applied to individual trees, there is also not a common definition of old-growth, although EPIC notes. Some definitions use tree age and DBH for defining old-growth. Humboldt Redwood Company defines an old-growth tree as greater than 48" DBH and existing before 1800. Age of the standing trees is unknown, but multiple trees within the project would likely be defined as old-growth, including: Trees # 10256, 10175, 10890, 10932, 10975, 10981, 10987, 10991, and 11259. Further, individual old-growth trees can be defined by their characteristics, particularly "decadent" characteristics that can take many decades to develop. Again, Humboldt Redwood Company's old-growth definition includes trees that have these decadent characteristics. The information presented does not allow EPIC to determine whether old-growth characteristics are present, however, we did note on our trip to the field site that several trees exhibited large, heavy branches and other old-growth characteristics of trees that appear to have been "remnants" that survived earlier harvests.

If there is old-growth, we believe that cutting is potentially significant impact given the rarity of old-growth redwoods and the park location. If there are significant impacts, the project would need to mitigate to below a place of significance, which may require additional improvements within the old-growth of the county park.

Wildlife Surveys Required to Evaluate Impacts:

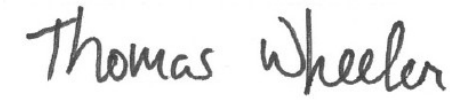
Routinely, the IS relies on the CNDDB, eBird, and other survey databases to make assumptions about whether rare plants or wildlife may be present. Overreliance on such databases is problematic because databases are only as good as the data used to populate them. For example, the CNDDB database lists a historic eagle nest site 12 miles from the Butte Creek BSA. eBird, by contrast, has a detection only 2.5 miles from the project. In the end, if there was not a concentrated survey effort nearby, there may be no data within the databases, leading to an erroneous assumption that species are not present. For example, the IS notes that "[n]o species-specific surveys were performed" for Sonoma tree voles. (IS at 62.) As a seeming justification for the failure to complete wildlife surveys for Sonoma tree voles, the IS finds in the next sentence, "The closest CNNDB [sic] detection of the Sonoma tree vole is approximately 2.1 miles from the ESL." *Id.* EPIC is concerned that the IS over-relies on survey databases that are incomplete.

Conclusion

Based on our review of the project, we urge Caltrans to modify the purpose and need for the project to examine other potential alignments and designs, particularly those that would avoid the old-growth resources around Hely Creek. We thank Caltrans for their openness to work with EPIC on identifying issues and coming up with solutions. We look forward to watching the evolution of this project.

If you have any questions or concerns, please feel free to contact EPIC at tom@wildcalifornia.org or (206) 356-8689.

Sincerely,



Thomas Wheeler
Executive Director

Caltrans' Response to Tom Wheeler (EPIC)

Purpose and Need and Alternatives Analysis

The project was initiated because of the deficiency in the bridge railings at all three bridges identified in the *Structure Replacement and Improvement Needs* (STRAIN) report (Caltrans 1984). The primary purpose is to upgrade the bridge rails to meet current traffic safety system requirements; the secondary purpose is to improve shoulder widths for safety and non-motorized users. This does not preclude studying reasonable alternatives that meet the underlying need. Many variations of the bridge designs were examined prior to circulation of the draft Initial Study, then refined and balanced to result in the proposed project.

It is correct to state that the Initial Study considers the impact from two alternatives: the proposed project and the no-build alternative. However, to provide more clarification on the bridge designs considered and reasons for eliminating them, and to document the decision-making for the project, additional information has been added to the *Alternatives Considered But Eliminated From Further Consideration* section of the Initial Study (Section 1.2).

The project does not propose standard shoulder widths at the Hely Creek location in consideration of the surrounding environment and an effort to preserve large diameter redwood trees. Although 4-foot shoulders would not be standard, it would still be an improvement to the existing 1-foot-wide shoulders, to meet the purpose of the project. The Hely Creek Bridge was built in 1927 and shows signs of damage and deterioration, documented in the *Bridge Inspection Report* (Caltrans 2018). Because of the existing bridge type and design of the Hely Creek Bridge, the existing structure cannot be widened; therefore, requires replacing.

Design Vehicle Choice May Result in More Significant Impacts

As stated in your comment letter, State Route 36 is a California Legal Route with a kingpin-to-rear-axle (KPRA) Advisory of 30-feet (Caltrans 2019). There are two types of California Legal routes, the regular California Legal routes and the KPRA Advisory Routes. Advisory routes have signs posted that state the maximum KPRA length that the route can accommodate without the vehicle off tracking outside the lane. KPRA advisories range from 30 feet to 38 feet, in 2-foot increments. California Legal vehicles are allowed to use both types of California Legal routes.

The California Legal vehicle is a truck tractor-semitrailer with the following dimensions: the maximum overall length is 65 feet; the maximum KPRA distance is 40 feet for semitrailers with two or more axles, and 38 feet for semitrailers with a single axle; the maximum width is 8.5 feet. There are also two categories of California Legal doubles (truck tractor-semitrailer-trailer); however, the doubles are not used as the design vehicle due to their shorter turning radii (Caltrans 2020). The project would be accessible to standard California Legal trucks. The CA Legal truck has a maximum KPRA of 38 feet for a single axle trailer, which is what was used in

the modeling for the project. Every project is checked for CA Legal per the Caltrans Highway Design Manual Section 404.4. It is a design consideration but, in this case, the minor curve change was not controlled by the design vehicle.

To clarify the information presented in the *Alternatives Considered But Eliminated From Further Consideration* section of the IS, realignment of the bridge to north would still result in removal of large diameter trees; additionally, there is a historic resource to the north that is avoided with the proposed alignment. The construction of a new alignment would create new disturbance in undisturbed areas and the footprint would still encompass the existing bridge alignment for demolition and associated construction access. Caltrans does not consider this a less impactful design. The existing curve radius is 490 feet and the increase to 504 feet would accommodate the widening without impacting the cluster of redwood trees near the west abutment on the south side of the bridge. Although getting trucks safely through the project area is considered in the design, the controlling factor for the alignment is the half-width construction scenario, described in Section 1.2 of the Initial Study. The first half of the bridge would be constructed as close as possible to the existing bridge while keeping one lane of traffic on the existing bridge, in order to keep the highway open during construction.

Loss of Individual Old Growth Trees is a Significant Impact

Based on the project *Tree Impact Analysis Report* (Caltrans 2020g), it was determined that the stand at Hely Creek Bridge is not old-growth; however, Caltrans agrees with EPIC's statement that there is not a consensus on the definition of old-growth forest and has removed the statement "[n]o old-growth redwoods would be affected". (draft IS at 104) from the document. Furthermore, defining characteristics of individual old-growth trees have been added to the document in Section 2.4 to provide more information for the reader.

In response to concerns from EPIC, the public, and our partnering agencies, Caltrans has made an effort to modify the project and preserve the largest trees that had originally been slated for removal. Impacts within the park have been reduced. In response to comments received on the draft Initial Study, the temporary access road on the southeast side of the bridge has been modified to relieve impacts to the root zones of a 5.5-foot DBH Coast redwood tree (tree number 10991) and a 2-foot DBHr tanoak (tree number 10992). With additional input from construction staff, Caltrans has reevaluated the feasibility of limiting the swing radius of the crane boom, to determine that these trees do not need to be cleared for construction and will instead be protected as an Environmentally Sensitive Area (ESA). The crane boom radius was also reduced to avoid removal of a 2.4 DBH Coast redwood (tree number 10986) and a 4.2 DBH Coast redwood (tree number 10987). West of the bridge, along the westbound lane, the proposed guardrail design and approach shoulder widening have been modified to protect a 6-foot DBH Coast redwood (tree number 10175), which will no longer be removed.

With these changes incorporated, the number of large diameter trees to be removed at Hely Creek has been reduced to 6 in total. Two of these are Coast Redwood, one with a DBH of 2.2

feet (tree number 10255) and one with a DBH of 4.5 feet (tree number 10256). Full discussion of the updated large diameter tree impacts is available in Section 2.4 of the Initial Study.

Caltrans is the CEQA lead agency and is responsible for making the significance determinations. Given the 0.5 acre of impacted redwood forest area at Hely Creek amounts to 1% of the habitat available in the nearby forest stands and parklands, the impact is relatively small compared to the surrounding resources and landscape and Caltrans has determined these are not significant impacts requiring mitigation.

Wildlife Surveys Required to Evaluate Impacts

Caltrans does rely on database queries, literature reviews of best available scientific information, resource agency guidance; field reviews and habitat assessments to inform resource presence or its likelihood of presence in the project area; and protocol-level species surveys conducted as necessary. Although some species are not surveyed, or detected during surveys, presence may be presumed and impacts to the species habitat are considered, when suitable habitat is present. Habitat presence within the project area for special status species is described in Appendix F of the Draft IS, Special Status Species Table.

Additional information has been added to the Sonoma tree vole discussion (Section 2.4) in the document to describe methods (duration, location, effort level) that were used for investigating tree vole use of the habitat in the project area.

Conclusion

While the purpose and need for the project remains unchanged, the project footprint has been carefully altered to incorporate concern from EPIC and reduce impacts to redwood trees.

References

California Department of Transportation (Caltrans). 1984. *Structure Replacement and Improvement Needs (STRAIN) Report*. Eureka, CA: Unpublished.

Caltrans. 2018. *Bridge Inspection Report. Structure Maintenance and Investigations Bridge Inspection Records Information System (BIRIS).* Eureka, CA: Unpublished.

Caltrans 2019. *Truck Networks on CA State Highways District 1*. Available: https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/trucks/truckmap-d01-a11y.pdf Accessed December 29, 2020.

Caltrans. 2020. *Highway Design Manual*. Seventh Edition. Available: https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm. Accessed December 29, 2020.

From: Kim Bancroft
To: Lee, Amanda@DOT
Subject: Make the Three Bridges into Two
Date: Tuesday, July 21, 2020 11:45:40 AM

EXTERNAL EMAIL. Links/attachments may not be safe.

Please retain all the old-growth, huge redwood trees of the Van Duzen when seeking to widen HUM-36. A project that impacts a half acre of precious forest is actually too much, given the sensitivity of the forest as a unified whole.

I'm sure that Cal-Trans can manage to avoid unnecessary destruction while making traffic safe. We all just need to keep slowing down when we are among the giants.

Thanks.

Kim Bancroft, Willits, CA

Caltrans' Response to Kim Bancroft

In response to concerns from EPIC, the public, and our partnering agencies, Caltrans modified the project to preserve the largest trees that had originally been slated for removal. The temporary access road on the southeast side of the bridge has been modified to relieve impacts to the root zones of a 5.5-foot DBH Coast redwood tree (tree number 10991) and a 2-foot DBH tanoak (tree number 10992). With additional input from construction staff, Caltrans has reevaluated the feasibility of limiting the swing radius of the crane boom, to determine that these trees do not need to be cleared for construction and will instead be protected as an Environmentally Sensitive Area (ESA). The crane boom radius was also reduced to avoid removal of a 2.4 DBH Coast redwood (tree number 10986) and a 4.2 DBH Coast redwood (tree number 10987). West of the bridge, along the westbound lane, the proposed guardrail design and approach shoulder widening have been modified to protect a 6-foot DBH Coast redwood (tree number 10175), which will no longer be removed. Updated large diameter tree impacts are available in Section 2.4 of the Initial Study.

Given the 0.5 acre of impacted redwood forest area at Hely Creek amounts to 1% of the habitat available in the nearby forest stands and parklands, the impact is relatively small compared to the surrounding resources and landscape and Caltrans has determined these are not significant impacts requiring mitigation.

From: g
To: Lee, Amanda@DOT
Subject: 3 Bridges
Date: Tuesday, July 21, 2020 9:44:25 AM

EXTERNAL EMAIL. Links/attachments may not be safe.

7/19/20

To Whom it May Concern,

I would like to express my opinion that we should save and protect all old growth trees, including their root system, when considering all road, bridge and infrastructure work. The Caltrans HUM-36 Three Bridges Project would rebuild two bridges and widen a third bridge along Highway 36 in Humboldt County. Because of impacts to old-growth redwoods, I urge Caltrans to modify the project slightly: to the "Two Bridges Project," not three. One bridge in particular, a proposed rebuild of a bridge over Hely Creek at Van Duzen County Park, would impact a half-acre of forest, including the removal of an old-growth redwood that measures six feet in diameter, the removal of several other large trees, and impacts to the root systems and pruning of other old-growth redwoods. That is simply not acceptable.

Thank you for your consideration.

Sincerely,

Gisele Albertine
425 Blake Court
Arcata Ca 95521

Caltrans' Response to Gisele Albertine

The project was initiated because of the deficiency in the bridge railings at all three bridges (STRAIN report). The primary purpose is to upgrade the bridge rails, the secondary purpose is to improve shoulder widths. The project proposes 4-foot shoulder widths (rather than 8-foot shoulder widths) at the Hely Creek location in consideration of the surrounding environment and an effort to preserve large diameter redwood trees. The Hely Creek Bridge was built in 1927 and shows signs of damage and deterioration (BRIS Report). Because of the existing bridge type and design of the Hely Creek Bridge, the existing structure cannot be widened; therefore, requires replacing.In response to concerns from EPIC, the public, and our partnering agencies, Caltrans has modified the project to preserve the largest trees that had been slated for removal. The temporary access road on the southeast side of the bridge has been modified to relieve impacts to the root zones of a 5.5-foot DBH Coast redwood tree (tree number 10991) and a 2-foot DBH tanoak (tree number 10992). With additional input from construction staff, Caltrans has reevaluated the feasibility of limiting the swing radius of the crane boom, to determine that these trees do not need to be cleared for construction and will instead be protected as an Environmentally Sensitive Area (ESA). The crane boom radius was also reduced to avoid removal of a 2.4 DBH Coast redwood (tree number 10986) and a 4.2 DBH coast redwood (tree number 10987). West of the bridge, along the westbound lane, the proposed guardrail design and approach shoulder widening have been modified to protect a 6-foot DBH Coast redwood (tree number 10175), which will no longer be removed. Updated large diameter tree impacts are available in Section 2.4 of the Initial Study.

Given the 0.5 acre of impacted redwood forest area at Hely Creek amounts to 1% of the habitat available in the nearby forest stands and parklands, the impact is relatively small compared to the surrounding resources and landscape and Caltrans has determined these are not significant impacts requiring mitigation.

From: Roman, Isabella@DTSC
To: Lee, Amanda@DOT
Subject: HUM-36 Three Bridges Project IS Comment
Date: Monday, July 27, 2020 3:47:42 PM

EXTERNAL EMAIL. Links/attachments may not be safe.

Hello,

I represent the Department of Toxic Substances Control reviewing the Initial Study for the HUM-36 Three Bridges Project.

Many of the topics under the Hazards and Hazardous Materials section are marked as "No Impact" based on "the scope, description and locations of the proposed project, as well as the 2019 ISA Update…" If this 2019 Initial Site Assessment (ISA) Update informed the answers to these questions it would be helpful to include this document as an Appendix to the Initial Study (as well as any other relevant reports such as the *Aerially Deposited Lead Site Investigation Report* and *Asbestos and Lead-Containing Paint Survey Report*).

Additionally, a discussion should be provided addressing each individual topic in the Hazards and Hazardous Materials section. For example, for question c, is there no impact because there are no schools within ¼ mile of the project area? For question d, is there no impact because a search of the Cortese List was conducted and there were no Cortese List projects in the project area? Any other cleanup sites (not necessarily Cortese List sites) and their potential impacts to the project site should also be discussed here.

The Initial Study text describes how lead and treated wood waste will be managed during construction. In various places in the text, there are mentions of a stormwater pollution prevention plan and following best management practices. The Hazards and Hazardous Materials section doesn't describe how construction equipment and machinery may have an impact themselves (e.g. fuels, lubricants). Please provide a discussion on potential impacts from the presence and use of construction equipment and how these impacts are minimal or will be mitigated.

Please feel free to reach out with any questions or concerns.

Sincerely,

Isabella Roman
Environmental Scientist
Site Mitigation and Restoration Program
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710
(510)-540-3879

Caltrans' Response to Isabella Roman (DTSC)

1. ***Many of the topics under the Hazards and Hazardous Materials section are marked as "No Impact" based on "the scope, description and locations of the proposed project, as well as the 2019 ISA Update…" If this 2019 Initial Site Assessment (ISA) Update informed the answers to these questions it would be helpful to include this document as an Appendix to the Initial Study (as well as any other relevant reports such as the Aerially Deposited Lead Site Investigation Report and Asbestos and Lead-Containing Paint Survey Report).***

   The Initial Site Assessment (ISA) Update, Aerially Deposited Lead Site Investigation Report and Asbestos and Lead Containing Paint Reports are listed in the Reference section of the document. Caltrans does not typically include the technical studies in the Appendix of environmental documents because it would make the documents very long. However, all technical studies are available upon request and these reports have been provided to the commenter.

2. ***Additionally, a discussion should be provided addressing each individual topic in the Hazards and Hazardous Materials section. For example, for question c, is there no impact because there are no schools within ¼ mile of the project area? For question d, is there no impact because a search of the Cortese List was conducted and there were no Cortese List projects in the project area?***

   The no impact determinations were based on the project description (including the standard protective measures Caltrans employs on all similar projects), project scope, and technical study reports. When a "No Impact" determination is made, no further discussion is warranted. To address your questions, the following responses are provided:

   b) Would the project 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?

   The project would not create a significant hazard to the public or the environment involving the release of hazardous materials. The project would replace and/or modify existing bridges and would not create or lead to reasonably foreseeable upset and accident conditions.

   c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

   No, there are no existing or proposed schools within one-quarter mile of the project.

d) Would the project 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?

No, the project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Cortese List).

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?

No, the project is not located within an airport land use plan or within two miles of a public airport or public use airport.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The project would replace and/or modify existing bridges and would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. All emergency response agencies in the project area would be notified of the project construction schedule and would have access to State Route 36 throughout the construction period.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The project would replace and/or modify existing bridges and would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

3. ***Any other cleanup sites (not necessarily Cortese List sites) and their potential impacts to the project site should also be discussed here.***

   The nearest cleanup sites to the project area are in Bridgeville, CA (GeoTracker) including the Caltrans Bridgeville Maintenance Station, which is just north of the Little Larabee Creek Bridge. Cleanup of these sites is complete, and all cases are closed. The work from the project would not extend into these sites and potential impacts are not anticipated.

4. ***The Initial Study text describes how lead and treated wood waste will be managed during construction. In various places in the text, there are mentions of a stormwater pollution prevention plan and following best management practices. The Hazards and Hazardous Materials section doesn't describe how construction equipment and machinery may have***

an impact themselves (e.g. fuels, lubricants). Please provide a discussion on potential impacts from the presence and use of construction equipment and how these impacts are minimal or will be mitigated.

Please see attached excerpt from Caltrans 2018 Standard Specifications. Section 13-4 Job Site Management discusses standard spill prevention and control measures to be implemented during construction. This includes requirements for cleaning vehicles and equipment, containing fueling and maintenance areas, the use of drip pans under equipment working over water, and keeping enough absorbents and spill kits on hand for cleanup. With standard job site management practices in place, impacts from equipment and machinery in regard to hazards and hazardous materials are not anticipated.

Continue SWPPP implementation during any suspension of work activities.

13-3.04 PAYMENT

For a project with 60 original working days or less, the Department pays for prepare stormwater pollution prevention plan as follows:

1. Total of 75 percent of the item total upon authorization of the SWPPP
2. Total of 100 percent of the item total upon Contract acceptance

For a project with more than 60 original working days, the Department pays for prepare stormwater pollution prevention plan as follows:

1. Total of 50 percent of the item total upon authorization of the SWPPP
2. Total of 90 percent of the item total upon work completion
3. Total of 100 percent of the item total upon Contract acceptance

The Department does not pay for the preparation, collection, laboratory analysis, and reporting of stormwater samples for nonvisible pollutants if WPC practices are not implemented before precipitation or if you fail to correct a WPC practice before precipitation.

The Department pays:

1. $500 for each authorized rain event action plan
2. $2,000 for each authorized stormwater annual report

The Department does not adjust the unit price for an increase or decrease in the quantity of:

1. Rain event action plan
2. Storm water sampling and analysis day
3. Storm water annual report

13-4 JOB SITE MANAGEMENT

13-4.01 GENERAL

13-4.01A Summary

Section 13-4 includes specifications for performing job site management work.

Job site management work includes spill prevention and control, material management, waste management, nonstormwater management, and dewatering activities.

Temporary linear sediment barriers must comply with section 13-10.

13-4.01B Definitions

minor spill: Spill of oil, gasoline, paint, or other materials in such small quantities that can easily be controlled by a first responder upon discovery of the spill.

semisignificant spill: Spill of oil, gasoline, paint, or other materials in quantities that can be controlled by a first responder with help from other personnel.

significant or hazardous spill: Spill of oil, gasoline, paint, or other materials in quantities that cannot be controlled by job site personnel.

13-4.01C Submittals

At least 15 days before the start of dewatering activities, submit a dewatering and discharge work plan. The dewatering and discharge work plan must include:

1. Title sheet and table of contents
2. Description of dewatering and discharge activities detailing the locations, quantity of water, equipment, and discharge point
3. Estimated schedule for dewatering and the discharge start and end dates of intermittent and continuous activities
4. Discharge alternatives, such as dust control or percolation

5. Visual monitoring procedures with inspection log
6. Copy of the approval to discharge into a sanitary sewer system

For material used or stored within the job site, submit the following documents as informational submittals:

1. SDS at least 5 business days before material is used or stored
2. Monthly inventory records

Submit approval from the local health agency, city, county, and sewer district before discharging from a sanitary or septic system directly into a sanitary sewer system.

Submit a discharge notification upon discovery of a spill or discharge of materials into a body of water.

13-4.01D Quality Assurance

Reserved

13-4.02 MATERIALS

Not Used

13-4.03 CONSTRUCTION

13-4.03A General

Implement effective housekeeping practices for handling, storing, using, and disposing of materials to prevent pollution. Limit potential pollutants at their source before they come in contact with stormwater.

13-4.03B Spill Prevention and Control

13-4.03B(1) General

Keep material or waste storage areas clean, well organized, and equipped with enough cleanup supplies for the material being stored.

Implement spill and leak prevention procedures for chemicals and hazardous substances stored on the job site. If you spill or your equipment or materials leak chemicals or hazardous substances at the job site, you are responsible for all associated cleanup costs and related liability.

Prevent spills from entering stormwater runoff before and during cleanup activities. Do not bury the spill or wash it with water.

Immediately report spills to the WPC manager.

As soon as it is safe, contain and clean up spills of petroleum materials and sanitary and septic waste substances listed in 40 CFR, parts 110, 117, and 302. Comply with section 14-11 for a spill or leak that produces hazardous waste.

13-4.03B(2) Minor Spills

Clean up a minor spill as follows:

1. Contain the spread of the spill.
2. Recover the spilled material using absorbents.
3. Clean the contaminated area.
4. Promptly dispose of the contaminated material and absorbents.

13-4.03B(3) Semisignificant Spills

Immediately clean up a semisignificant spill as follows:

1. Contain the spread of the spill.
2. On a paved or other impervious surface, encircle and recover the spilled material with absorbents.
3. On soil, construct an earthen dike and dig up the contaminated soil for disposal.
4. During precipitation, cover the spill with 10-mil plastic sheeting or other material to prevent contamination of the runoff.
5. Promptly dispose of the contaminated material and absorbents.

13-4.03B(4) Significant or Hazardous Spills

Immediately notify the Engineer and qualified personnel of a significant or hazardous spill. Handle the spill as follows:

1. Do not attempt to clean up the spill until qualified personnel have arrived.
2. Obtain the immediate services of a spill contractor or hazardous material team.
3. Notify local emergency response teams by dialing 911 and county officials by using the emergency phone numbers retained at the job site.
4. Notify the California State Warning Center at (800) 852-7550.
5. Notify the National Response Center at (800) 424-8802 regarding spills of Federal reportable quantities under 40 CFR 110, 117, and 302.
6. Notify other agencies as appropriate, including:
   - 6.1. Fire department
   - 6.2. Public works department
   - 6.3. US Coast Guard
   - 6.4. California Highway Patrol
   - 6.5. City police or county sheriff's department
   - 6.6. DTSC
   - 6.7. Department of Conservation, Division of Oil, Gas, and Geothermal Resources
   - 6.8. Cal/OSHA
   - 6.9. RWQCB

13-4.03B(5)–13-4.03B(6) Reserved

13-4.03C Material Management

13-4.03C(1) General

Minimize or eliminate discharge of material into the air, storm drain systems, and receiving waters while taking delivery of, using, or storing the following materials:

1. Hazardous chemicals, including acids, lime, glues, adhesives, paints, solvents, and curing compounds
2. Soil stabilizers and binders
3. Fertilizers
4. Detergents
5. Plaster
6. Petroleum materials, including fuel, oil, and grease
7. Asphalt and concrete components
8. Pesticides and herbicides

Employees trained in emergency spill cleanup procedures must be present during the unloading of hazardous materials or chemicals.

Minimize the use of hazardous materials if practicable.

Perform each of the following activities at least 100 feet from a concentrated flow of stormwater, a drainage course, or an inlet wherever it is performed (1) within the floodplain or (2) at least 50 feet outside the floodplain:

1. Stockpiling materials
2. Storing pile-driving equipment and liquid waste containers
3. Washing vehicles and equipment in outside areas
4. Fueling and maintaining vehicles and equipment

13-4.03C(2) Material Storage

Store materials in their original containers with the original labels maintained in legible condition. Immediately replace damaged or illegible labels.

Comply with section 14-11.03 for the storage of liquids, petroleum materials, and substances listed in 40 CFR 110, 117, and 302.

Store bagged or boxed material on pallets. Protect bagged or boxed material from wind and rain during non–working days and whenever precipitation is forecasted.

13-4.03C(3) Stockpile Management

Minimize stockpiling of materials at the job site.

Do not allow soil, sediment, or other debris from stockpiles to enter storm drains, open drainages, or watercourses.

Manage stockpiles by implementing WPC practices on:

1. Active stockpiles before a forecasted storm event
2. Inactive stockpiles according to the WPCP or SWPPP schedule

Cover active and inactive soil stockpiles with soil stabilization material or a temporary cover and surround them with a linear sediment barrier.

Cover stockpiles of concrete and asphalt concrete rubble, HMA, AB, or AS with a temporary cover and surround them with a linear sediment barrier.

Place stockpiles of pressure-treated wood on pallets and cover them with an impermeable material.

Place stockpiles of cold mix asphalt concrete on an impervious surface and cover them with an impermeable material. Protect the stockpile from stormwater run-on and runoff.

Repair or replace linear sediment barriers and covers as needed to keep them functioning properly. If sediment accumulates to 1/3 of the linear sediment barrier's height, remove the accumulated sediment.

13-4.03C(4)–13-4.03C(6) Reserved

13-4.03D Waste Management

13-4.03D(1) General

Manage solid waste under section 14-10.

Manage hazardous waste under section 14-11.

13-4.03D(2) Paint Waste

Clean water-based and oil-based paint from brushes or equipment within a contained area to prevent contamination of soil, receiving waters, or storm drain systems. Handle and dispose of paints, thinners, solvents, residues, and sludges that cannot be recycled or reused as hazardous waste under section 14-11. When thoroughly dry, dispose of dry latex paint, paint cans, used brushes, rags, absorbent materials, and drop cloths as solid waste under section 14-10.

13-4.03D(3) Concrete Waste

Prevent the discharge of concrete and asphalt concrete waste into storm drain systems and receiving waters.

Collect concrete waste simultaneously with the waste-producing activity. Concrete waste includes grout, dust, debris, residue, and slurry from demolition, saw cutting, coring, grooving, or grinding activities.

Dispose of liquid residue from concrete grooving or grinding activities at an appropriately permitted disposal facility.

If authorized, you may transport liquid grooving or grinding residue to a contractor-support facility for drying.

13-4.03D(4) Sanitary and Septic Waste

Do not bury or discharge wastewater from a sanitary or septic system within the highway. A sanitary facility discharging into a sanitary sewer system must be properly connected and free from leaks. Place a portable sanitary facility at least 50 feet away from storm drains, receiving waters, and flow lines.

Comply with local health agency regulations if using an on-site disposal system.

13-4.03D(5) Liquid Waste

Prevent job-site liquid waste from entering storm drain systems and receiving waters. Liquid wastes include:

1. Drilling slurries or fluids
2. Grease- and oil-free wastewater and rinse water
3. Dredgings, including liquid waste from cleaning drainage systems
4. Liquid waste running off a surface, including wash and rinse water
5. Other nonstormwater liquids not covered by separate permits

Store liquid waste in structurally sound, leak-proof containers, such as roll-off bins or portable tanks.

Provide enough liquid waste containers with enough volume to prevent overflow, spills, and leaks.

Store containers at least 50 feet from moving vehicles and equipment.

Remove and dispose of deposited solids from sediment traps under section 14-10 unless another method is authorized.

Liquid waste may require testing to determine hazardous material content before disposal.

Dispose of drilling fluids and residue.

If an authorized location is available within the job site, fluids and residue exempt under 23 CA Code of Regs § 2511(g) may be dried by evaporation in a leak-proof container. Dispose of the remaining solid waste under section 14-10.

13-4.03D(6)–13-4.03D(8) Reserved

13-4.03E Nonstormwater Management

13-4.03E(1) General

Use water for work activities such that erosion and the discharge of pollutants into storm drain systems and receiving waters are prevented. Obtain authorization before washing anything at the job site with water that could discharge into a storm drain system or receiving waters. Immediately report discharges.

Sweep and vacuum paved areas. Do not wash paved areas with water.

Direct runoff water, including water from the repair of a water line, from the job site to areas where it can infiltrate into the ground. Do not allow spilled water to escape the areas used to fill water trucks. Manage run-on to minimize contact with job site water.

13-4.03E(2) Illicit Connection and Illegal Discharge Detection and Reporting

Before starting work and daily thereafter, inspect the job site and its perimeter for the following evidence of illicit connections, illegal discharges, and dumping:

1. Debris or trash piles
2. Staining or discoloration on pavement or soils
3. Pungent odors coming from drainage systems
4. Discoloration or an oily sheen on water
5. Stains and residue in ditches, channels, or drain boxes
6. Abnormal water flow during dry weather
7. Excessive sediment deposits
8. Nonstandard drainage junction structures
9. Broken concrete or other disturbances at or near junction structures

If evidence of an illegal connection, discharge, or dumping is discovered, immediately notify the Engineer. Do not take further action unless ordered. Assume that unlabeled or unidentifiable material is hazardous.

13-4.03E(3) Vehicle and Equipment Cleaning

Limit vehicle and equipment cleaning or washing at the job site except for the safety and protection of the equipment and as needed to comply with PLACs. Notify the Engineer before cleaning vehicles and equipment at the job site with soap, solvents, or steam. Contain and recycle or dispose of resulting waste

under section 14-11 or section 13-4.03D(5), whichever is applicable. Do not use diesel to clean vehicles or equipment. Minimize the use of solvents.

Clean or wash vehicles and equipment in a structure equipped with disposal facilities. You may wash vehicles in an outside area if the area is:

1. Paved with concrete or asphalt concrete
2. Surrounded by a containment berm
3. Equipped with a sump to collect and dispose of wash water

Use as little water as practicable when washing vehicles and equipment. Hoses must be equipped with a positive shutoff valve.

Discharge the liquid from wash racks to a recycling system or to another authorized system. Remove liquids and sediment as necessary.

13-4.03E(4) Vehicle and Equipment Fueling and Maintenance

If practicable, perform maintenance on vehicles and equipment off-site.

If fueling or maintenance must be performed at the job site, obtain authorization for an assigned area or areas for these activities before using them. Minimize mobile fueling and maintenance activities. Perform fueling and maintenance activities on level ground in areas protected from stormwater run-on and runoff.

Use containment berms or dikes around fueling and maintenance areas. Keep enough absorbents and spill kits in the fueling or maintenance area and on fueling trucks to handle potential spills. Dispose of spill-cleanup material and kits immediately after use. Use drip pans or absorbent pads during fueling or maintenance.

Do not leave fueling or maintenance areas unattended during fueling and maintenance activities. Fueling nozzles must be equipped with (1) an automatic shutoff control and (2) vapor recovery where required by the Air Quality Management District. Secure nozzles in an upright position when not in use. Do not top off fuel tanks.

Recycle or properly dispose of used batteries and tires.

If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.

13-4.03E(5) Material and Equipment Used Over Water

Place drip pans and absorbent pads under vehicles and equipment used over water. Keep enough spill-cleanup material with the vehicles and equipment to handle potential spills. Place drip pans or plastic sheeting under vehicles and equipment on docks, barges, or other surfaces over water whenever the vehicles or equipment will be idle for more than 1 hour.

Install watertight curbs or toe boards on barges, platforms, docks, or other surfaces over water to contain material, debris, and tools. Secure any material or debris to prevent spills or discharge into the water due to wind.

Report discharges to receiving waters immediately upon discovery.

13-4.03E(6) Structure Removal Over or Adjacent to Water

Do not allow demolished material to enter storm drain systems and receiving waters. Use authorized covers and platforms to collect debris. Use attachments on equipment to catch debris during small demolition activities. Empty debris-catching devices daily and handle debris under section 13-4.03D.

13-4.03E(7) Paving, Sealing, Saw Cutting, Grooving, and Grinding Activities

Prevent the following materials from entering storm drain systems and receiving waters:

1. Cementitious material
2. Asphaltic material
3. Aggregate or screenings
4. Saw cutting, grooving, and grinding residue
5. Pavement chunks
6. Shoulder backing

7. Methacrylate resin
8. Sandblasting residue

Cover drainage inlets and use linear sediment barriers to protect downhill receiving waters until paving, saw cutting, grooving, and grinding activities are completed and excess material has been removed. Cover drainage inlets and manholes during the application of seal coat, tack coat, slurry seal, or fog seal.

Whenever precipitation is forecasted, limit paving, saw cutting, and grinding to places where runoff can be captured.

Do not start seal coat, tack coat, slurry seal, or fog seal activities when precipitation is forecasted during the application and curing period.

Do not grind or groove pavement during precipitation.

Use a vacuum to remove slurry immediately after it is produced. Do not allow the slurry to run onto lanes open to traffic or off the pavement.

Collect the residue from grooving and grinding activities with a vacuum attachment on the grinding machine. Do not leave the residue on the pavement or allow it to flow across the pavement.

You may stockpile material removed from existing roadways under section 13-4.03C(3) if authorized.

Do not coat asphalt trucks and equipment with substances that contain soap, foaming agents, or toxic chemicals.

When paving equipment is not in use, park the paving equipment over drip pans or plastic sheeting with absorbent material to catch drips.

13-4.03E(8) Thermoplastic Striping and Pavement Markers

Do not preheat, transfer, or load thermoplastic within 50 feet of drainage inlets or receiving waters.

Do not unload, transfer, or load bituminous material for pavement markers within 50 feet of drainage inlets or receiving waters.

Collect and dispose of bituminous material from the roadway after removing markers.

13-4.03E(9) Pile Driving

Keep spill kits and cleanup materials at pile driving locations. Park pile driving equipment over drip pans, absorbent pads, or plastic sheeting with absorbent material. Protect pile driving equipment by parking it on plywood and covering it with plastic if precipitation is forecasted.

Store pile driving equipment on level ground and protect it from stormwater run-on when not in use. Use vegetable oil instead of hydraulic fluid if practicable.

13-4.03E(10) Concrete Curing

Do not overspray chemical curing compounds. Minimize the drift by spraying as close to the concrete as practicable. Do not allow runoff of curing compounds. Cover drainage inlets before applying the curing compound.

Minimize the use and discharge of water by using wet blankets or similar methods to maintain moisture when concrete is curing.

13-4.03E(11) Concrete Finishing

Collect and dispose of (1) water and solid waste from high-pressure water blasting and (2) sand and solid waste from sandblasting. Before sandblasting, cover drainage inlets within 50 feet of the sandblasting. Minimize the drift of dust and blast material by keeping the nozzle close to the surface of the concrete. If the character of the blast residue is unknown, test for hazardous materials and dispose of it.

Inspect the containment structures for concrete-finishing waste for damage before each day of use and before forecasted precipitation. Remove the liquid and solid waste from the containment structures after each work shift.

13-4.03E(12)–13-4.03E(15) Reserved

13-4.03F Sweeping

Sweep by hand or mechanical methods, such as vacuuming. Do not use mechanical kick brooms.

Sweep paved roads at construction entrance and exit locations and paved areas within the job site:

1. During clearing and grubbing activities
2. During earthwork activities
3. During trenching activities
4. During pavement-structure construction activities
5. When vehicles are entering and leaving the job site
6. After soil-disturbing activities
7. After observing off-site tracking of material

Monitor paved areas and roadways within the project. Sweep within:

1. 1 hour if sediment or debris is observed during activities requiring sweeping
2. 24 hours if sediment or debris is observed during activities not requiring sweeping

Remove collected material, including sediment, from paved shoulders, drain inlets, curbs and dikes, and other drainage areas. You may stockpile collected material at the job site. Dispose of collected material at least once per week if stockpiled.

You may dispose of sediment within the job site collected during sweeping activities. Protect the disposal areas against erosion.

Keep dust to a minimum during street sweeping activities. Use water or a vacuum whenever dust generation is excessive or sediment pickup is ineffective.

13-4.03G Dewatering

Dewatering consists of discharging accumulated stormwater, groundwater, or surface water from excavations or temporary containment facilities.

Perform dewatering work as specified for the work items involved, such as a temporary ATS or dewatering and discharge.

If dewatering and discharging activities are not specified for a work item and you perform dewatering activities:

1. Conduct dewatering activities under the Department's *Field Guide for Construction Site Dewatering*.
2. Ensure any dewatering discharge does not cause erosion, scour, or sedimentary deposits that could impact natural bedding materials.
3. Discharge the water within the project limits. Dispose of the water if it cannot be discharged within project limits due to site constraints or contamination.
4. Do not discharge stormwater or nonstormwater that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Immediately notify the Engineer upon discovering any such condition.

13-4.03H–13-4.03J Reserved

13-4.04 PAYMENT

Not Used

13-5 TEMPORARY SOIL STABILIZATION

13-5.01 GENERAL

Section 13-5 includes specifications for placing temporary soil stabilization materials.

Move-in and move-out for temporary erosion control includes:

1. Moving onto the job site when the Engineer determines an area is ready to receive temporary soil stabilization materials
2. Setting up all required personnel and equipment

Appendix J. USFWS Section 7 Consultation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish and Wildlife Office
1655 Heindon Road
Arcata, California, 95521
Phone: (707) 822-7201 FAX: (707) 822-8411

In Reply Refer To:
AFWO-21B0035-21F0261

Jason Meyer, Branch Chief
Environmental Management E2
California Department of Transportation, District 1
P.O. Box 3700
Eureka, California 95501

Subject: Formal consultation for the proposed HUM 36 Three Bridges Project, Humboldt County, California

Dear Mr. Meyer:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on the California Department of Transportation's (Caltrans) proposed HUM 36 Three Bridges Project (EA 01-0C500), Humboldt County, California, based on our review of the proposed project and its effects on the federally threatened marbled murrelet (*Brachyramphus marmoratus*; murrelet). We received your request for murrelet formal consultation for the Hely Creek Bridge site on 3 May 2021. The Little Larabee Creek and Butte Creek bridge sites are outside of the known range of the murrelet and thus will not be addressed in this biological opinion. Caltrans also requested concurrence on a may affect, but not likely to adversely affect (NLAA) determination for potential impacts to the federally threatened northern spotted owl (*Strix occidentalis caurina*; spotted owl) at all three bridge sites. No designated murrelet or spotted owl critical habitat occurs within the action areas of the three bridge sites.

This document was prepared in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(Act) and its implementing regulations (50 CFR §402) and is based on information provided in a biological assessment from Caltrans, correspondence between Caltrans environmental staff and the Service, field investigations, geospatial analyses, and other information contained in our files.

CONCURRENCE

The Service concurs with Caltrans' may affect, but not likely to adversely affect determination for potential impacts to the spotted owl at all three bridge sites. The Service's concurrence is based on the following:

- Spotted owl surveys using the Service's disturbance-only protocol (i.e., 6 visits in one year; Service 2012) were conducted at all three bridge sites. Surveys covered all suitable spotted

owl habitat within 0.25 mi. (0.40 km) of the bridge sites. No spotted owls were detected at the Butte Creek Bridge site. One spotted owl was detected approximately 0.32 mi. (0.20 km) east of the Little Larrabee Creek Bridge, and one spotted owl was detected approximately 0.27 mi. (0.43 km) southeast of the Hely Creek Bridge. Both detections were only a few hundred feet from existing spotted owl detections near the two bridge sites.

- Pile driving at the Hely Creek and Little Larabee Creek bridge sites, where a spotted owl was detected during Service protocol (Service 2012) surveys, will occur after 9 July (i.e., after fledglings are relatively mobile), meeting a standard Service criterion for a NLAA determination for the spotted owl. Pile driving at the Butte Creek bridge site will occur after 15 June. Because no spotted owls were detected at Butte Creek, the Service considers that pile driving earlier in the nesting season than the 9 July standard will not result in an adverse effect to spotted owls and thus will still meet the Service's criteria for a NLAA determination.
- Pile driving will generate the highest sound levels, but only for 4 to 7 days each season for two seasons at each bridge site. Elevated sound levels from pile driving are expected to attenuate back to ambient sound levels within 500 feet (ft.; 150 meters (m)) of the sound source based on the Service's auditory and visual disturbance guidelines (Service 2020). Except during the short-term pile driving, elevated sound levels at all three bridge sites are expected to attenuate back to ambient sound levels within 165 ft. (50 m) of the sound source (Service 2020). The distance between the three bridge sites and any known spotted owl activity center is estimated to be ≥0.45 miles (mi.; 0.72 kilometers (km)). The action areas for the three bridge sites overlap home ranges for two spotted owl territories at Hely Creek and one each at Little Larabee and Butte creeks. However, a relatively small amount of suitable nesting/roosting habitat within each spotted owl home range will be exposed to elevated sound levels from pile driving and even less habitat will be exposed to lower sound levels from other construction activities. Therefore, the effect of elevated sound levels from proposed work activities is considered either insignificant or discountable.
- Potentially suitable spotted owl nest trees will be removed outside the spotted owl nesting season (i.e., from 16 September through 31 January of the following year). The areal extent of suitable spotted owl nesting/roosting habitat that will be removed at the three bridge sites is insignificant: no suitable nesting/roosting habitat will be removed at the Hely Creek Bridge site; approximately 80 square feet (ft^2) will be removed at the Little Larabee Creek Bridge site; and approximately 124 ft^2 of low quality (i.e., with smaller tree diameters than higher quality habitat) nesting/roosting habitat will be removed at the Butte Creek Bridge site.

CONSULTATION HISTORY

13 March 2019	Service biologist, Gregory Schmidt, attended a "roll-out" meeting for the project. Reviewed Caltrans project biologist, Ali Thiel's, meeting notes regarding potential impacts to federally listed species. Reviewed and approved spotted owl survey station locations for all three bridge sites.
13 June 2019	Service biologist, Gregory Schmidt, attended a field site visit and assessed the potential for impacts to murrelet and spotted owl habitat, potential impacts to either species from elevated sound levels and visual disturbance from construction activities, and whether suitable habitat for the yellow-

billed cuckoo (*Coccyzus americanus*) occurred within the action area. Mr. Schmidt determined that suitable yellow-billed cuckoo foraging habitat occurred within the action area, but that the relatively small patches of riparian vegetation were too small to support nesting cuckoos. Mr. Schmidt also determined that the project would result in a "no effect" for the federally threatened coastal DPS of the Pacific marten because all three bridge locations are over 50 miles south of the known occupied distribution of the marten DPS.

9 April 2020: Service biologist, Gregory Schmidt, met with Caltrans' project biologist, Hilary Sundeen, regarding the level of section 7 consultation and Caltrans' impact determinations and proposed avoidance and minimization measures for the murrelet, spotted owl, and the fisher (Note: the fisher ended up not being federally listed in northern California and thus will not be mentioned again in this consultation).

9 April 2021: Service biologist, Gregory Schmidt, received a draft biological assessment from Caltrans' biologist, Jennifer Brown. Review comments from Mr. Schmidt were returned to Ms. Brown on 15 April 2021.

27 April 2021: Service biologist, Gregory Schmidt, received an email from Caltrans' project biologist, Jennifer Brown, confirming that pile driving at the two bridge locations where spotted owls were detected during surveys can begin after 9 July, thus meeting criteria for a may affect, but not likely to adversely affect determination for the spotted owl. No spotted owls were detected at the Butte Creek Bridge site and pile driving will begin after 15 June without resulting (in Mr. Schmidt's opinion) in an adverse effect. Because adverse effects to the spotted owl aren't anticipated, only informal consultation will be required for the spotted owl at all three bridge locations.

3 May 2021: Service biologist, Gregory Schmidt, received a request for formal consultation and a final biological assessment for the murrelet and a request for concurrence for the spotted owl. Gregory Schmidt agreed to complete the murrelet biological opinion by 28 May 2021 to meet Caltrans' delivery schedule.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Caltrans proposes to replace the existing single span, concrete Hely Creek Bridge, on State Route 36 (SR 36) at Post Mile (PM) 11.45 approximately 1 road mile (1.6 km) east of Carlotta, California, with a 36-foot (ft.)-wide by 75-ft.-long single span bridge. With the longer new bridge, grading of the banks of Hely Creek is needed to provide a stable transition to the finished grade of the embankment. The proposed project also includes widening of the bridge lanes from 11.5 ft. to 12.0 ft., and bridge and approach shoulders from 1 ft. to 4 ft. The centerline will shift to the north requiring realignment and widening of the roadway approaches. However, on the west side of the bridge, widening of the eastbound shoulder and Midwest Guardrail System (MGS) installation will not begin until approximately 100 ft. from the bridge to avoid a large diameter redwood tree. The existing drainage pattern at the site will be maintained; however, existing roadside ditches will be shifted to accommodate shoulder widening. To limit traffic delays, the new bridge will be built by half-width construction (i.e., one lane built during construction year one and the other lane constructed the following year).

Hely Creek Bridge replacement will include the following actions:

- Clearing and grubbing of vegetation and trees for work pads and to allow temporary equipment access. Thirty-five trees will be removed. Only one of the 35 trees to be removed is potentially suitable for murrelet nesting.
- Temporary dewatering of creek for cofferdam and debris contaminant system installation.
- Removal of westbound bridge rail and 5 ft. of westbound edge of existing bridge.
- Removal of east abutment and spread footing of existing bridge via jackhammer and backhoe or stripping excavation.
- Shoring to stabilize existing bridge on east side.
- Construction of the new bridge deck and construction of new girders underneath the deck.
- Installation of 12 cast-in-drilled-hole (CIDH) piles (24-inch diameter 40-ft. length), or 12 driven steel H-piles 14 x 117 (i.e., 14-inch flanges, 117 lbs./ft).
- Construction of new east and west abutments, and if needed, new wing walls.
- Bridge construction using either a cast-in-place (with falsework) or pre-cast (no falsework) method.
- Bridge backfilling, construction of approach slabs, and installation of bridge barrier rails.
- Drainage improvement at Redwood House Road culvert.
- Construction of the realigned roadway approaches and transitions with new sub-base, base, hot mix asphalt and geo-synthetic pavement interlayer.

Typical equipment used for construction include backhoe, concrete pump truck, concrete saw, cranes, drill rig truck, excavator, heavy trucks, hoe ram, impact pile drivers, jackhammers, man

lift, portable generators, pneumatic tools, vibratory hammers, pavers, compactors, and other pumps.

Construction activities are expected to begin in late spring of 2022 and completed in the fall of 2023.

Action Area

The action area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR §402.02). For purposes of this biological opinion, the action area for this project includes the old Hely Creek Bridge (the "bridge footprint"), and the "construction footprint" that includes the bridge footprint plus the SR 36 roadway and shoulders from PM 11.4 to PM 11.6, access road areas extending approximately 45 ft. north and 45 ft. south of the roadway into vegetated areas, and staging areas to the east and west of the bridge.

Applying the Service's auditory and visual disturbance guidelines (Service 2020), the action area also includes: (1) a 165 ft. auditory disturbance buffer around the construction footprint to account for areas that will be exposed to elevated sound levels from all construction activities except pile driving, (2) a 330-ft. buffer around the construction footprint to account for visual disturbance from construction equipment and personnel, and (3) a 500-ft. auditory disturbance buffer around the bridge footprint to account for areas that will be exposed to elevated sound levels from pile driving. Refer to the **Effects of the Action** section below for details. The construction footprint plus the 165-ft. and 330-ft. buffers are completely within the 500-ft. buffer around the bridge footprint. When the 500-foot buffer for indirect impacts from elevated sound levels from pile driving are added to the bridge footprint, the total action area is approximately 21 acres (ac.).

Conservation Measures

The proposed action includes the following conservation measures that will be implemented to avoid and minimize potential adverse effects to murrelets.

- Vegetation removal will be restricted to the non-nesting season (i.e., 16 September through the following 23 March). None of the 35 trees planned for removal occur within suitable murrelet nesting habitat, and only one tree (a residual 54-in.-DBH redwood) of the 35 is a potential nest tree.
- Pile driving will be restricted to after 9 July and to a daily work window of 2 hours after sunrise and 2 hours prior to sunset between 10 July and 15 September. This restriction aims to minimize auditory disturbance to dependent murrelet chicks in nests, and to adult murrelets during morning and evening prey deliveries to the nest. The diurnal daily work window may be discontinued after 15 September (i.e., during the non-nesting season).
- All food and trash will be contained and packed out of the project site at the end of each work day, thus minimizing the potential for murrelet nest predators (i.e., corvids: ravens, crows, jays) to be attracted to work areas.

Environmental Setting

Hely Creek is a perennial tributary of the Van Duzen River with the confluence only about 800 ft. downstream from the bridge. The Van Duzen River is a major tributary to the Eel River, which flows into the Pacific Ocean approximately 15 mi. (24 km) south of Eureka, California. The Eel River is the third largest river in California with a drainage area of 3,684 mi^2: The four primary tributaries are the Van Duzen, South Fork Eel, North Fork Eel, and Middle Fork Eel rivers. The Eel River receives a significant amount of sediment due to natural hillslope erosion occurring on fragile, unconsolidated soils, and soft bedrock driven by large amounts of rainfall. Terrestrial habitats in the action area are characteristic of the Northwestern Region of the California Floristic Province, specifically in the Outer North Coast Ranges sub-region. Hely Creek flows through approximately 3.6 mi^2 of forested terrain and resides in the lower Van Duzen River Subbasin.

The Hely Creek Bridge action area is influenced by the coastal marine climate, characterized by mild, foggy summers and wet winters. The action area has a nearly year-round growing season with average monthly temperatures ranging from a low of approximately 48 degrees Fahrenheit (°F) to a high of approximately 65 °F; and average annual rainfall of approximately 48 inches.

STATUS OF THE SPECIES

This section summarizes the legal and biological status, and key threats to the murrelet within its historical range. For this consultation, we have considered all information provided in this section in our assessment of the project effects. The following describes those aspects of the species' ecology and its threats that have direct bearing on the analysis of the proposed action being considered in this consultation.

Legal Status

The murrelet was listed as threatened in Washington, Oregon, and northern California on 28 September 1992 (57 FR 45328). On 24 May 1996, the Service designated critical habitat for the murrelet in Washington, Oregon, and California (61 FR 26256). On 5 October 2011, the Service published a final rule revising critical habitat for the murrelet (76 FR 61599). On 4 August 2016, the Service determined that critical habitat for the murrelet as designated in 1996 and revised in 2011, met the statutory definition of critical habitat under the Act (81 FR 51348). The current designation includes 3,698,100 ac. of critical habitat in Washington, Oregon, and California. The Service published a recovery plan for the murrelet in September 1997 (Service 1997).

Taxonomy and Range

The murrelet is a small seabird that inhabits the coastal forests and nearshore marine environment along the Pacific coast of North America from southern California to southern Alaska and the Aleutian Islands (Carter and Morrison 1992, Nelson 1997, Ralph et al. 1995). The breeding range of the murrelet extends along the Pacific Coast from Alaska to Monterey Bay in central California. Some wintering birds occur as far south as northern Baja California, Mexico. However, only the Washington, Oregon, and California population segment is federally listed as threatened (57 FR 45328).

Limited information is available on murrelet historical distribution and abundance; however, most summaries give indications that the distribution of murrelet populations was significantly reduced as habitat was removed throughout its' range. Populations declined as a result. In some areas, murrelets have been locally extirpated, or only small numbers persist, risking maintenance of the species' distribution. These areas were identified as "areas of concern" (Service 1997). The areas included distribution gaps in central California, northwestern Oregon, and southwestern Washington, where very little suitable habitat remains, and what habitat does remain occurs in small patches.

Biology and Ecology

Murrelets are long-lived seabirds that spend most of their life in the marine environment, with breeding adult birds annually nesting in the forest canopy of mature and old-growth forests. Because of their small body size, cryptic plumage, crepuscular activity, fast flight speed, solitary nesting behavior, and secretive behavior near nests, murrelet nests have been extremely difficult to locate (Hamer and Nelson 1995). Breeding occurs from about 24 March through 15 September, is asynchronous, and spread over a more prolonged season than for most temperate seabirds. Murrelets have a naturally low reproductive rate; they lay just one egg and supposedly first breed at age 3. Re-nesting in the event of nest failure appears to be uncommon but does occur (Hébert et al. 2003b, Piatt et al. 2007). Incubation is shared by both sexes with incubation shifts lasting 24 hours and exchanges occurring at dawn (Nelson 1997). Chicks fledge 27 to 40 days after hatching (Nelson 1997). Flights by adults are made from ocean feeding areas to inland nest sites at all times of the day, but most often at dusk and dawn (Hamer and Cummins 1991, Nelson and Hamer 1995).

Murrelets are known to be opportunistic feeders, diving after small schooling fish and large pelagic crustaceans (e.g., euphausiids, mysids, amphipods). They will carry a single energy-dense fish to their chick: typically, larger sand lance, immature herring, anchovy, smelt, and occasionally salmon smolts (Burkett et al. 1995, Carter and Sealy 1987, Nelson 1997).

Habitat Use

Throughout most of their breeding range, including the listed range from Washington to California, murrelets use old-growth coniferous forest habitat for nesting, and forage in the nearshore marine environments. Nests are not built, but rather the egg is placed in a small depression or cup made in moss or other debris on the limb (Service 1997). At the northern end of the range, ground-nesting occurs in the Aleutian Islands and parts of southern Alaska. The distance inland that murrelets breed is variable and influenced by a number of factors; however, the Service considers 50 mi. (80 km) as the maximum inland distance for determining habitat suitability and amount of habitat within the listed range (Service 2009).

In California, radio-marked murrelets confirmed that breeders forage more closely to nesting habitat once nesting is initiated than non-breeders (Hébert and Golightly 2008, Peery et al. 2009). In northern California, mean home range size was 253 square mi. (mi^2) for non-nesters and 93 mi^2 for nesters (Hébert and Golightly 2008). Mean along-shore movement was 43 mi. (69 km) for nesting females and 49 mi. (79 km) for nesting males (Hébert and Golightly 2008).

Mean offshore movement was within 0.9 mi. (1.4 km) regardless of sex or nesting status (Hébert and Golightly 2008).

Threats

Several threats to murrelets, present in both the marine and terrestrial environments, have been identified. These threats collectively comprise a suite of environmental stressors that, individually or through interaction, have significantly disrupted or impaired behaviors which are essential to the reproduction or survival of individuals. When combined with the species naturally low reproductive rate, these stressors have led to declines in murrelet abundance, distribution, and reproduction at the population scale.

When the murrelet was listed under the Act and threats were summarized in the recovery plan the following anthropogenic threats were identified as having caused the dramatic decline in the species:

- Habitat destruction and modification in the terrestrial environment from timber harvest and human development caused a severe reduction in the amount of nesting habitat.
- Unnaturally high levels of predation resulting from forest "edge effects," as well as elevated predator densities in the vicinity of areas of high human use (e.g., campgrounds, picnic areas).
- Inadequate existing regulatory mechanisms, such as land management plans (in 1992), that were considered inadequate to ensure protection of the remaining nesting habitat and reestablishment of future nesting habitat.
- Anthropogenic factors such as mortality from oil spills and entanglement in fishing nets used in gill-net fisheries.

There have been changes in the levels of these threats since the 1992 listing (Service 2004, 2009). The regulatory mechanisms implemented since 1992 that affect land management in Washington, Oregon, and California (for example, the Northwest Forest Plan [NWFP]) and new gill-netting regulations in northern California and Washington have reduced the threats to murrelets (Service 2004). The threat levels for the other threats identified in 1992 listing (57 FR 45333) including the loss of nesting habitat, predation rates, and mortality risks from oil spills and gill net fisheries (despite the regulatory changes) remained unchanged following the Service's 2004 5-year [status] review for the murrelet (Service 2004).

However, new threats were identified in the Service's 2009 5-year review for the murrelet (Service 2009). These new stressors were due to several environmental factors affecting murrelets in the marine environment. These new stressors include:

- Habitat destruction, modification, or curtailment of the marine environmental conditions necessary to support murrelets due to:
    - Elevated levels of polychlorinated biphenyls in murrelet prey species.
    - Reduced prey abundance, availability, and quality.

  - Harmful algal blooms that produce biotoxins leading to domoic acid and paralytic shellfish poisoning that have caused murrelet mortality.
  - Climate change in the Pacific Northwest.
- Anthropogenic factors that affect the continued existence of the species include:
  - Derelict fishing gear leading to mortality from entanglement.
  - Energy development projects (wave, tidal, and on-shore wind energy projects) leading to mortality.
  - Disturbance in the marine environment (from exposures to lethal and sub-lethal levels of high underwater sound pressures caused by pile-driving, underwater detonations, and potential disturbance from high vessel traffic; particularly a factor in Washington).

Abundance and Distribution

Murrelet abundance during the early 1990s in Washington, Oregon, and California was estimated at 18,550 to 32,000 birds (Ralph et al. 1995). Based primarily on results from the NWFP's marbled murrelet monitoring program (NWFP EM Program), the 2019 murrelet population for all Conservation Zones (Service 1997) was estimated at about 21,200 birds (95 percent CI: 16,400–26,000; Table 1).

Throughout the listed range of the murrelet, habitat affected by actions consulted on through Section 7 of the Endangered Species Act has been documented by the Service since October 2003. Most of the affected habitat is within the Oregon Coast Range and Siskiyou Coast Ranges with most of the acreage coming from patches of older forest with sufficient nest structure (Table 2).

The overall population trend from the combined 2001–2010 population estimates (Conservation Zones 1–5 [see Recovery Plan] combined) indicate a significant, range-wide annual rate of decline of about 3.7 percent (95 percent CI: –4.8 to –2.7 percent; Falxa et al. 2011).

Table 1. Summary of 2001–2019 murrelet density and population size estimates (rounded to nearest 100 birds) for all Conservation Zones combined. Source: McIver et al. 2021.

Year	Density (birds/km^2)	Bootstrap standard error (birds/km^2)	Coefficient of variation of density (%)	No. birds	No. birds lower 95% CL	No. birds upper 95% CL
2001	2.47	0.25	10.1	21,800	17,500	26,100
2002	2.56	0.31	11.9	22,500	17,300	27,800
2003	2.60	0.25	9.6	22,800	18,500	27,100
2004	2.46	0.26	10.5	21,600	17,100	26,000
2005	2.30	0.25	10.7	20,200	16,000	24,400
2006	2.09	0.17	8.2	18,300	15,400	21,300

Year	Density (birds/km^2)	Bootstrap standard error (birds/km^2)	Coefficient of variation of density (%)	No. birds	No. birds lower 95% CL	No. birds upper 95% CL
2007	1.97	0.27	13.7	17,300	12,700	22,000
2008	2.06	0.18	8.9	18,100	15,000	21,300
2009	1.96	0.21	10.6	17,200	13,600	20,800
2010	1.89	0.21	11.1	16,600	13,000	20,200
2011	2.50	0.31	12.6	22,000	16,600	27,400
2012	2.40	0.27	11.3	21,100	16,400	25,800
2013	2.24	0.25	11.1	19,700	15,400	23,900
2014	2.43	0.22	9.1	21,300	17,500	25,100
2015	2.75	0.26	9.5	24,100	19,700	28,600
2016	2.58	0.26	10.0	22,600	18,200	27,100
2017	2.62	0.26	10.1	23,000	18,500	27,600
2018	2.56	0.29	11.4	22,500	17,500	27,600
2019	2.42	0.28	11.5	21,200	16,400	26,000

Table 2. Aggregate results of all suitable habitat (ac.) affected by section 7 consultation for the murrelet: summary of effects by conservation zone and habitat type for 1 October 2003 to 29 April 2021.

Conservation zone[1]	Authorized habitat effects[2]		Reported habitat effects[2]	
	Stands[3]	Remnants[4]	Stands[3]	Remnants[4]
Puget Sound	-105	0	-1	0
Western Washington	-13	0	-12	0
Outsize CZ Area in WA	0	0	0	0
Oregon Coast Range	-5,119	-2,551	-2,717	-1,608
Siskiyou Coast Range	-15,003	-187	-4,957	-187
Outside CZ Area in OR	-35	-3	0	0
Mendocino	0	0	0	0
Santa Cruz Mountains	0	0	0	0
Outside CZ Area in CA	0	0	0	0

Conservation zone[1]	Authorized habitat effects[2]		Reported habitat effects[2]	
	Stands[3]	Remnants[4]	Stands[3]	Remnants[4]
Total	**-20,275**	**-2,741**	**-7,687**	**-1,795**

[1]Conservation Zones (CZ) six zones were established by the Recovery Plan (Service 1997) to guide terrestrial and marine management planning and monitoring for the murrelet.

[2]Habitat includes all known occupied sites, as well as other suitable habitat, though it is not necessarily occupied. Importantly, there is no single definition of suitable habitat, though the Marbled Murrelet Effectiveness Monitoring Module is in the process. Some useable working definitions include the primary constituent elements as defined in the critical habitat final rule, or the criteria used for Washington State by Raphael et al. (2002).

[3]Stand: A patch of older forest in an area with potential platform trees.

[4]Remnants: A residual/remnant stand is an area with scattered potential platform trees within a younger forest that lacks, overall, the structures for murrelet nesting.

Conservation and Recovery

The murrelet recovery plan identified actions necessary to stabilize the population including protecting occupied habitat and minimizing the loss of unoccupied suitable habitat. Specific actions include maintaining large blocks of suitable habitat, maintaining and enhancing buffer habitat, decreasing risks of nesting habitat loss due to fire and windthrow, reducing predation, and minimizing disturbance. Long-term conservation needs identified in the plan include:

- Increasing productivity (abundance, the ratio of juveniles to adults, and nest success) and population size.
- Increasing the amount (stand size and number of stands), quality, and distribution of suitable nesting habitat.
- Protecting and improving the quality of the near-shore marine environment.
- Reducing or eliminating threats to survivorship by reducing predation in the terrestrial environment and anthropogenic sources of mortality at sea.

Conservation Zones

Conservation zones are the functional equivalent of recovery units as defined by Service policy (Service 1997). The murrelet recovery plan (Service 1997) identified six “conservation zones” throughout the listed range of the species: Conservation Zone 1: Puget Sound; Conservation Zone 2: Western Washington Coast Range; Conservation Zone 3: Oregon Coast Range; Conservation Zone 4: Siskiyou Coast Range; Conservation Zone 5: Mendocino; and, Conservation Zone 6: Santa Cruz Mountains.

Conservation Zones in California

Conservation Zone 4 extends from North Bend, Oregon to the southern boundary of Humboldt County, California. In general, it extends inland 35 mi. (56 km) from the Pacific Ocean shoreline and includes waters within 1.2 mi. (1.9 km) of the shoreline. Conservation Zone 5 extends south

from the southern boundary of Humboldt County to the mouth of San Francisco Bay and also includes marine waters within 1.2 mi. (1.9 km) of the Pacific Ocean shoreline, but extends inland a distance of up to 25 mi. (40 km). Conservation Zone 6 extends south from the mouth of San Francisco Bay to Point Sur, Monterey County, California and includes marine waters within 1.2 mi. (1.9 km) of the Pacific Ocean shoreline, and extends inland a distance of up to 15 mi. (24 km) (Service 1997).

Lands considered necessary for the recovery of the murrelet within Conservation Zones 4, 5, and 6 are: (1) any suitable habitat managed by the federal government in late-successional reserves (LSRs) located in the Forest Ecosystem Management Assessment Team Zone 1 (refer to USDA et al. 1993 for a description of Zone 1), (2) other large areas of suitable habitat on federal lands outside of LSRs, (3) large areas of suitable habitat on state lands within 25 mi. (40 km) of the coast in California and Oregon, (4) suitable habitat on county park lands within 25 mi. (40 km) of the coast in San Mateo and Santa Cruz counties, California, and (5) suitable nesting habitat on Humboldt Redwood Company (formerly Pacific Lumber Company) lands in Humboldt County, California (Service 1997).

Marine areas in California considered necessary for recovery of the murrelet include: (1) nearshore waters (within 1.2 mi. (1.9 km) of the shore) along the Pacific Coast from the Oregon-California border south to Cape Mendocino in northern California, including Humboldt and Arcata bays, and river mouths, and (2) nearshore waters (within 1.2 mi. (1.9 km) of shore) along the Pacific Coast in central California from San Pedro Point south to the mouth of the Pajaro River (Service 1997).

ENVIRONMENTAL BASELINE

The environmental baseline is the condition of the listed species in the action area, without the consequences to the listed species caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process. The consequences to listed species from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02, as amended 27 August 2019).

The information presented in this section supplements the above range-wide **Status of the Species** section above by focusing on the current condition of the murrelet in the action area, the factors responsible for that condition (inclusive of the factors cited above in the regulatory definition of environmental baseline), and the role the action area plays in the survival and recovery of the murrelet.

Status of the Species within the Action Area

Murrelet Abundance and Distribution

At-Sea Occurrences

Since 2000, at-sea monitoring to estimate a murrelet population trend has occurred annually in Conservation Zone 4 as part of the NWFP EM Program (McIver et al. 2021). The NWFP EM Program divided conservation zones into two or three strata based on murrelet density patterns, and contiguous Primary Sampling Units (PSU) of approximately 12 mi. (20 km) coastline length were created throughout the NWFP area (Raphael et al. 2007). Conservation Zone 4 was divided into two strata: (1) the northern strata: from Coos Bay, Coos County, Oregon south to Big Lagoon, Humboldt County, California, and (2) the southern strata: from Big Lagoon south to approximately the Sinkyone Wilderness State Park, northern Mendocino County, California. The northern strata includes national forest lands in Oregon and Redwood National and State Parks (RNSP) in California. At-sea locations of radio-marked murrelets captured offshore from RNSP ranged from Punta Gorda, Mendocino County, north to Newport, Lincoln County, Oregon; however, most of the detections occurred in the northern strata (Hébert et al. 2003a). The average murrelet density at-sea from 2000 to 2013 monitoring data indicates 5 to 10 birds per km^2 in the PSUs of the northern strata located offshore of the action area (Falxa and Raphael 2016).

Terrestrial Occurrences

There are no known murrelet occurrence records within the action area. The nearest known murrelet occurrence record is approximately 0.68 mi. (1.1 km) WSW of the Hely Creek Bridge (four murrelets seen and heard at Pamplin Grove within Van Duzen County Park in 1987; Service unpublished data). However, the destination of the four murrelets seen and heard at Pamplin Grove in 1987 is unknown and they may have been traveling to or from nest sites within the action area. Dozens of murrelets have been detected between 1.5 mi. (2.4 km) and 4.5 mi. (7.2 km) SE and ESE of the Hely Creek Bridge within Grizzly Creek State Park and approximately 4 mi. (6.4 km) NE within the Owl Creek watershed. Based on the presence of approximately 4.5 ac. of old-growth redwood habitat in the action area and numerous documented murrelet occurrences in the general vicinity of the action area, we presume that most or all old-growth redwood trees in the action area have the potential to be occupied by nesting murrelets.

Suitable murrelet nesting habitat (i.e., old-growth redwood habitat) in the general vicinity of the action area was extensively surveyed for murrelets in the late 1980s by the U.S. Forest Service, Pacific Southwest Research Station. However, it is unknown whether murrelet surveys were ever conducted within the action area. No murrelet surveys were conducted specifically for this project; therefore, all stands of suitable murrelet nesting habitat within the action area was considered occupied by murrelets for the purposes of this consultation.

Murrelet Nesting Habitat Availability

The 21-ac. action area contains approximately 4.5 ac. (21.4% of action area) of suitable murrelet nesting habitat (defined as: redwood forest type, mean tree DBH ≥24 in., ≥60% canopy closure),

and approximately 2.9 ac. (13.8% of action area) of "potential" nesting habitat that consists of smaller diameter redwood trees that may or may not contain suitable lateral limbs for murrelet nesting (defined as: redwood forest type, mean tree DBH 11 in. to 23.9 in., ≥60% canopy closure). Despite the presence of a few widely scattered large residual redwoods within this habitat, we do not expect murrelets to select the stands for nesting when high quality nesting habitat is available nearby. The remaining 13.6 ac. (65% of action area) of the action area is not considered suitable for nesting murrelets due to low canopy closure, small tree diameter, unsuitable vegetation types, riverine habitat, and unvegetated developed areas such as roadways.

EFFECTS OF THE ACTION

Effects of the action are all consequences to listed species that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02, as amended 27 August 2019). The following effects analysis is based on information provided in the Caltrans' biological assessment, as well as our assessment of baseline conditions and expected effects from implementation of the proposed action.

This section analyzes the effects of the proposed action and any actions that would not occur if not for the proposed action on the federally listed murrelet. Factors considered in the analysis include a description of the spatial extent, duration, magnitude, and frequency of occurrence of effects/stressors on individual murrelets, as well as effects/stressors on elements of habitat that could affect murrelets through modification of their nesting.

Direct Injury or Mortality

We do not anticipate any direct injury or mortality of murrelets due to project activities. Potential take of murrelets would most likely occur indirectly through exposure to elevated sound levels and visual disturbance from construction equipment and personnel during the nesting season as described below.

Indirect Injury or Mortality

Habitat Modification

No habitat considered by the Service at the stand scale as suitable for murrelet nesting will be directly impacted by habitat removal or alteration by the proposed action. Thirty-five trees (9 redwood, 9 Douglas-fir, 4 red alders, and 13 tanoak) will be removed during bridge construction, but none of the trees occur in a stand considered by the Service as suitable for murrelet nesting: The mean DBH of the 35 trees to be removed is 16.1 in. (range = 6 to 54 in.; SD = 9.36 in.); The mean DBH of the 18 conifers to be removed is 19.7 in. (range = 6 to 54 in.; SD = 10.88). Only one potentially suitable murrelet nest tree (a 54-in.-DBH redwood) will be removed, but this tree and the other 34 trees will be removed outside the murrelet nesting season (i.e., from 16 September through the following 23 March). Therefore, direct injury or mortality of nesting

murrelets or dependent nestlings through felling of an occupied nest tree is not anticipated. In addition, indirect take of murrelets through habitat loss is not anticipated.

Disturbance

Disturbance for the murrelet is defined by the Service as action-generated sound levels in excess of ambient levels in or near suitable nesting habitat (auditory disturbance) or as the reaction of nesting birds to human presence or activity (visual disturbance), resulting in disruption of essential breeding behaviors (Service 2020).

Activities that require use of heavy equipment, chainsaws, helicopters, and large vehicles introduce elevated sound levels and visual disturbances into the environment. The effects of auditory and visual disturbances on birds are extremely difficult to determine (Knight and Skagen 1988). Confounding factors include the tolerance level of individual birds, type and frequency of human activity, ambient sound levels, how sound reacts with topography and vegetation, and differences in how species perceive noise and human presence. Regardless of these difficulties, research conducted on a variety of bird species suggests that human disturbance can have a negative impact on reproductive success (Carney and Sydeman 1999, Frid and Dill 2002, Marzluff and Neatherlin 2006). Disturbance can affect productivity in a number of ways, including interference of courtship (Bednarz and Hayden 1988), nest abandonment (White and Thurow 1985), egg and hatchling mortality due to exposure and predation (Drent 1972, Swenson 1979), and altered parental care (Bortolotti et al. 1984, Fyfe and Olendorrf 1976).

Though largely inconclusive, Hébert and Golightly (2006) examined the effects of operating chainsaw noise during incubation and chick rearing periods on nesting adult murrelets and chicks. Adult murrelets and chicks both spent less time motionless and resting and more time exhibiting “raised head” and “bill up” behaviors during the disturbance trial than pre- and post-trial. The relevance of these behaviors is unknown; however, a species that relies on being cryptic and motionless to avoid predation at the nest may risk being detected by a predator if it moves more often.

Auditory or visual disturbance may reach the level of take for the murrelet when at least one of the following conditions is met (Service 2020): (1) action-generated sound levels exceed existing ambient sound levels by 20 or more decibels (dB); (2) action-generated sound levels, when added to existing ambient sound levels, exceeds 90 dB; or (3) proposed activities occur within the visual line-of-sight distance of 330 ft. (100 m) or less from a murrelet nest. Disturbance during the murrelet breeding season may potentially disrupt the species’ essential breeding behaviors by: (1) causing abandonment of the breeding effort by failure to initiate nesting or to complete incubation, (2) disrupting nesting activity, such as feeding young, and (3) causing premature dispersal of juveniles.

Data on timing of various aspects of the nesting season indicate that murrelets in California have the longest breeding period with the listed range. Incubation commences as early as 24 March and ends as late as 13 August; the nestling period may begin 23 April and end 9 September (Hamer and Nelson 1995). In California, we have defined the murrelet nesting season as the period from 24 March through 15 September. Data from murrelet populations throughout North

America show that approximately 84 percent of murrelet young fledge from their nests by 18 August (Hamer and Nelson 1995). The latest published fledging date was a record of a fledgling found on 21 September in Oregon (Hamer and Nelson 1995). However, a live murrelet fledgling was found on a road in Prairie Creek Redwoods State Park, Humboldt County, California on 24 September 2017 approximately 60 mi. (97 km) north of the action area (U.S. Fish and Wildlife Service, Arcata Field Office, unpublished data).

Auditory Disturbance

Using the Service's guidance for estimating the effects of auditory and visual disturbance to murrelets (Service 2020), ambient sound levels for the construction footprint were determined to be "high" (i.e., 81–90 decibels [dB]); because SR 36 is a busy highway used by recreational vehicles, large trucks, buses, and passenger cars. Action-generated sound levels were determined to be "very high" (i.e., 91–100 dB) for all bridge construction activities except for pile driving, and "extreme" (i.e., 101–110 dB) for pile driving. Based on the Service's guidance the auditory disturbance distance for action-generated sound levels would be 500 ft. for pile driving, and 165 ft. for all other bridge construction activities (Service 2020). That is, potential auditory disturbance of murrelets could occur within 500 ft. of pile driving for the new bridge and 165 ft. for all other proposed activities, but action-generated sound levels would attenuate back down to ambient levels beyond those distances. Approximately 4.5 ac. of suitable murrelet nesting habitat will be exposed to elevated sound levels during the latter part of the nesting season (i.e., from 10 July through 15 September). Two seasons of pile driving will be required to replace one half of the bridge the first year and the other half in the next year. A total of 48 piles (12-temporary, 12-permanent) will be installed, with an estimated 5 piles per day and taking approximately 5 days to complete per season. As mentioned in the **Conservation Measures** section above, pile driving will be restricted to a daily work window of 2 hours after sunrise and 2 hours prior to sunset between 10 July and 15 September. This restriction aims to minimize auditory disturbance to dependent murrelet chicks in nests, and to adult murrelets during morning and evening prey deliveries to the nest.

Adult murrelets exposed to elevated sound levels from construction could abandon active nests or reduce visits to the nest, either of which could lead to death of nestlings via exposure to the elements, starvation, or predation. The number of murrelet adults and nestlings that may be affected by the proposed action is difficult to estimate due to the unknown distribution and abundance of murrelet nests within the action area.

Visual Disturbance

As mentioned above, proposed activities that occur within the visual line-of-sight distance of 330 ft. (100 m) or less from a murrelet nest may result in visual disturbance that could reach the level of take (Service 2020). Project construction activities will occur within the roadway and right-of-way of SR 36, a busy highway with a high degree of existing visual disturbance. Despite the existing visual disturbance from humans and traffic on SR 36, several proposed activities will occur away from the roadway and therefore closer to suitable murrelet nesting habitat. It is unknown if (or how many) murrelet nests occur within the 330 ft. buffer around the construction footprint, and whether any nests would be in the line-of-sight of construction equipment and personnel. However, we assume that any nests within the 330-ft. buffer will be exposed to visual

disturbance during the latter portion of their nesting season for two consecutive construction seasons, and also assume that exposed nestlings, and to a lesser extent adults, may be taken.

Predation

Corvids may be attracted to the action area due to an increase in human activity and an increased abundance of trash and food from construction workers. Corvids, especially ravens and jays, are known murrelet nest predators. Corvid predation events could increase in frequency as corvid densities increase in murrelet nesting habitat (Service 1997). However, these events are difficult to identify and inventory based on the cryptic nature of murrelet adults and chicks, inaccessibility to nests based on height in the canopy, and the effort required to identify and monitor a sufficient number of murrelet nesting attempts. All food and trash will be contained and packed out of the project site at the end of each workday. Further, no construction activities will occur within suitable murrelet nesting habitat; therefore, even if corvids are attracted by construction activities it is unlikely to increase the incidence of nest predation events.

CUMULATIVE EFFECTS

Cumulative effects are defined as those effects of future state, tribal, or private activities, not involving federal activities that are reasonably certain to occur within the action area (50 CFR 402.02). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

At this time, the Service is not aware of any state, tribal, or private activities in the action area that are reasonably certain to occur that may adversely affect murrelets or suitable murrelet nesting habitat.

CONCLUSION

After reviewing the best available scientific and commercial information, the current status of the murrelet, the environmental baseline, the effects of the action, and the cumulative effects, it is the Service's biological opinion that implementation of the proposed action will not jeopardize the continued existence of the murrelet.

We reached the non-jeopardy conclusion based on the following:

- The effect of the proposed action to murrelet nesting habitat is insignificant because only one potentially suitable murrelet nest tree (a 54-in.-DBH redwood) will be removed. This tree and an additional 34 trees (unsuitable for murrelet nesting) will be removed outside the murrelet nesting season (i.e., from 16 September through the following 23 March).
- The 4.5 ac. of suitable murrelet nesting habitat within the action area will be exposed to elevated sound levels from pile driving for only 5 days each of the two construction seasons. Although we consider this a significant impact to murrelets occurring within the action area, we consider it as insignificant to the species range wide.
- Approximately 1.9 ac. of suitable murrelet nesting habitat within the action area will be exposed to visual disturbance from construction equipment and approximately 0.27 ac. of

suitable murrelet nesting habitat within the action area will be exposed to elevated sound levels from construction activities, other than pile driving, during the latter portion of the murrelet nesting season (i.e., from 15 June through 15 September) for two consecutive construction seasons. The entire 2.17 ac. area is part of the 4.5 ac. area exposed to elevated sound levels from pile driving. Although we consider this a significant impact to murrelets occurring within the action area, we consider it as insignificant to the species range wide.

- Auditory and visual disturbance will occur within suitable murrelet nesting habitat that occurs along a busy highway with relatively high ambient sound levels and visual disturbance, suggesting possible habituation by nesting murrelets or avoidance of the area for nesting.
- Potential harm to nesting murrelets or dependent young will be minimized by completing as much of the project as possible during the latter portion of the nesting season. Furthermore, a diurnal work window will be implemented to minimize effects to adult murrelets during arrival to or departure from nests.
- All food and trash will be contained and packed out of the project site at the end of each workday, thus minimizing the potential for avian predators (i.e., corvids) to be attracted to work areas.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the taking of endangered and threatened species, respectively, without special exemption. The term "take" is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct." Harm is further defined (50 CFR 17.3) by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service (50 CFR 17.3) as an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as "take" that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), "taking" that is incidental to and not intended as part of the agency action is not considered to be prohibited "taking" under the Act provided that such "taking" is in compliance with this Incidental Take Statement.

This Incidental Take Statement assumes that the project will be implemented as described in the **Description of the Proposed Action** section of the preceding biological opinion. Conservation measures included in that section that reduce or minimize the risk of incidental take of murrelets are considered non-discretionary by the Service in its development of this Incidental Take Statement and must be implemented as described.

The measures described below are non-discretionary and must be undertaken by Caltrans so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to assume and implement the terms

and conditions or (2) fails to require an applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

AMOUNT OR EXTENT OF INCIDENTAL TAKE

The Service anticipates that murrelet take will occur from auditory and visual disturbance to incubating adult(s) and subsequent harm to eggs or chicks within the 4.5 ac. of suitable nesting habitat that will be exposed to elevated sound levels and visual disturbance during the nesting season. It is difficult for the Service to determine the number of murrelets that may be taken due to the proposed action because we lack information on murrelet nest density within the action area. Therefore, the Service presumes that all murrelets nesting within the 4.5-ac area exposed to auditory and visual disturbance (as detailed above) will be taken. The Service does not anticipate murrelet take from the removal of the single potentially suitable nest tree (i.e., the 54-in.-DBH redwood tree) during the non-nesting season.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the murrelet. Although the actual number of nesting adult murrelets or dependent young "taken" as a result of these proposed activities is unknown, the relatively small amount of suitable murrelet nesting habitat exposed to elevated sound levels and visual disturbance suggests that few murrelets will be negatively affected.

REASONABLE AND PRUDENT MEASURES

We have not identified any additional measures necessary to further reduce impacts to murrelets beyond those described in the **Description of the Proposed Action** section above.

TERMS AND CONDITIONS

The Service has determined that no terms and conditions are required.

MONITORING REQUIREMENTS

The Service has determined that no post-action monitoring requirements are necessary.

REPORTING REQUIREMENTS

Any dead or injured listed species must be reported to the Service's Law Enforcement Division (916-414-6660) or the Arcata Fish and Wildlife Office (707-822-7201) as soon as possible, and turned over to the Law Enforcement Division or a game warden or biologist of the California Department of Fish and Wildlife for care or analysis. The Service is to be notified in writing within three working days of the accidental death of, or injury to a listed species during implementation of the proposed action. Notification must include the date, time, and location of the incident or discovery of the dead or injured animal, as well as any pertinent information on

the circumstances surrounding the incident or discovery. The Service contact for this written information is the Field Supervisor for the Arcata Field Office at (707) 822-7201.

REINITIATION NOTICE

This concludes formal consultation on the HUM 36 Three Bridges Project, Humboldt County, California. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operation causing such take must cease pending reinitiation.

If you have any questions regarding this biological opinion, please contact Gregory Schmidt of my staff at 707-834-3193.

Sincerely,

DANIEL COX Digitally signed by DANIEL COX
Date: 2021.05.25 16:12:08
-07'00'

Dan Cox
Acting Field Supervisor

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Appendix K. NMFS Section 7 Consultation Initiation Letter

DEPARTMENT OF TRANSPORTATION
NORTH REGION ENVIRONMENTAL
DISTRICT 1, PO BOX 3700
EUREKA, CA 95502-3700
PHONE (707) 572-7039
www.dot.ca.gov
TTY 711

Making Conservation a California Way of Life.

April 14, 2021

Alecia Van Atta, NMFS Assistant Regional Administrator
NOAA / National Marine Fisheries Service
1655 Heindon Road
Arcata, CA 95521

Dear Alecia Van Atta:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), proposes the Three Bridges Project along State Route 36 in Humboldt County. The project would replace the Hely Creek Bridge (Bridge No. 04-0092) at post mile (PM) 11.46, widen the bridge and upgrade rails at Little Larabee Creek Bridge (Bridge No. 04-0102) at PM 25.27, and replace Butte Creek Bridge (Bridge No. 04-0116) at PM 34.52. This project would replace and/or widen the existing bridges and bridge approaches to upgrade the travel lanes, shoulders, and bridge rails to meet current Caltrans and local safety design standards. The project also includes restoration activities to improve habitat conditions for fish and mitigate for adverse effects to listed species.

The federally threatened Southern Oregon/Northern California Coast (SONCC) Evolutionarily Significant Unit (ESU) coho salmon (*Oncorhynchus kisutch*), California Coastal (CC) ESU Chinook salmon (*Oncorhynchus tshawytscha*), and Northern California (NC) Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss*) have potential to occur within or near the action area and could be affected by project activities. Designated critical habitat for these species is also present within the action area, as well as Essential Fish Habitat (EFH) for Pacific Coast Salmon. Caltrans has prepared a joint Biological Assessment and EFH Assessment to fulfill its obligation to consult with the National Marine Fisheries Service (NMFS) under Section 7 of the Federal Endangered Species Act (FESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for potential effects to these species and their habitats due to bridge replacement and/or widening activities.

Caltrans is the lead for ESA Section 7(a)(2) and MSA Section 305(b) formal consultation under NEPA Assignment from FHWA. With technical assistance from NMFS, Caltrans evaluated the effects of the proposed action according to federal procedural guidance.

Based on the analysis of project impacts presented in the enclosed Biological Assessment and Essential Fish Habitat Assessment, Caltrans has determined the project *may affect, and is likely to adversely affect* SONCC coho salmon and NC steelhead, and *may affect, but is not likely to adversely affect* CC Chinook salmon. The proposed action *may affect, but is not likely to adversely affect* SONCC coho salmon, CC Chinook, and NC steelhead critical habitat. In addition, Caltrans has determined the proposed action *may adversely affect* EFH for Pacific Coast Salmon, managed under the Pacific Fishery Management Council (PFMC). Therefore, Caltrans requests initiation of formal ESA and MSA consultation with NMFS for the proposed actions.

If you have questions or need additional information, please contact Jason Meyer at **jason.meyer@dot.ca.gov** or (707) 572-7039.

Sincerely,

Jason Meyer
Senior Environmental Planner/Branch Chief E3
North Region Environmental

Enclosure(s): Biological Assessment & Essential Fish Habitat Assessment

c: **mike.kelly@noaa.gov**, **jeff.jahn@noaa.gov**, **jennifer.brown@dot.ca.gov**

Appendix L. SHPO Concurrence Letter

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

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September 22, 2020

VIA EMAIL

In reply refer to: CATRA_2020_0804_001

Mr. David Price
Section 106 Coordinator
Cultural Studies Office
Caltrans Division of Environmental Analysis
1120 N Street, MS-27
Sacramento, CA 95814

Subject: Finding of No Adverse Effect for the Proposed HUM Three Bridges Project on Route 36 in Humboldt County, California.

Dear Mr. Price:

On August 4, 2020, the Office of Historic Preservation (OHP) received a letter from the California Department of Transportation (Caltrans) for the above referenced undertaking. Caltrans is initiating consultation with the State Historic Preservation Officer (SHPO) in accordance with the January 1, 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (Section 106 PA), as well as the *Memorandum of Understanding between the California Department of Transportation and the California State Historic Preservation Officer Regarding Compliance with Public Resources Code Section 5024 and Governor's Executive Order W-26-92* (5024 MOU). Pursuant to Stipulation X.B.2.b of the Section 106 PA, Caltrans is seeking SHPO comment on a finding of no adverse effect without standard conditions. Enclosed with Caltrans' letter is a Historic Property Survey Report (HPSR) and attachments.

Caltrans proposes to replace the Hely Creek and Butte Creek bridge and widen the Little Larabee Creek Bridge. The project footprint begins near Pamplin Grove and Van Duzen County Park, extending east through what is locally known as Larabee Valley, along SR 36, a curvilinear two lane rural conventional highway in Humboldt County, California. A more detailed description of the undertaking and area of potential effects (APE) is located on page one of the HPSR.

Caltrans' efforts to identify historic properties that may be affected by the undertaking identified two archaeological sites P-12-000212 (CA-HUM-187) and P-12-002582 (Butte Creek 1) within the APE requiring evaluation according to the National Register of Historic Places (NRHP)

criteria. CA-HUM-187 is a large prehistoric site containing archaeological evidence suggestive of an ethnographic village, including groundstone, diagnostic tools, and midden soil. Phase II testing of this site also identified a sparse historic-era deposit of domestic refuse and structural remains. P-12-002582 is described as a lithic scatter that includes historic-era deposits indicative of an occupation period between 1933 and the late 1970s, and a ranch complex. Pursuant to Stipulation VIII.C.4 of the Section 106 PA and Stipulation VIII.C.4 of the PRC 5024 MOU, Caltrans will consider both resources eligible for the NRHP under Criterion D for data potential due to the resources size and restricted access.

Phase II testing conducted for this undertaking revealed that the portions of both sites within the area of direct impact (ADI) demonstrated a low diversity of artifact types, a lack of cultural features and no evidence of discrete activity areas. The untested portions of both sites located outside of the ADI will be protected as Environmentally Sensitive Areas (ESAs). As such, in applying the criteria of adverse effect pursuant to Stipulation X.A of the Section 106 PA and the PRC 5024 MOU, Caltrans finds that the undertaking will result in a finding of no adverse effect with non-standard conditions. In addition to ESAs, Caltrans will also implement an Archaeological Monitoring Action Plan that includes Native American monitors.

Pursuant to Stipulation X.B.2.a of the Section 106 PA, Caltrans has found that the proposed undertaking will have no adverse effect on historic properties. Based on review of the submitted documentation, **I do not object**. If you have any questions, please contact State Historian Natalie Lindquist at (916) 445-7014 or at natalie.lindquist@parks.ca.gov or Associate State Archaeologist Alicia Perez at (916) 445-7020 or at alicia.perez@parks.ca.gov .

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Appendix M. Wetlands and Waters Mitigation and Monitoring Plan

HUM-36 Three Bridges
Mitigation Monitoring and Reporting Plan

Introduction

The California Environmental Quality Act (CEQA) requires that when a public agency completes an environmental document that includes measures to mitigate or avoid significant environmental effects, the public agency must adopt a Mitigation Monitoring and Reporting Plan (MMRP) for the changes to the project that it has adopted, or made a condition of project approval, in order to mitigate or avoid significant effects on the environment. The appropriate reporting or monitoring plan must be designed to ensure compliance during project implementation (Public Resources Code Section 21081.6).

This MMRP describes mitigation proposed for impacts to wetlands and waters resulting from the HUM-36 Three Bridges Project and provides a framework for implementation and monitoring, including performance standards, timing, and responsible parties.

Description of Mitigation Property

The proposed site for mitigation is known as the Steve Smith Parcel (APN 210-033-006) which contains an important step-fen that is the largest surface water contribution to the Burke/Robey fen, as well as a small portion of the fen and approximately 115-acres of mixed conifer hardwood forest that contributes to the fen's watershed. The property is within the Van Duzen River watershed, approximately 13 miles east of the town of Bridgeville in Humboldt County, accessed from California State Route 36 and McClellan Mountain Road. The adjoining parcel contains most of the Burke/Robey fen and is owned and managed by California Department of Fish and Wildlife (CDFW). See the attached parcel map for the location of the property.

In 2009, CDFW and partners discovered extensive peat mining on McClellan Mountain that likely had been active since the 1980s. CDFW stopped the illegal mining and has transitioned to acquisition and restoration of the fen properties. Peatlands, including bogs and fens, are freshwater wetlands that accumulate peat (dead plant matter) because the rate of plant growth exceeds the rate of decomposition (Leppig 2004). The McClellan Mountain peatlands are formed by complex geologic processes, including hilltop spreading, and strike/slip faults activated during earthquakes (which causes slumping along the fault) that intercept ground water. Over time, partially decomposed plant matter (i.e., peat) accumulates in this unique anaerobic setting (CDFW 2016). CDFW's geologist estimated that the Wotherspoon Fen peat

resources took somewhere between 10,000 and 15,000 years to accumulate. Peatlands at this elevation play an important role in regulating surface water temperatures as natural vegetated headwater reservoirs with associated cold-water outfall streams (CDFW 2016). Due to management activities such as mining and draining, peatlands in the United States have been significantly reduced in acreage, and remaining peatlands have become rare and of high priority for protection (U.S. EPA 2002).

CDFW considers the Burke/Robey fen a S1 Sensitive Natural Community. A S1 community is Critically Imperiled in the State because of rarity (often five or fewer populations) making it especially vulnerable to extirpation. State Species of Special Concern have also been documented at the fen, including the northern red-legged frog (*Rana aurora*), foothill yellow-legged frog (*R. boylii*), and the southern torrent salamander (*Rhyacotriton variegatus*) (CDFW 2016).

Protection of upland coniferous forest adjacent to the Burke/Robey Fen is integral to the function and value of the fen. These uplands are important for preserving water quality and quantity and are topographically steep. The forest contains a substantial amount of old-growth Douglas-fir *(Pseudotsuga menziesii*) left behind from historic logging in the 1950-60s (CDFW 2016). The presence of advanced-decay large wood is critically important on the forest floor as habitat for amphibians and small mammals.

Caltrans performed an aquatic resources delineation at the Steve Smith parcel in January 2021. Approximately 2,667 linear feet, or 0.65 acre, of aquatic resources were mapped by Caltrans, including one palustrine forested (WET1), two palustrine emergent wetlands (FEN1 and FEN2), one riverine streambed (OW1), and one riverine unconsolidated bottom water (OW2), shown in Figure 1 (Caltrans 2021). The parcel also holds a portion of the Van Duzen River to the northeast, as well as forested upland throughout the property including Douglas-fir (*Pseudotsuga menziesii var. menziesii),* Pacific madrone *(Arbutus menziesii),* tan oak *(Notholithocarpus densiflorus var. densiflorus),* and California bay *(Umbellularia californica)* trees.

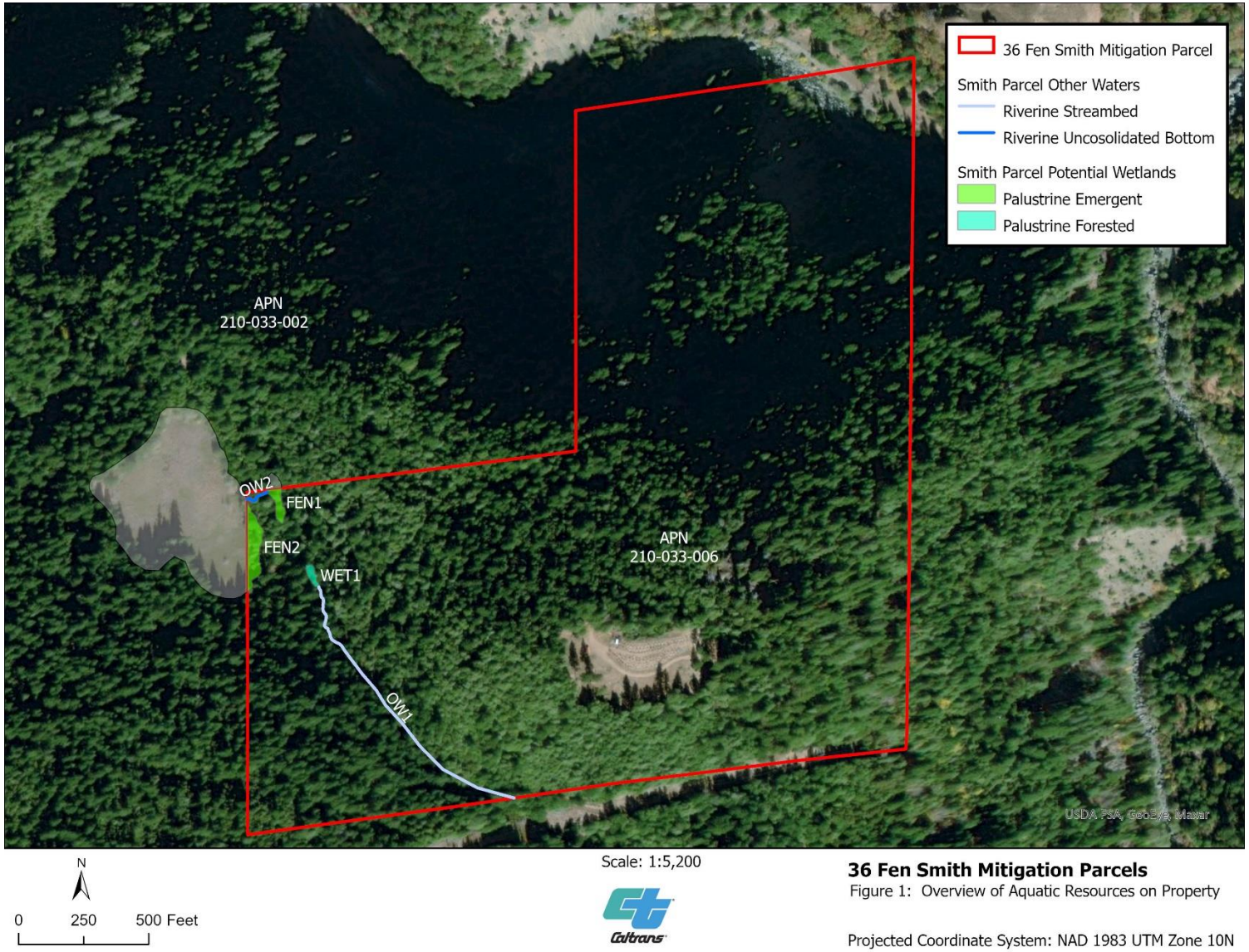

Figure 1. Mitigation Property Aquatic Features

OW1 is an ephemeral stream of approximately 1,180 linear feet, or 0.14 acre, that transports surface water south to north from the southern boundary of the property to WET1. Surface water from OW1 terminates into WET1, a 0.06-acre feature. WET1 is situated at the base of the adjacent property access road and is located upslope from FEN1 and likely contributes water to FEN1 via subsurface flow. FEN1 is situated along the northwestern boundary of the property and the adjacent parcel to the north (APN 210-033-002). Approximately 0.11 acre of this feature is located solely on the property. FEN1, a peatland freshwater fen, receives surface runoff from further upslope on McClellan Mountain and potentially subsurface flow from WET1. This feature is a "step-fen" and contributes surface water to the large wetland fen, FEN2, located at the western boundary of the property. FEN2 is situated along the western boundary of the property and is part of a larger five-acre peatland fen located within the adjacent parcel to the west (APN 210-033-002). Approximately 0.32 acre is located on the property. The larger fen (including the portion identified as FEN2) receives surface runoff from several "step-fens" and other waters, including FEN1 located to the east. Both FEN1 and FEN2 are high quality and rare perennial features that contain abundant native wetland plant species and offer quality habitat for amphibians and reptiles. OW2 is an intermittent stream (90 linear feet or 0.02 acre) that transports surface water east to west from FEN1 to FEN2. This feature is one of several features that provides surface water to the large five-acre fen located within the adjacent parcel.

Proposed Mitigation

The Steve Smith Parcel has high value for mitigation because of the rarity of peatlands, sensitive habitat present in the Burke/Robey fen and the important role of the upland forest in the conservation of the fen. In addition to the degradation caused by mining, the fen and upland forest are threatened by marijuana cultivation. McClellan Mountain coniferous forests have become fragmented by forest conversion, and water diversion for irrigation is a concern for preserving surface water flows to the fen.

Through a cooperative agreement with the North Coast Regional Water Quality Control Board and the California Department of Fish and Wildlife, Caltrans proposes to purchase the Steve Smith parcel (APN 210-033-006) in CDFW's name to protect the Burke/Robey fen in perpetuity. Caltrans would acquire the property and pay an endowment to CDFW.

Because of the significance of the resources present at the property, mitigation credit would be applied at a high ratio. Credit for protection and preservation of wetland would be granted at a 2:1-acre ratio and credit for protection and preservation of upslope headwaters forest habitat would be granted 1 acre of credit per 25 acres preserved.

Table 1. Mitigation Monitoring and Reporting Plan Summary

Mitigation Measure	Objective	Performance Standards	Responsibility for Implementation	Timing of Implementation	Responsibility for Monitoring	Reporting Requirements
Establish Cooperative Agreement with NCRWQCB and CDFW to acquire the Steve Smith Parcel	Conservation of rare peatland and adjacent forest headwaters threatened by mining and water diversion for marijuana cultivation	Preservation of 0.49 acre of wetland and 0.16 acre of other waters Preservation of 115 acres of upslope headwaters forest habitat	Caltrans would acquire the property and pay an endowment to CDFW	Land acquisition occurring concurrently with project development Preservation and protection would occur in perpetuity	Caltrans, CDFW	Reporting would be subject to the project 401 Certification from the NCRWQCB

References

California Department of Fish and Wildlife (CDFW). 2016. *Sensitive Natural Community Conservation: Burke/Robey Peatland*.

California Department of Transportation (Caltrans). 2021. *Draft 36 Fen Smith Parcel Mitigation Site Aquatic Resources Delineation*. Eureka, CA: Unpublished.

Leppig, G. 2004. Rare plants of Northern California coastal peatlands: Patterns of endemism and phytogeography. Pages 43-45 in Brooks, M. B., S. K. Carothers, and T. LaBanca (EDS.). 2004. The ecology and management of rare plants of northwestern California: Proceedings from a 2002 Symposium of the Northcoast Chapter of the California Native Plant Society. California Native Plant Society, Sacramento, CA.

U.S. Environmental Protection Agency. 2002. Wetland types, fens. http://www.epa.gov/owow/wetlands/types/fen.html

Appendix N. Conceptual Large Woody Debris Installation Plan

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
01	HUM	36	11.4/34.5	

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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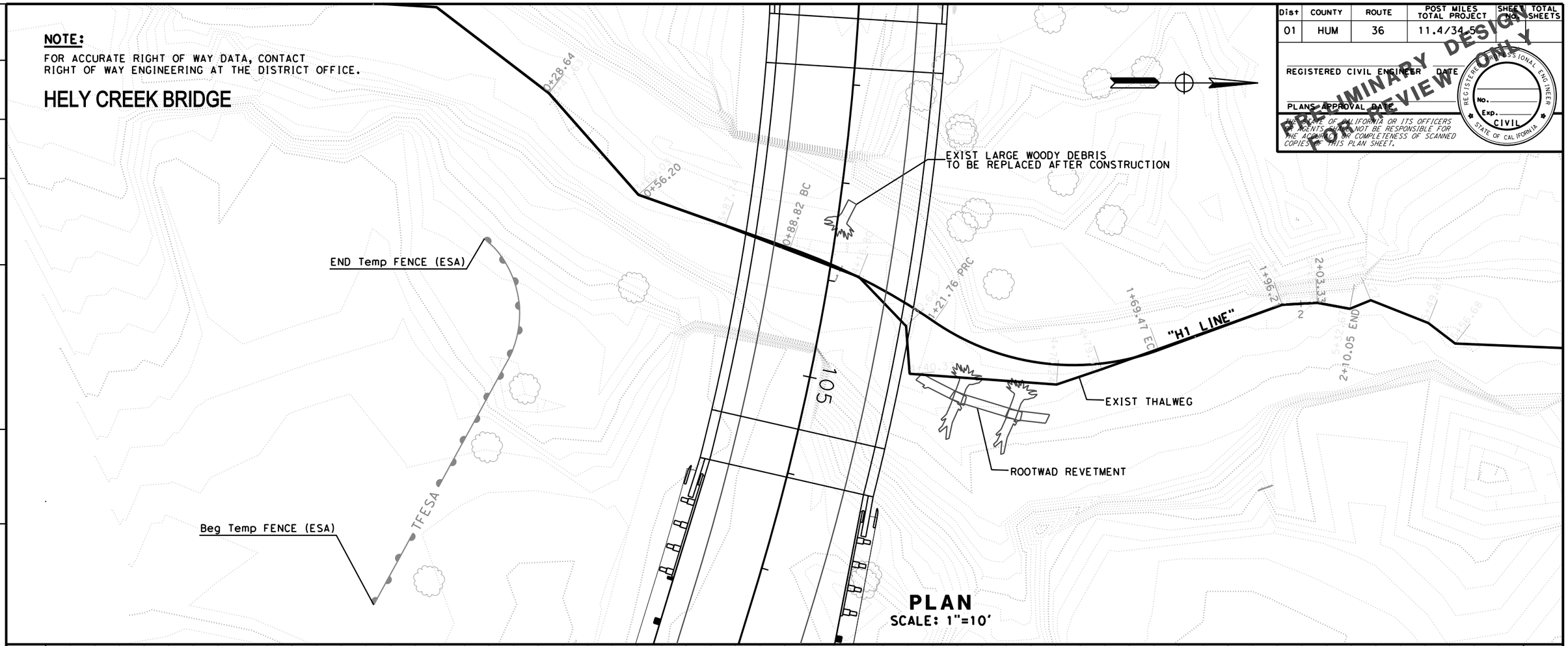
PRELIMINARY DESIGN FOR REVIEW ONLY

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

NOTE:

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

HELY CREEK BRIDGE



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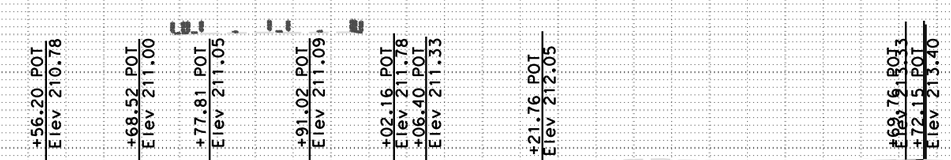

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APPROVED FOR DRAINAGE WORK ONLY

DRAINAGE PLAN AND PROFILE
DP-1

REVISED BY	C REDNER
DATE REVISED	K EVERETT
CALCULATED-DESIGNED BY	
CHECKED BY	
FUNCTIONAL SUPERVISOR	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 01-09-18 DATE PLOTTED => 3/30/2021 TIME PLOTTED => 9:08:22 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	HUM	36	11.4/34.5		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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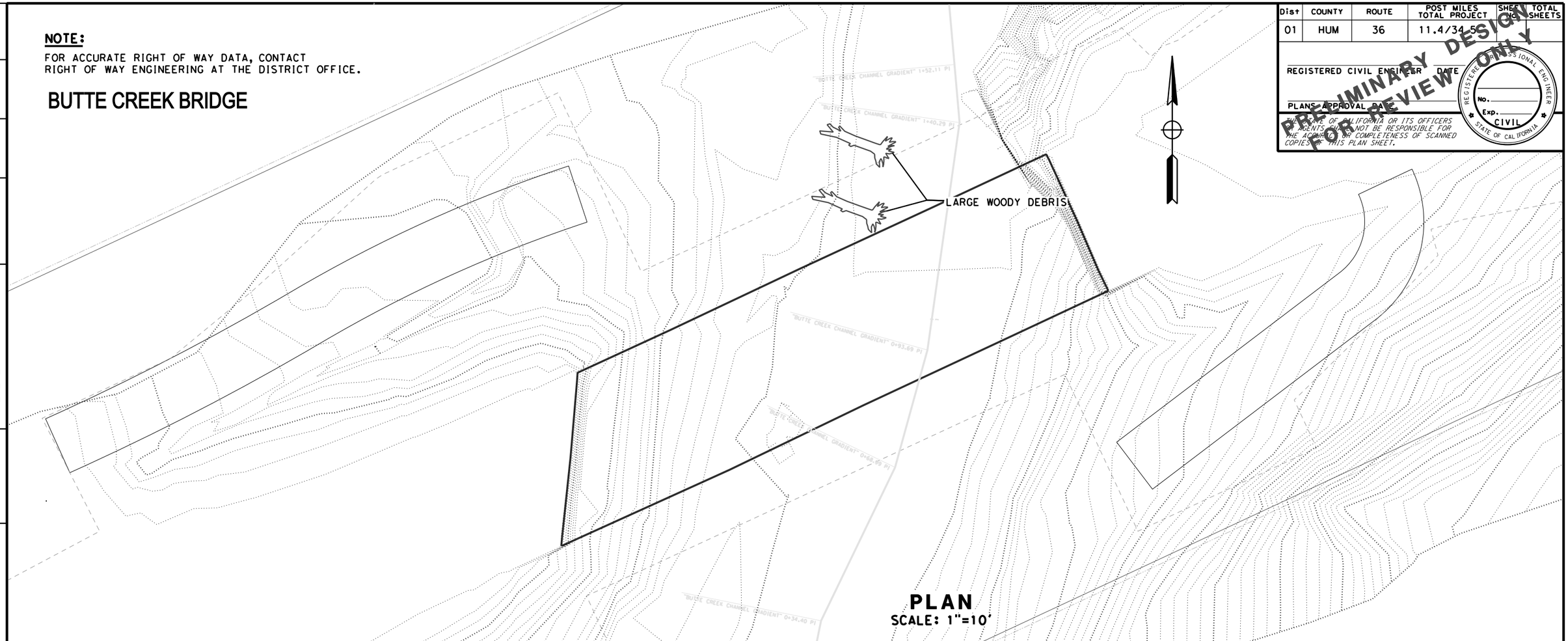
BUTTE CREEK BRIDGE



PLAN
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PROFILE
SCALE: 1"=10'

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DRAINAGE PLAN AND PROFILE DP-2

REVISED BY | DATE REVISED

C REDNER | CALCULATED-DESIGNED BY

K EVERETT | CHECKED BY

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LAST REVISION 01-09-18 | DATE PLOTTED => 4/27/2021 TIME PLOTTED => 11:02:25 AM