

Sonoma 1 Culvert Rehabilitation Project

SONOMA COUNTY, CALIFORNIA
DISTRICT 4 – SON – 1 (PM 30.8/40.6)
1K730/0416000307

Initial Study with Proposed Negative Declaration



Prepared by the
State of California, Department of Transportation



June 2019

General Information about this Document

What's in this document:

California Department of Transportation (Caltrans) prepared this Initial Study with Proposed Negative Declaration for the Sonoma 1 Culvert Rehabilitation Project (project) in Sonoma County, California, along State Route (SR) 1, from post mile 30.8 to 40.6 (see Figure 1-1, Project Location). The project proposes to replace 23 culverts at various locations along SR 1 between Mill Gulch and 0.5 mile south of Miller Creek. Additional project information is provided in Chapter 2.

Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document describes why the project is being proposed, how the existing environment could be affected by the project, potential environmental impacts, and the proposed Project Features and Avoidance and Minimization Measures.

What you should do:

- Please read this document.
 - Additional copies of this document and the related technical studies are available for review at:
 - California Department of Transportation, District 4
111 Grand Avenue
Oakland, CA 94612
 - United States Post Office
10439 Coast Highway 1
Jenner, CA 95450
(707) 275-8777
 - Ocean Cove General Store
23125 Coast Highway 1
Walsh Landing, CA 95450
(707) 847-3422
 - This document may be accessed electronically at the following website:
<http://www.dot.ca.gov/dist4/envdocs.htm>
- Send comments, including requesting that Caltrans hold a public meeting, during the September 13, 2019 to October 13, 2019, public comment period, as follows:

- Via postal mail to:

Arnica MacCarthy, Branch Chief
California Department of Transportation, District 4
Office of Environmental Analysis
111 Grand Avenue MS-8B
Oakland, CA 94612

- Via email to: Arnica.MacCarthy@dot.ca.gov

What happens next:

Per CEQA Section 15073, Caltrans will circulate the Initial Study with Proposed Negative Declaration for review for 30 days. During the 30-day public review period, the general public and responsible and trustee agencies can submit comments on this document to Caltrans. Caltrans will consider the comments and will respond to the comments after the 30-day public review period.

After comments have been received from the public and reviewing agencies, Caltrans may (1) grant environmental approval to the proposed project, (2) conduct additional environmental studies, or (3) abandon the project. If the project is granted environmental approval and funding is obtained, Caltrans could design and construct all or part of the project.

Alternative Formats:

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write:

California Department of Transportation, Attn: Arnica MacCarthy, Branch Chief,
District 4, Office of Environmental Analysis, 111 Grand Avenue, MS 8-B, Oakland
CA 94612

Telephone (510) 286-7195 (Voice), California Relay Service 1 (800) 735-2929
(TTY), 1 (800) 735-2929 (Voice), or 711.

Initial Study with Proposed Negative Declaration

04-SON-1

Dist. – Co. – Rte.

30.8/40.6

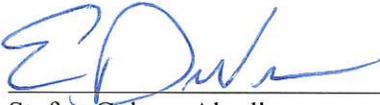
PM

1K730

E.A.

Project title:	Sonoma 1 Culvert Rehabilitation Project
Lead agency name and address:	California Department of Transportation 111 Grand Avenue, Oakland, CA 94612
Contact person and phone number:	Arnica MacCarthy, Branch Chief (510) 286-7195
Project location:	Sonoma County, California
General plan description:	Highway
Zoning:	Transportation Corridor
Other public agencies whose approval is required (e.g., permits, financial approval, or participation agreements); CEQA Responsible Agencies are denoted with an asterisk (*):	<ul style="list-style-type: none"> • Clean Water Act 404 Nationwide Permit from the U.S. Army Corps of Engineers • Clean Water Act 401 Water Quality Certification from the North Coast Regional Water Quality Control Board * • Section 1602 Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife* • California Transportation Commission • United States Fish and Wildlife Service • California Coastal Commission State Coastal Development Permit* • Sonoma County Local Coastal Development Permit*

Additional copies of this document, as well as technical studies this document relies on, are available for review at the Caltrans District 4 office, 111 Grand Avenue, Oakland, CA 94612, or online at <http://www.dot.ca.gov/d4/envdocs.htm>.


 for Stefan Galvez-Abadia
 Chief, Office of Environmental Analysis
 Caltrans, District 4

6/3/19

 Date

To obtain a copy in Braille, in large print, on computer disk, or on audiocassette, please contact: Department of Transportation, Attn: Arnica MacCarthy, Branch Chief, Office of Environmental Analysis, 111 Grand Avenue, MS 8-B, Oakland CA 94612: (510) 286-7195 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

Proposed Negative Declaration

Project Description

The California Department of Transportation (Caltrans) prepared this Initial Study with Proposed Negative Declaration for Sonoma 1 Culvert Rehabilitation Project (project) in Sonoma County, California, along State Route 1, from post mile 30.8 to 40.6 (see Figure 1-1, Project Location). The project proposes to replace 23 culverts from Mill Gulch to 0.5 mile south of Miller Creek. Additional project information is provided in Chapter 2.

Determination

This Proposed Negative Declaration is included to provide notice to the public and reviewing agencies that Caltrans intends to adopt a Negative Declaration for this project. This Negative Declaration is subject to change based on comments received by the public and reviewing agencies.

Caltrans has prepared an Initial Study for this project and, pending public review, expects to determine that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no impact on air quality, cultural resources, land use and planning, mineral resources, noise, population and housing, public services, recreation, tribal cultural resources, and utilities and service systems.

The proposed project would have less than significant impacts to aesthetics, agriculture and forest resources, biological resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, transportation and traffic, wildfires, and mandatory findings of significance.

Melanie Brent
Deputy District Director, Environmental Planning
and Engineering
California Department of Transportation District 4

Date

Table of Contents

General Information about this Document	iii
Initial Study with Proposed Negative Declaration.....	v
Proposed Negative Declaration	vii
Table of Contents.....	ix
Chapter 1 Proposed Project	1-1
1.1 Introduction	1-1
1.2 Purpose and Need	1-1
Chapter 2 Project Description.....	2-1
2.1 Introduction	2-1
2.2 Culvert Work.....	2-1
2.3 Construction Methodology, Schedule, and Equipment.....	2-4
2.3.1 Methodology.....	2-4
2.3.2 Schedule	2-5
2.3.3 Equipment and Materials.....	2-5
2.4 Impacts on Vegetation	2-6
2.5 Permits and Approvals Needed	2-6
Chapter 3 California Environmental Quality Act Evaluation.....	3-1
A. Environmental Factors Potentially Affected.....	3-1
B. Determination.....	3-2
Aesthetics	3-4
Agriculture and Forest Resources	3-7
Air Quality.....	3-9
Biological Resources	3-10
Cultural Resources	3-22
Energy	3-24
Geology and Soils	3-25
Greenhouse Gas Emissions.....	3-28
Hazards and Hazardous Materials.....	3-30
Hydrology and Water Quality.....	3-33
Land Use and Planning.....	3-36
Mineral Resources.....	3-43
Noise	3-44
Population and Housing	3-45
Public Services.....	3-46
Recreation.....	3-47
Transportation and Traffic.....	3-48
Tribal Cultural Resources.....	3-51
Utilities and Service Systems.....	3-52
Wildfire	3-54
Mandatory Findings of Significance	3-56
Chapter 4 Comments and Coordination	4-1
Chapter 5 List of Preparers.....	5-1
Chapter 6 Distribution List.....	6-1

List of Tables

Table 2-1	Project Design Elements	2-2
Table 2-2	Required Permits	2-6
Table 3-1	Key Provisions of the California Coastal Act	3-39
Table 3-2	Key Provisions of the Sonoma County Local Coastal Program.....	3-41
Table 3-3	Key Provisions of the Sonoma County State Route 1 Repair Guidelines	3-42
Table 5-1	List of Preparers and Reviewers.....	5-1

List of Figures

Figure 1-1	Project Location	1-3
Figure 2-1	Project Design Elements.....	2-7
Figure 2-2	Typical Culvert Cross-Section	2-29
Figure 2-3	Typical Rock Slope Protection Cross-Section	2-30

List of Appendices

Appendix A	Title VI Policy Statement
Appendix B	Summary of Project Features and Avoidance and Minimization Measures
Appendix C	List of Abbreviations
Appendix D	List of Technical Studies and References

Chapter 1 Proposed Project

1.1 Introduction

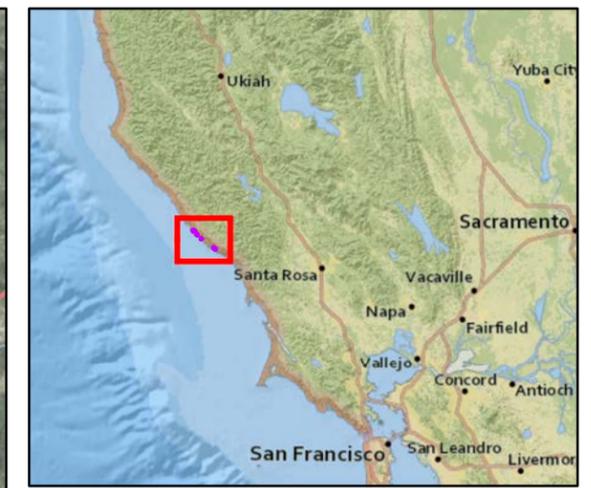
The California Department of Transportation (Caltrans) is the California Environmental Quality Act (CEQA) lead agency and sponsor for the proposed Sonoma 1 Culvert Rehabilitation Project (project) and has prepared this Initial Study with Proposed Negative Declaration.

The proposed project is located along State Route (SR) 1 in Sonoma County, California, from post mile (PM) 30.8 to 40.6 (see Figure 1-1, Project Location). The scope of the project is to replace 23 existing damaged or failed culverts (from south to north) between Mill Gulch and 0.5 mile south of Miller Creek.

This project is funded by the State Highway Operation and Protection Program 201.151 for the 2021-2022 fiscal year, under the Drainage System Restoration Projects.

1.2 Purpose and Need

The purpose of the project is to preserve the structural integrity of SR 1 within the project corridor and to prevent localized highway failures. The project is needed to replace 23 existing damaged or failed culverts that were determined to have deficiencies and require replacement to prevent further damage and possible failure of the highway. Addressing these deficiencies would prevent failure of the culverts and undermining of SR 1 or localized flooding and would avoid impacts to the safety of the traveling public.



LEGEND

- Culvert Work Area / Biological Study Area
- Project Corridor

Figure 1-1
Project Location
 Sonoma 1 Culvert Rehabilitation Project
 EA 1K730, SON-1 Post Mile 30.8 to 40.6
 Sonoma County, California

Chapter 2 Project Description

2.1 Introduction

The 10-mile stretch along SR 1 from PM 30.8 to PM 40.6 is defined for this project as the “project corridor” (see Figure 1-1). The project corridor is primarily a two-lane rural highway passing through agricultural, rural residential, coastal, and forested areas. The project corridor is also a recreational travel route, not only providing access to parks and scenic areas, but also serving as an attraction in itself. Within the project corridor, the route primarily consists of two 11- to 11.5-foot-wide lanes with 0- to 1-foot-wide shoulders. Due to the many sharp curves within the project corridor, posted speed limits range from 15 mph to 35 mph.

2.2 Culvert Work

In 2015, the Caltrans Office of Hydraulics performed field surveys along the project corridor and determined that 22 culverts have either materially or hydraulically deteriorated, with conditions including, but not limited to, eroding linings, damaged ends, and inadequate drainage capacity. During March and April 2018, additional field surveys were conducted and two more culverts, at PM 31.44 and PM 36.59, were added to the project scope, while one culvert, at PM 31.81, was eliminated because it had already been replaced. Therefore, as part of this project, 23 culverts would be replaced in kind or upgraded to the appropriate size to provide adequate drainage capacity (see Table 2-1 and Figure 2-1). The area around the culverts that would potentially be impacted by construction activities are called out in Figure 2-1 as culvert work areas.

At each location, the main culvert pipe would be replaced, with a new pipe of the same or larger size, as listed in Table 2-1 and illustrated in Figure 2-1. Twenty-one of the culverts are currently corrugated metal pipe type culverts. The culvert at PM 31.5 is a plastic pipe and the culvert at PM 31.76 is a reinforced concrete pipe. New culvert types would be determined during the design phase but would most likely be corrugated metal or plastic.

Table 2-1 Project Design Elements

Culvert Number	PM	Proposed Project Elements for Each Culvert
#1	30.81	<ul style="list-style-type: none"> • Replace 18-inch corrugated metal pipe (CMP) in kind • Install headwall upstream • Install rock slope protection (RSP) downstream
#2	31.12	<ul style="list-style-type: none"> • Upsize the 18-inch CMP culvert to a 24-inch culvert
#3	31.26	<ul style="list-style-type: none"> • Replace 24-inch CMP in kind • Grade upstream and downstream ditches
#4	31.44	<ul style="list-style-type: none"> • Replace 18-inch CMP in kind • Install RSP downstream
#5	31.49	<ul style="list-style-type: none"> • Replace 18-inch CMP in kind • Install 12-inch down drain CMP with entrance taper to replace existing plastic pipe
#6	31.51	<ul style="list-style-type: none"> • Upsize the 8-inch plastic pipe to an 18-inch culvert • Install new 12-inch down drain CMP • Grade upstream
#7	31.76	<ul style="list-style-type: none"> • Upsize 12-inch reinforced concrete pipe to an 18-inch culvert • Install new 12-inch down drain CMP • Install headwall upstream
#8	35.34	<ul style="list-style-type: none"> • Upsize 12-inch CMP with 18-inch culvert • Replace existing drainage inlet in kind upstream • Install new drainage inlet junction structure at southbound ROW
#9	36.53	<ul style="list-style-type: none"> • Replace 24-inch CMP in kind
#10	36.59	<ul style="list-style-type: none"> • Upsize 12-inch CMP to an 18-inch culvert • Grade upstream and downstream ditches
#11	36.67	<ul style="list-style-type: none"> • Upsize 18-inch CMP to 24-inch culvert
#12	37.17	<ul style="list-style-type: none"> • Upsize 12-inch CMP to 18-inch culvert • Install headwall downstream
#13	38.12	<ul style="list-style-type: none"> • Replace 36-inch CMP in kind
#14	38.58	<ul style="list-style-type: none"> • Replace 18-inch CMP in kind
#15	38.80	<ul style="list-style-type: none"> • Upsize 18-inch CMP to 24-inch culvert
#16	38.83	<ul style="list-style-type: none"> • Upsize 18-inch CMP to 24-inch culvert
#17	39.30	<ul style="list-style-type: none"> • Replace 18-inch CMP in kind
#18	39.89	<ul style="list-style-type: none"> • Replace 24-inch CMP in kind • Grade ditch downstream
#19	39.98	<ul style="list-style-type: none"> • Replace 18-inch CMP in kind
#20	40.00	<ul style="list-style-type: none"> • Replace 18-inch CMP in kind
#21	40.16	<ul style="list-style-type: none"> • Replace 24-inch CMP in kind
#22	40.33	<ul style="list-style-type: none"> • Upsize 18-inch CMP with 24-inch culvert • Install RSP
#23	40.57	<ul style="list-style-type: none"> • Replace 18-inch CMP in kind

Culvert design elements that are included at select locations are described below, summarized in Table 2-1, and shown on Figure 2-1.

- **Rock Slope Protection (RSP):** RSP consists of a layer of rocks used to stabilize slopes and prevent erosion (see Figure 2-3). RSP would be installed downstream of three culverts (PM 30.81, PM 31.44, and PM 40.33). To install RSP, loose rock and sediment would be removed and the slope graded to a depth of relatively stable sediment. Fabric or gravel is then placed over the sediment and covered with rocks. For this project, soil-filled RSP will be used such that a blend of local soil and fine compost is placed in rock voids and as a topsoil cover and seeded with native species. Rock used in RSP would be selected to blend with the native rock and soil.
- **Headwall:** New headwalls would be installed at three culverts (PMs 30.81, 31.76, and 37.17). Headwalls are concrete walls typically installed at the upstream end of a culvert; but may also be constructed at the downstream end. Headwalls are used to prevent the creation of an overly steep side slope, to improve water flow, to provide anchoring support for the culvert to prevent dislodging under excessive pressures, to control erosion and scour from high water velocities, and to prevent adjacent soil from sloughing into the waterway opening. Headwalls also confine pipe segments to prevent joint separation which may lead to leaks into the soil around the culvert. Approximate headwall dimensions are 9 feet wide by 5 feet high, with a 5-foot-deep base.
- **Down drain:** New or replacement down drains would be installed at some culverts. Down drains are pipes attached to the downstream end of the culvert that, for this project, would be corrugated metal.
- **Drainage inlet:** A drainage inlet is the opening in the storm drainage system that collects water from roads and it conveys it to the storm drain system. At culvert PM 35.34, an existing inlet would be replaced. In addition, a new inlet with an inlet junction structure would be constructed downstream. No other locations have or need drainage inlets.
- **Ditch Grading:** Grading would occur upstream and/or downstream of certain culverts to allow positive water flow and reduce potential erosion.

At two locations, PM 30.81 and PM 38.58, metal beam guardrail (MBGR) is located above the existing culverts on the west side of SR 1. The MBGR at these two

locations is approximately 700 feet and 600 feet long respectively. Culvert replacement at these locations would require removal and in-kind replacement of a section of the MBGR. Only the portion of MBGR that is in conflict with construction would be removed instead of replacing the whole stretch of MBGR.

In addition to the replacement of the main culvert pipe, additional features would be constructed at certain culverts. “Project Features,” which can include both design elements of the project and standardized measures that are typically used in Caltrans projects (such as best management practices [BMPs] and measures included in the Standard Plans and Specifications or as Standard Special Provisions), are considered an integral part of the project and have been considered prior to any significance determinations documented below. Project Features are described in various resource sections in Chapter 3 and are compiled in Appendix B.

2.3 Construction Methodology, Schedule, and Equipment

2.3.1 Methodology

The scope of work for the project includes construction, staging, and equipment and materials storage. All 23 culverts would be replaced using open cut construction. Because SR 1 is a two-lane highway with 0 to 1-foot shoulders in the project corridor, closure of one lane of traffic would be necessary during construction. One-way traffic control would be used to divert traffic. Flaggers would be used to stop traffic at either end of the construction area, while portable cones would be used to separate the lane open to traffic from the lane under construction. The project is expected to be built in three stages.

The first stage includes vegetation clearing and grubbing. In the second stage, a trench would be excavated across the closed lane and the portion of the existing pipe located in the closed lane would be replaced. The trench would be backfilled, potentially with rapid-setting slurry cement, and paved. Once completed on one side of SR 1, the same process would occur on the other side with one lane remaining open for traffic. The pipe halves would be joined together in the trench. Excess soil would be off-hauled immediately. Work not completed in a single working day would be covered with steel plates until the next working day.

In the third stage, off-pavement work such as RSP placement, down drain installation, ditch grading, permanent erosion control measures, highway planting, and MBGR replacement would occur.

Construction within regulated creeks would be restricted to the dry season (between June 15 and October 15). Streams in the project corridor are generally ephemeral (have water just for brief periods as a result of rainfall) or intermittent (have water during the wet season but are normally dry during the summer); however, temporary stream diversion during construction would be implemented as needed. Stream diversion may consist of coffer dams and conduit to direct the stream through the existing culverts to the outfall.

No utility relocation is anticipated for this project. A fiber optic cable owned by Frontier Communications is buried approximately 1 foot deep beneath the northbound lane of SR 1 from approximately PM 30.9 to PM 40.6. Frontier Communications would be contacted and notified of construction schedules for proposed culvert replacement work and to determine any special instructions to protect the cable. The construction contractor would be made aware of the cable during excavation, placement, and backfill of the culverts as well as measures for cable avoidance. Utilities verification including potholing would also be required.

There are Pacific Gas and Electric Company (PG&E) overhead distribution lines along the project corridor but pole relocation is not anticipated for this project. All work would occur within the Caltrans right of way (ROW), which is state owned property used for transportation purposes.

2.3.2 Schedule

Construction would occur between January 2023 and May 2024 and would take approximately 200 work days. Construction restrictions such as limiting construction activities to occur only during daylight hours and work within streams and drainages restricted to the dry season (June 15 to October 15) would be implemented. In addition, vegetation removal would be scheduled to avoid impacts to nesting birds (usually between February 1 to September 30).

2.3.3 Equipment and Materials

Construction equipment would include, but not be limited to, excavators, paving equipment, small bobcats, skip loaders, cement mixers, flatbed trucks, dump trucks, water trucks, and generators.

Construction equipment and materials would be stored within the limits of the one-way traffic control in Caltrans ROW. Overnight storage of equipment and materials may occur on gravel or bare dirt surfaces in pullouts within the project corridor identified on Figure 2-1, or may occur at the Caltrans Fort Ross Maintenance Facility

near PM 35. During culvert replacement work, materials and equipment would be staged in the closed lane adjacent to the culvert being replaced.

2.4 Impacts on Vegetation

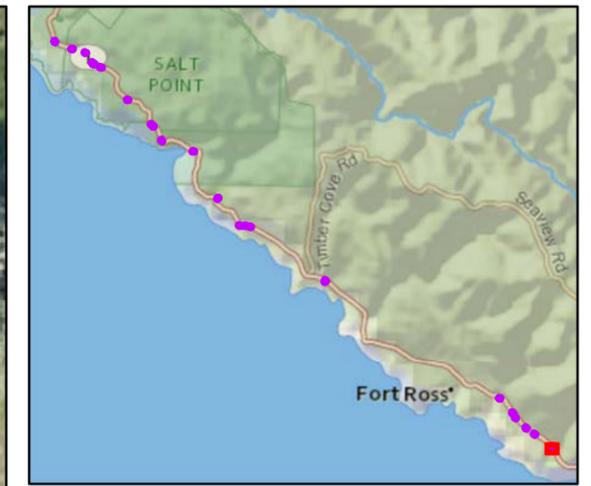
Vegetation clearing and grubbing would occur in the work area immediately adjacent to the 23 culverts, within the Caltrans ROW. The project is expected to remove approximately 17 native trees. Trees and vegetation outside the culvert work areas would be protected from construction activities using high visibility fencing, flagging or similar methods to identify limits of the construction areas. Grasses and shrubs removed during construction would be replaced by seeding locally native species to revegetate disturbed areas. Areas of RSP would receive topsoil cover of blended local soil and fine compost and would be seeded using locally native species. Replacement planting would include a 1-year plant establishment period. A truck-watering irrigation system will be used during this period as needed. The alignment of new or replaced down drains would be adjusted to reduce impact to vegetation and biological resources.

2.5 Permits and Approvals Needed

Table 2-2 summarizes the permits required for the proposed project by the respective agencies as well as permit status.

Table 2-2 Required Permits

Agency	Permit	Permit Status
U.S. Army Corps of Engineers	Section 404 Permit	Application submittal anticipated during next project phase
North Coast Regional Water Quality Control Board	Section 401 Water Quality Certification	Application submittal anticipated during next project phase
California Department of Fish and Wildlife	Section 1602 Lake and Streambed Alteration Agreement	Application submittal anticipated during next project phase
United States Fish and Wildlife Service	Biological Opinion	Application submitted during project approval and environmental document (PA&ED) phase
California Coastal Commission	State Coastal Development Permit	Application submittal anticipated during next project phase
Sonoma County	Local Coastal Development Permit	Application submittal anticipated during next project phase



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - Streams
- Project Features**
- Replace Culvert
 - Replace Guard Rail
 - Rock Slope Protection (RSP)(0.036 acre)
 - New Headwall (0.003 acre)
 - Staging Area (0.088 acre)

Imagery Source:
Sonoma County Spring 2018

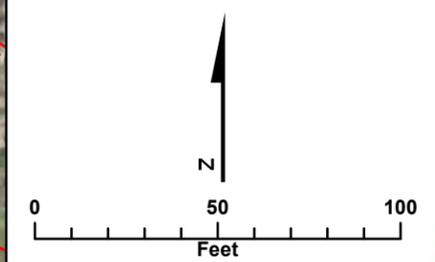
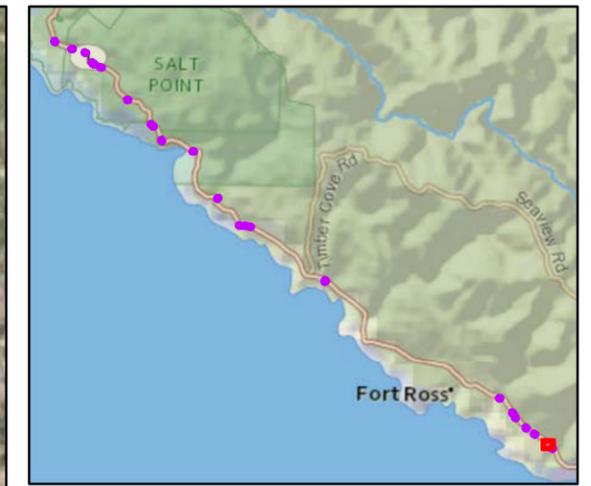


Figure 2-1
Map 01 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert
 - Replace Guard Rail
 - New Headwall (0.003 acre)
 - Staging Area (0.088 acre)

Imagery Source:
Sonoma County Spring 2018

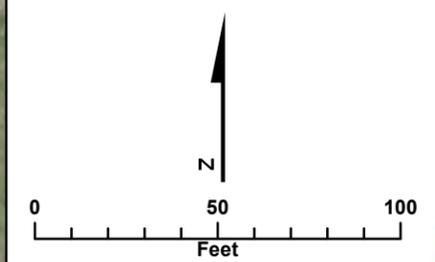
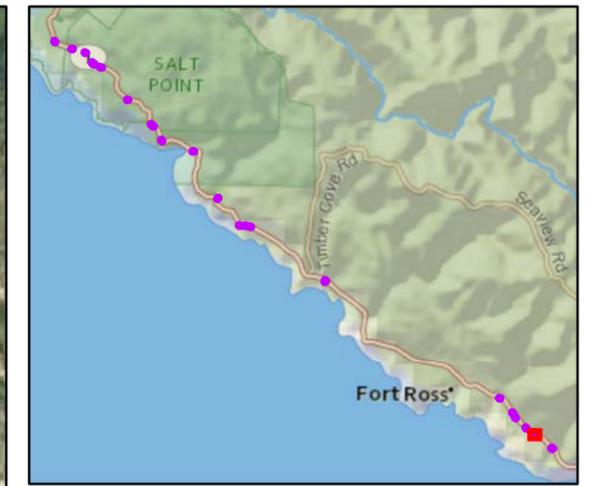


Figure 2-1
Map 02 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert

Imagery Source:
Sonoma County Spring 2018

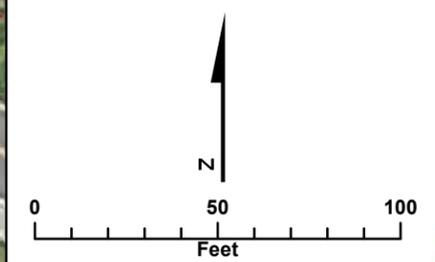
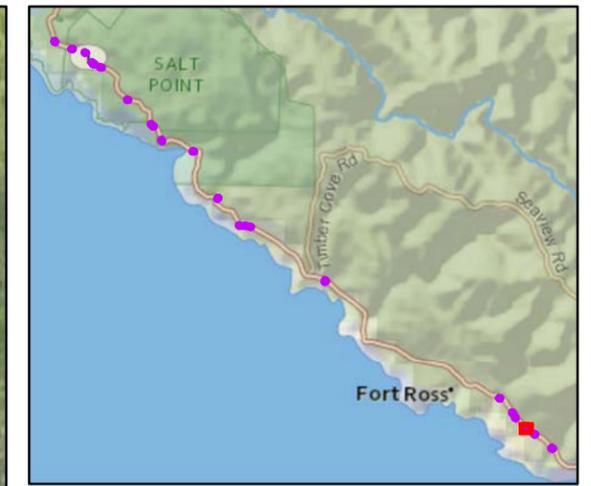
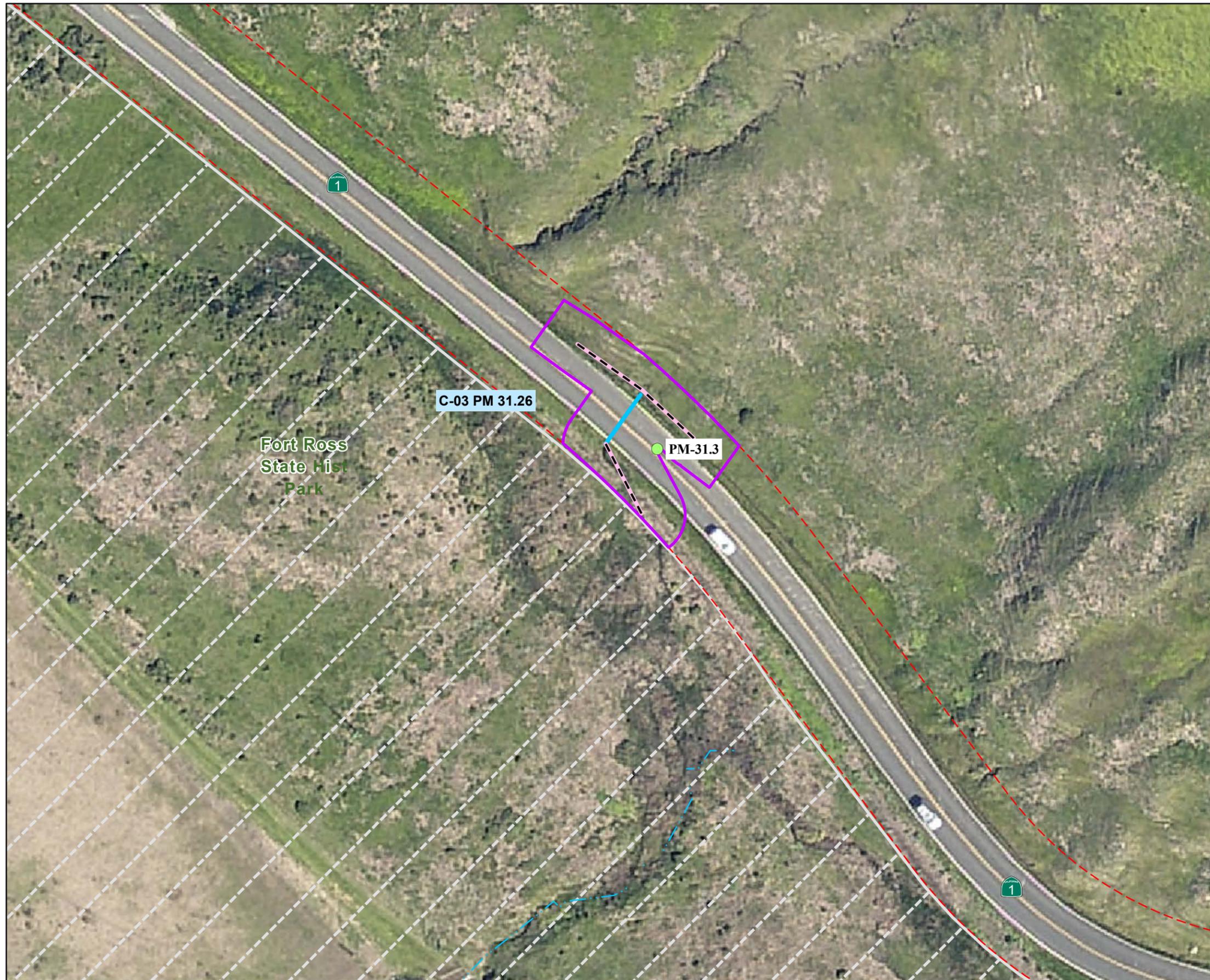


Figure 2-1
Map 03 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert
 - Grade Ditch

Imagery Source:
Sonoma County Spring 2018

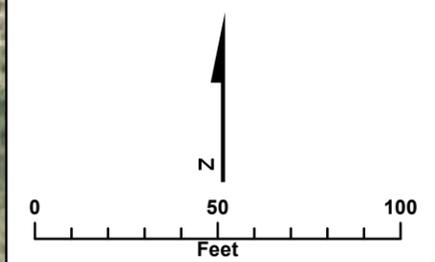
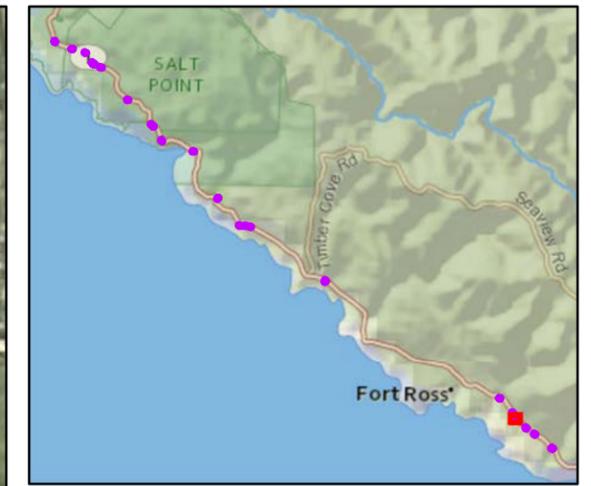
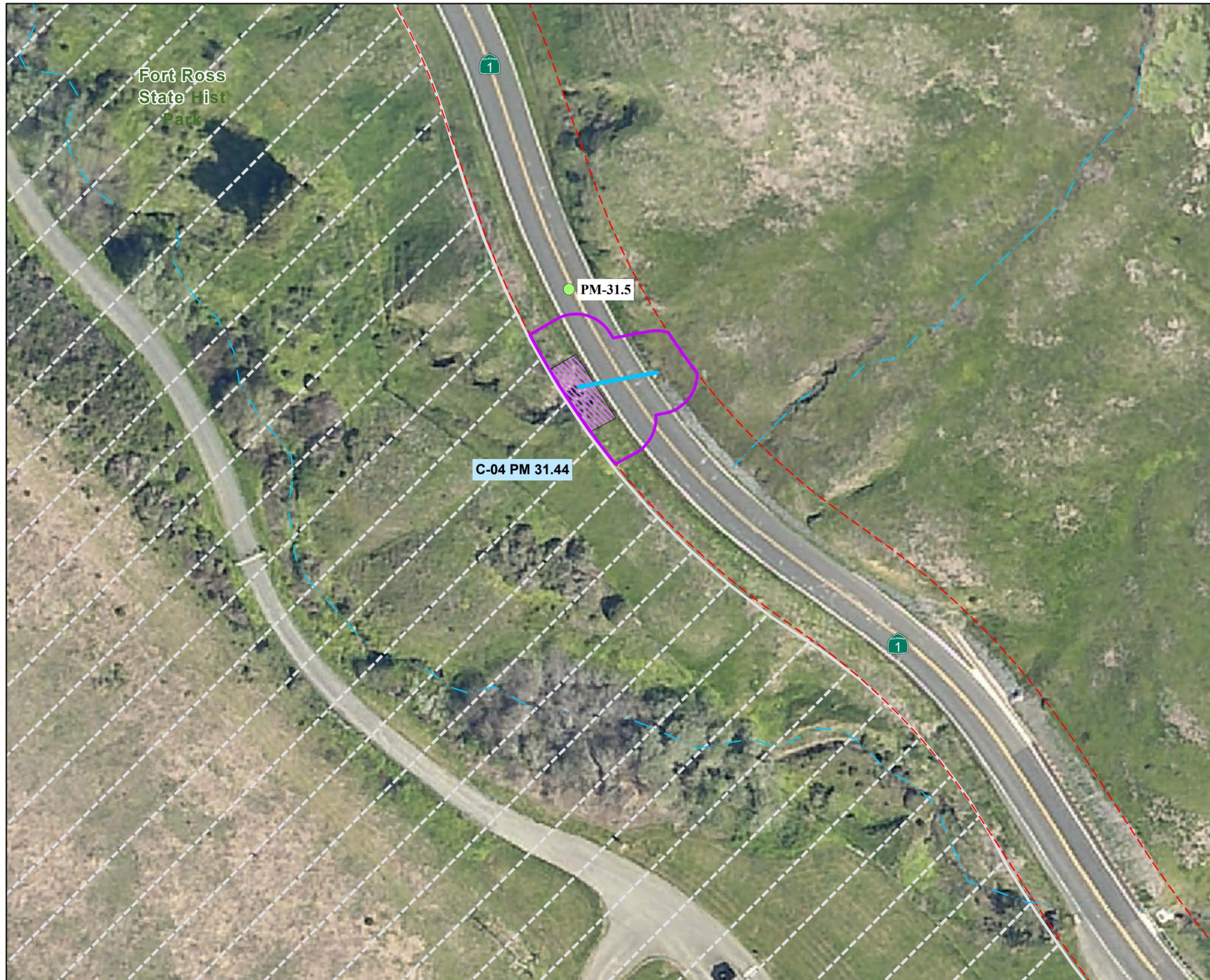


Figure 2-1
Map 04 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert
 - Rock Slope Protection (RSP)(0.036 acre)

Imagery Source:
Sonoma County Spring 2018

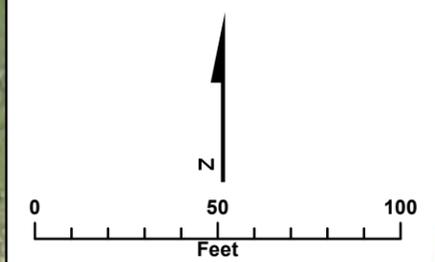
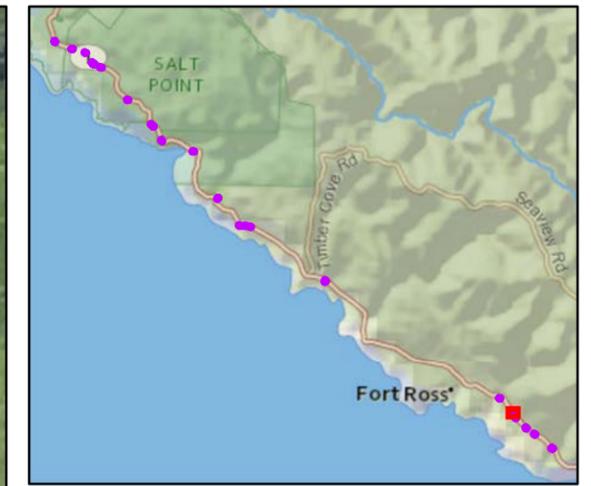


Figure 2-1
Map 05 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert
 - Replace Downdrain
 - Grade Ditch

Imagery Source:
Sonoma County Spring 2018

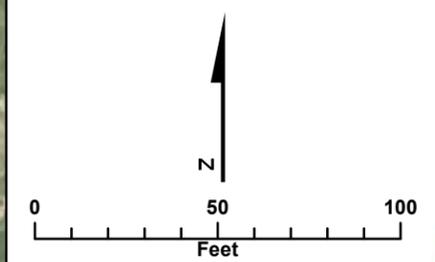
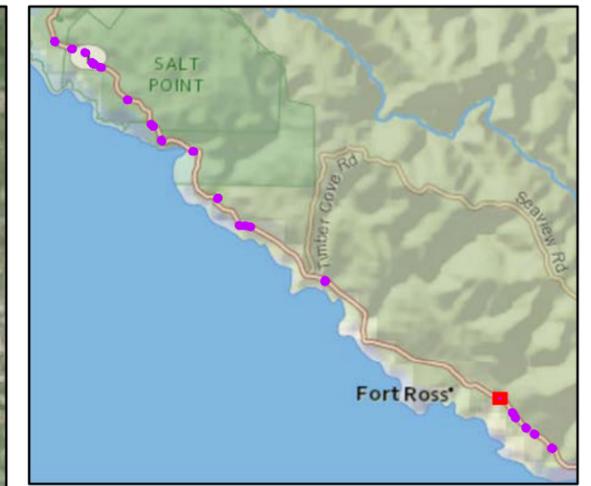
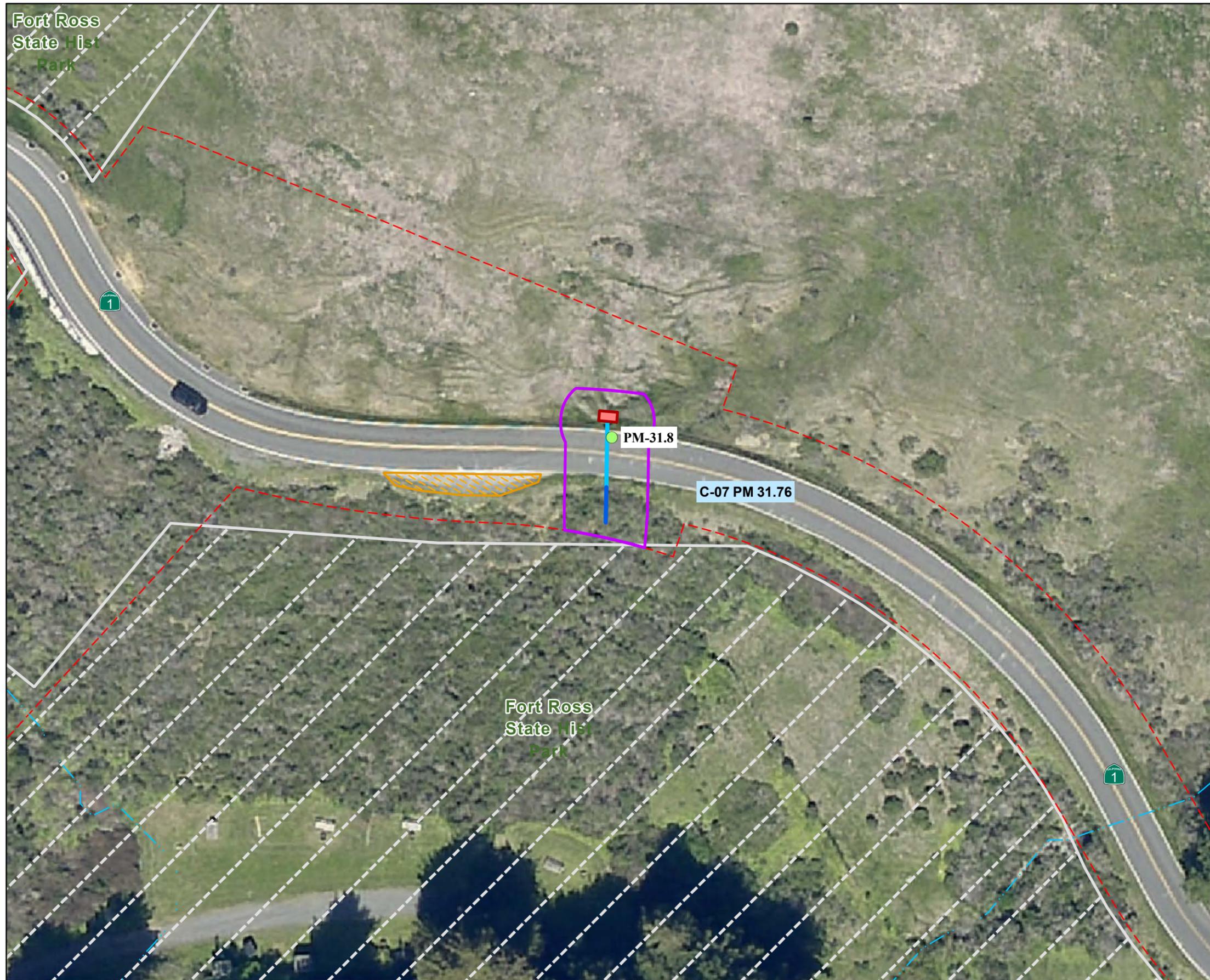


Figure 2-1
Map 06 of 21
Project Design Elements
 Sonoma 1 Culvert Rehabilitation Project
 EA 1K730, SON-1 Post Mile 30.8 to 40.6
 Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert
 - Replace Downdrain
 - New Headwall (0.003 acre)
 - Staging Area (0.088 acre)

Imagery Source:
Sonoma County Spring 2018

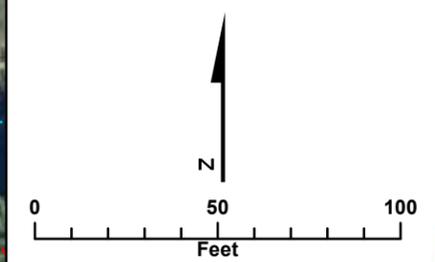
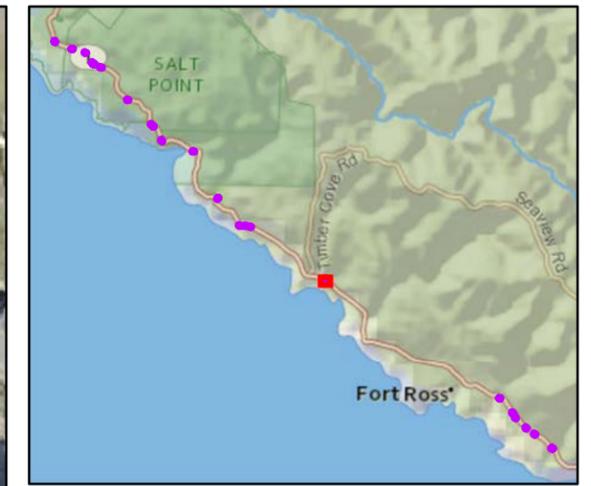


Figure 2-1
Map 07 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



LEGEND

- Culvert Work Area / Biological Study Area
- Caltrans Right of Way
- Post Mile
- ~ Streams

Project Features

- Replace Culvert
- Replace Downdrain
- Replace Inlet (0.0004 acre)

Imagery Source:
Sonoma County Spring 2018

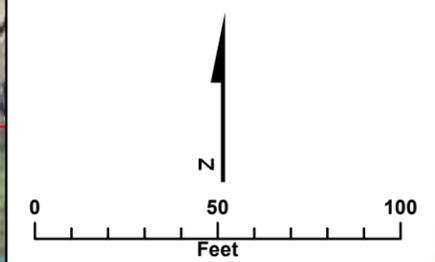
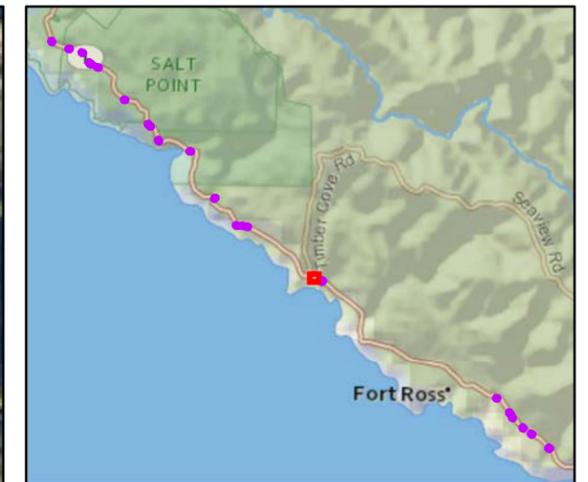


Figure 2-1
Map 08 of 21
Project Design Elements
 Sonoma 1 Culvert Rehabilitation Project
 EA 1K730, SON-1 Post Mile 30.8 to 40.6
 Sonoma County, California



LEGEND

-  Caltrans Right of Way
-  Post Mile
-  Streams
-  Staging Area (0.088 acre)

Imagery Source:
Sonoma County Spring 2018

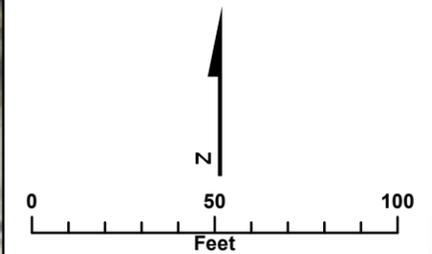
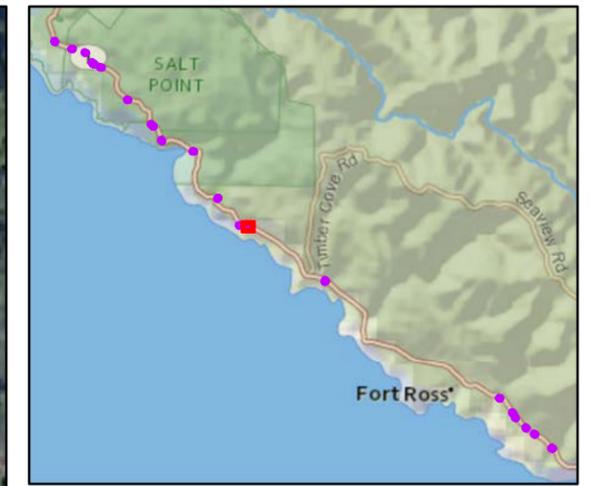
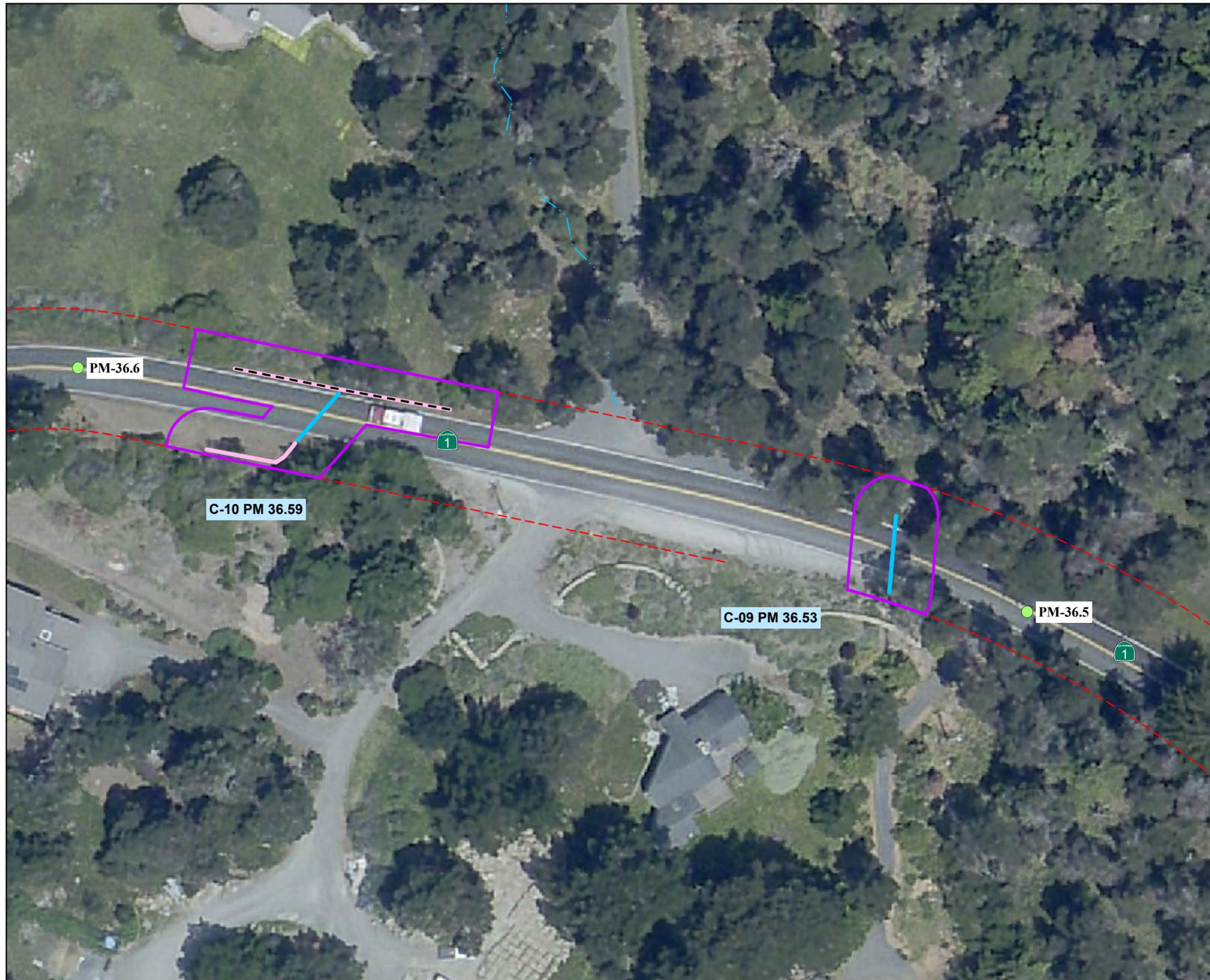


Figure 2-1
Map 09 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - Post Mile
 - - - Streams
 - Project Features**
 - Replace Culvert
 - Grade Ditch

Imagery Source:
Sonoma County Spring 2018

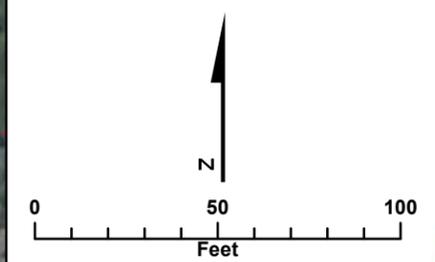
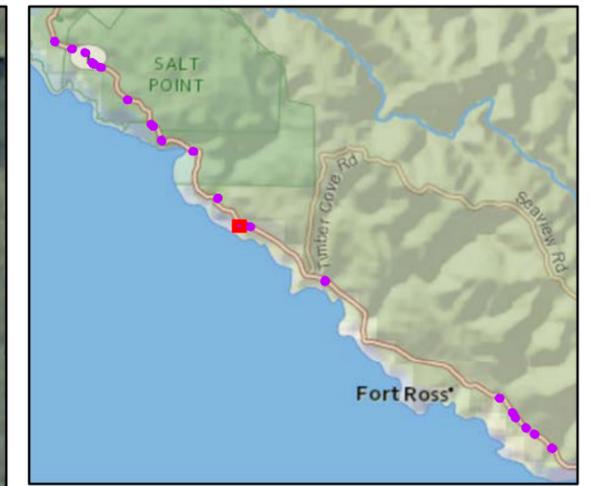


Figure 2-1
Map 10 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - Post Mile
 - ~ Streams
 - Project Features**
 - Replace Culvert

Imagery Source:
Sonoma County Spring 2018

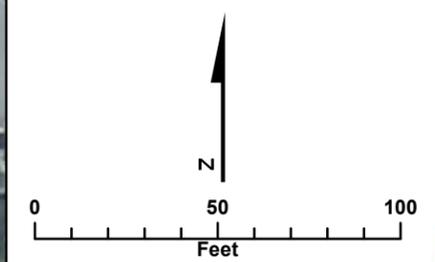
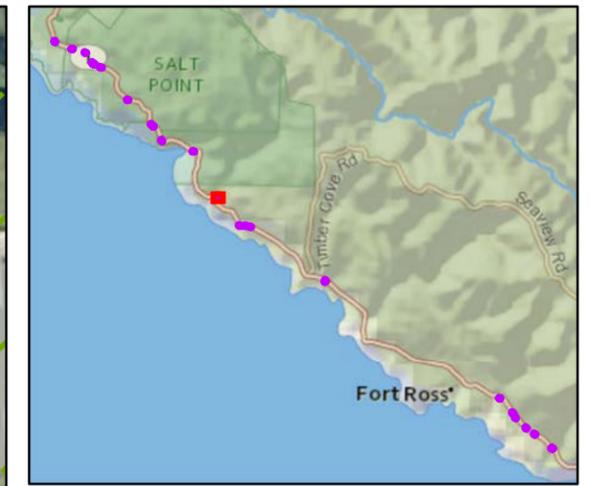
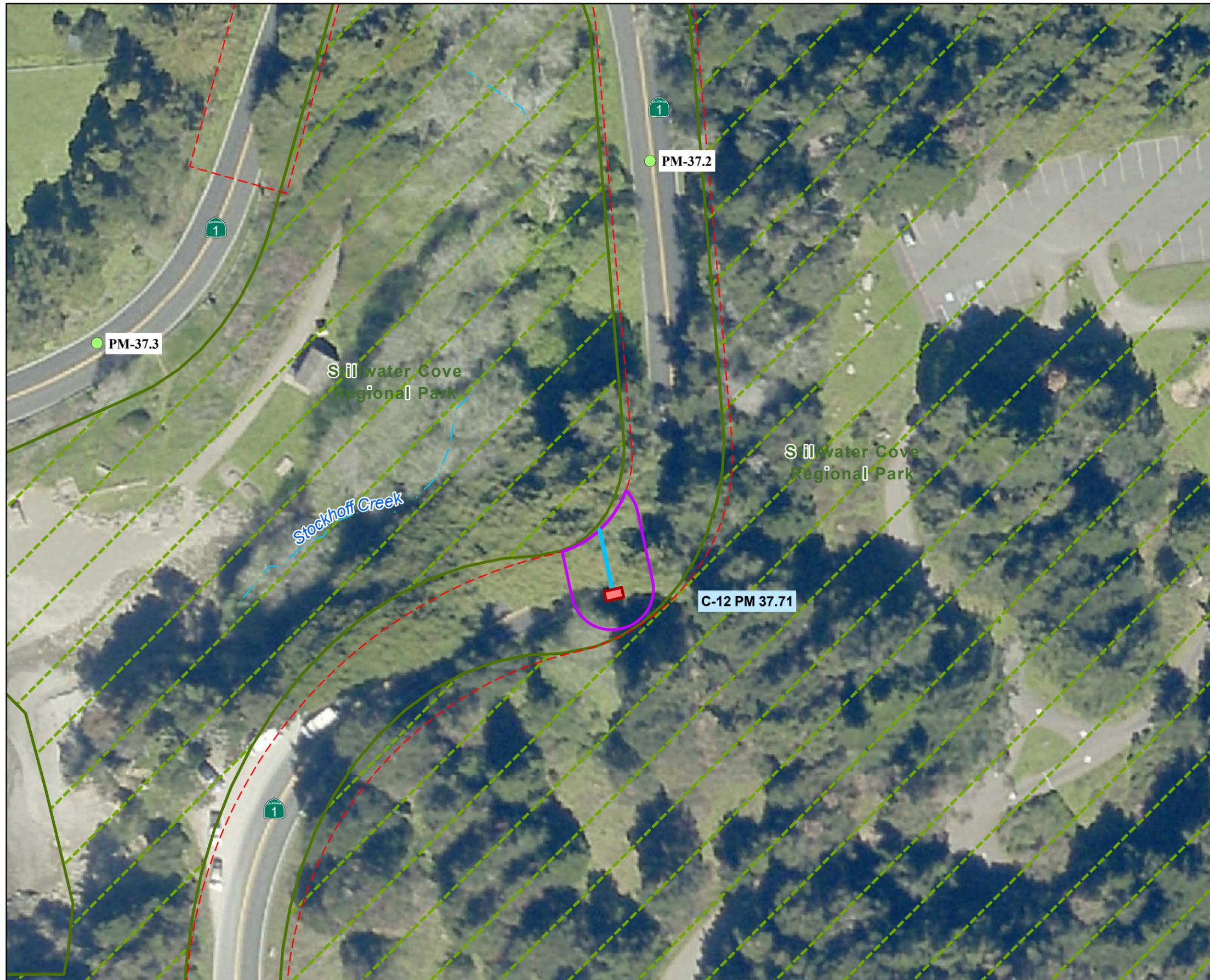


Figure 2-1
Map 11 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - Sonoma County Regional Parks
 - Post Mile
 - Streams
- Project Features**
- Replace Culvert
 - New Headwall (0.003 acre)

Imagery Source:
Sonoma County Spring 2018

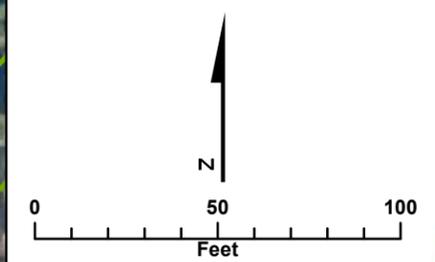
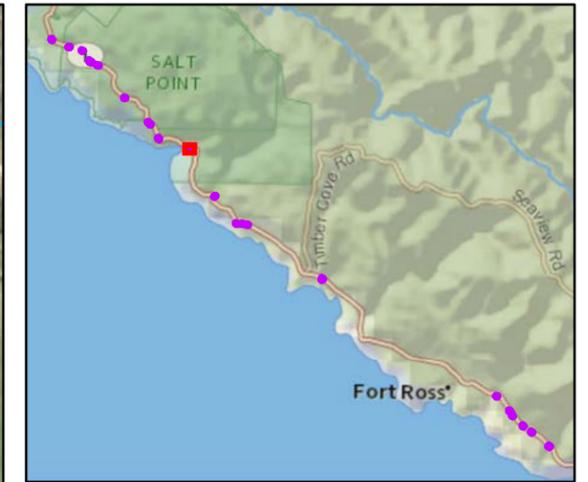


Figure 2-1
Map 12 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - Post Mile
 - - - Streams
- Project Features**
- Replace Culvert

Imagery Source:
Sonoma County Spring 2018

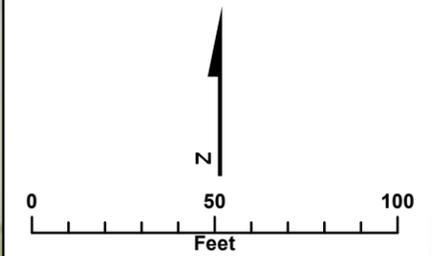
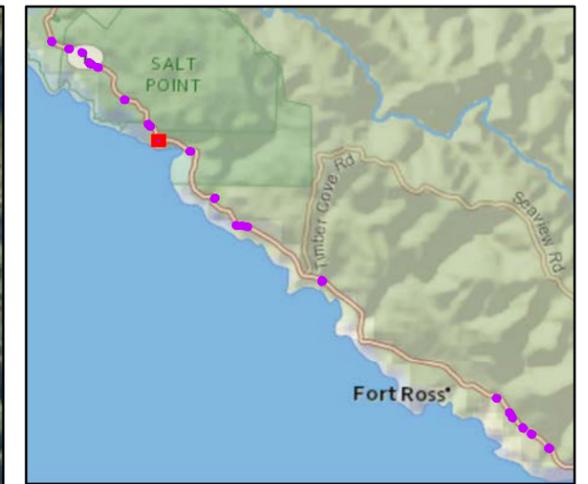


Figure 2-1
Map 13 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - Post Mile
 - - - Streams
- Project Features**
- Replace Culvert
 - Replace Downdrain
 - - - Replace Guard Rail

Imagery Source:
Sonoma County Spring 2018

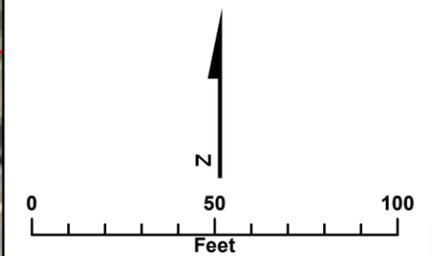
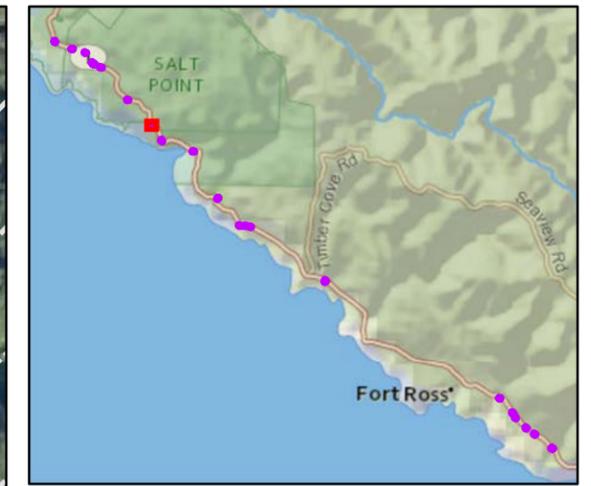


Figure 2-1
Map 14 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert

Imagery Source:
Sonoma County Spring 2018

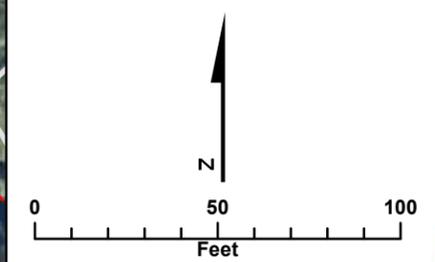
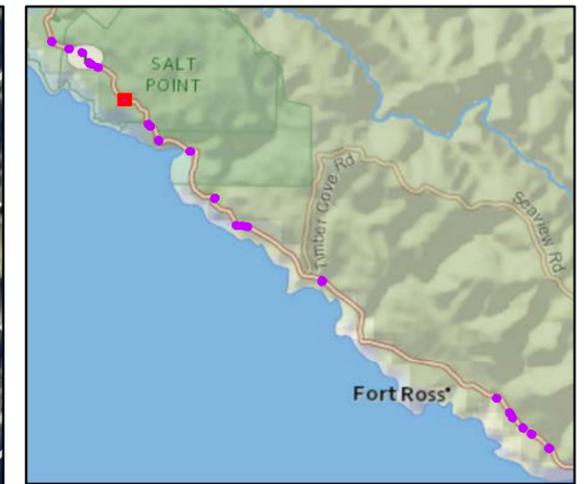
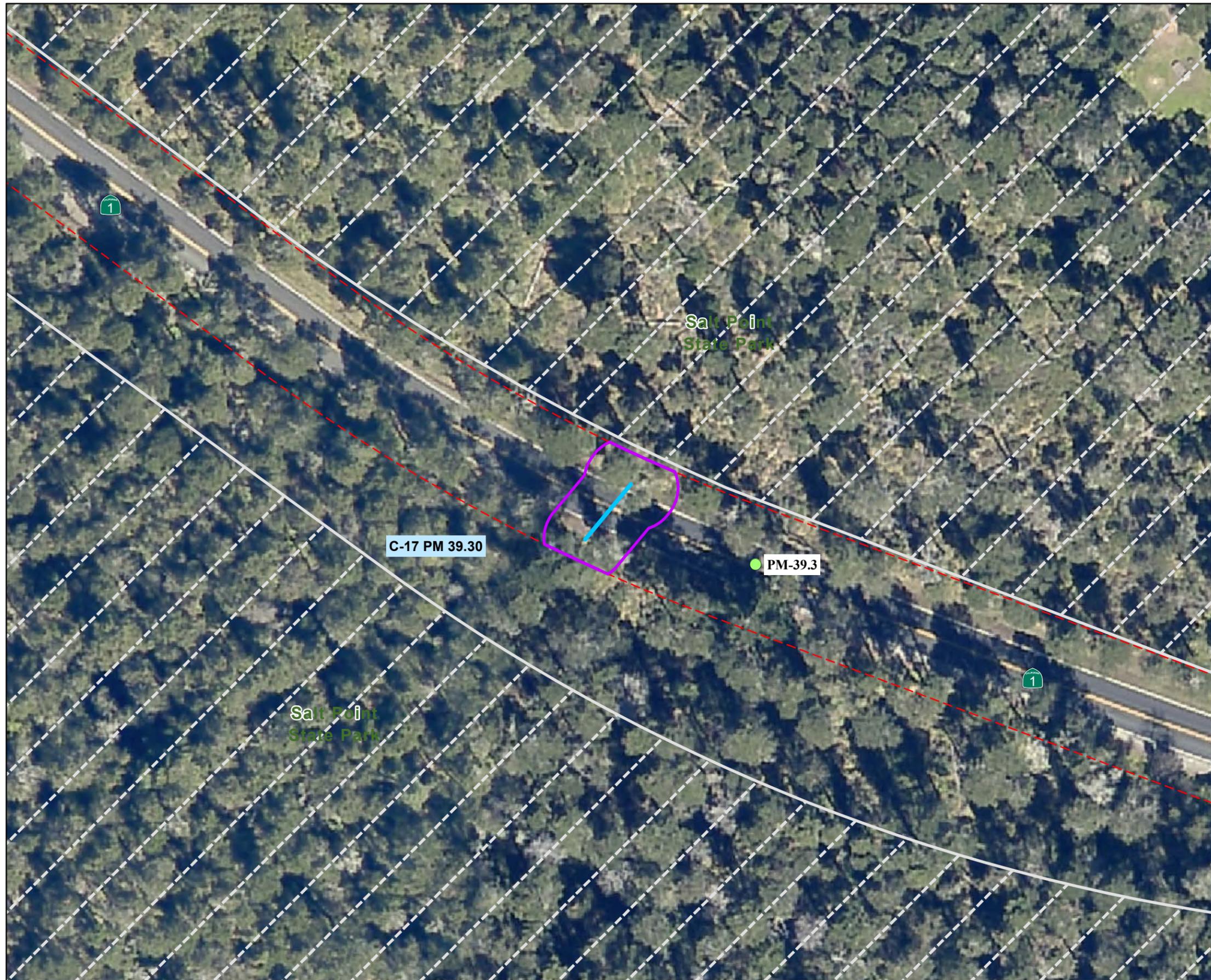


Figure 2-1
Map 15 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert

Imagery Source:
Sonoma County Spring 2018

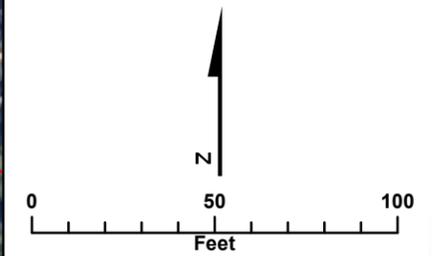
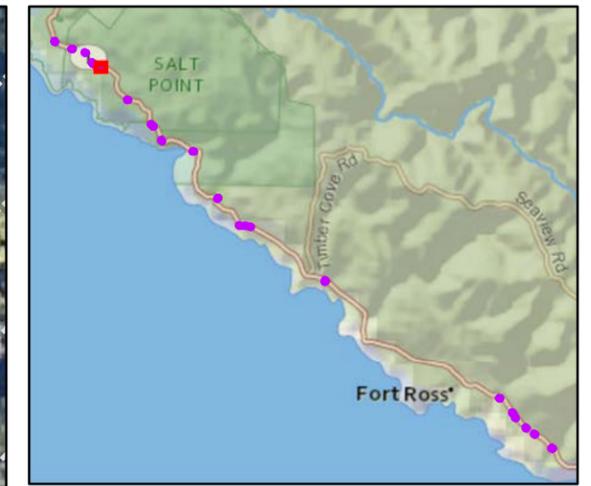
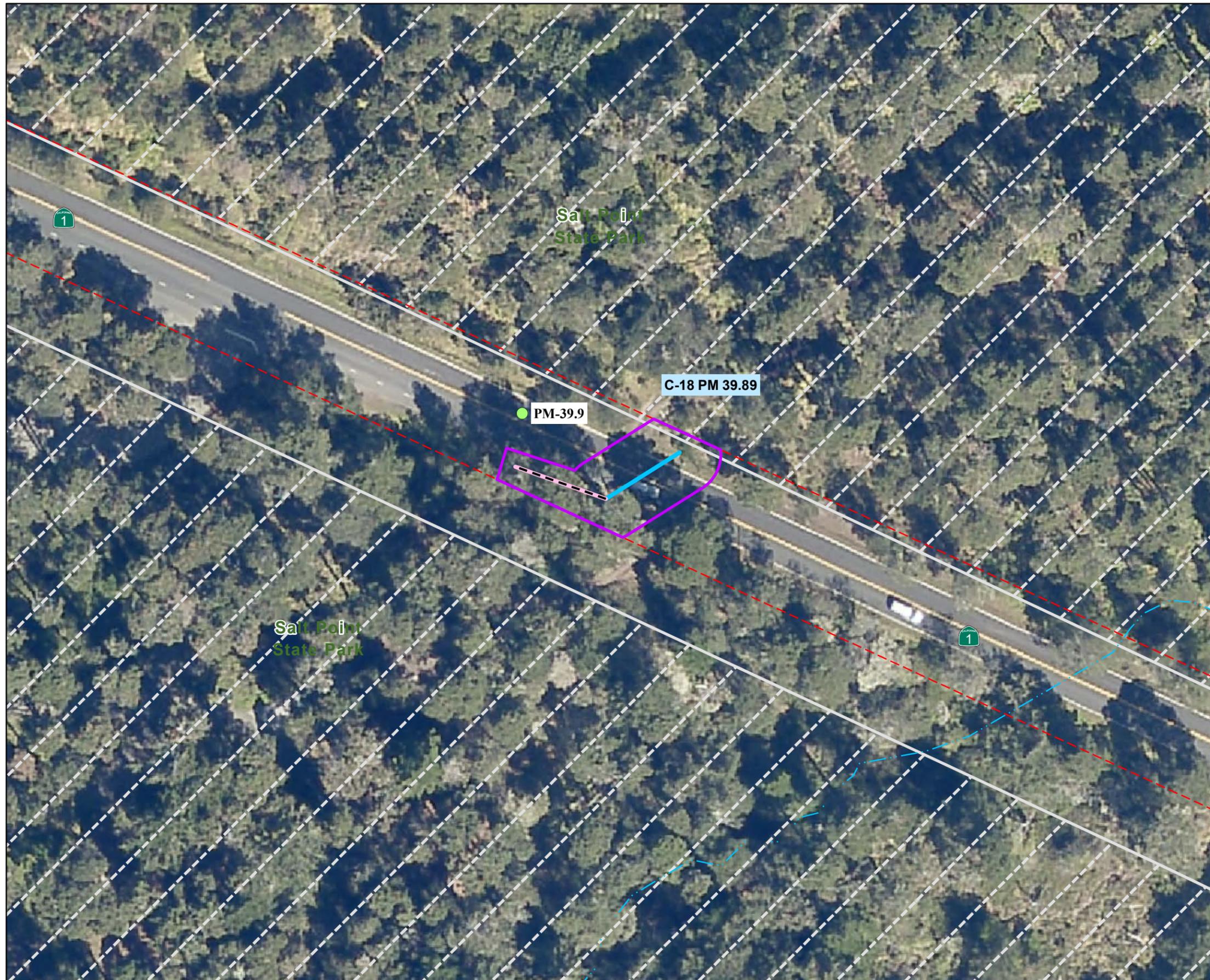


Figure 2-1
Map 16 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - - - Streams
- Project Features**
- Replace Culvert
 - - - Grade Ditch

Imagery Source:
Sonoma County Spring 2018

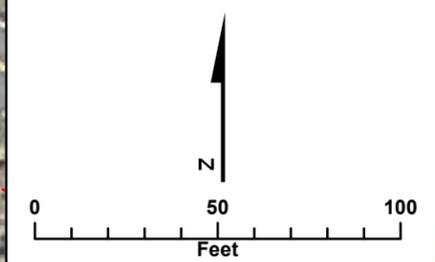
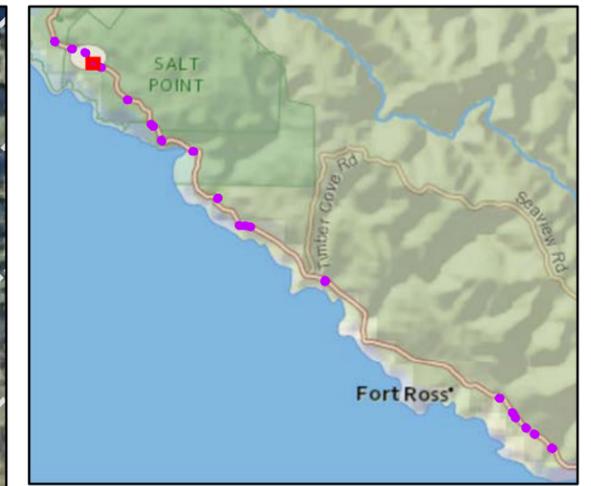
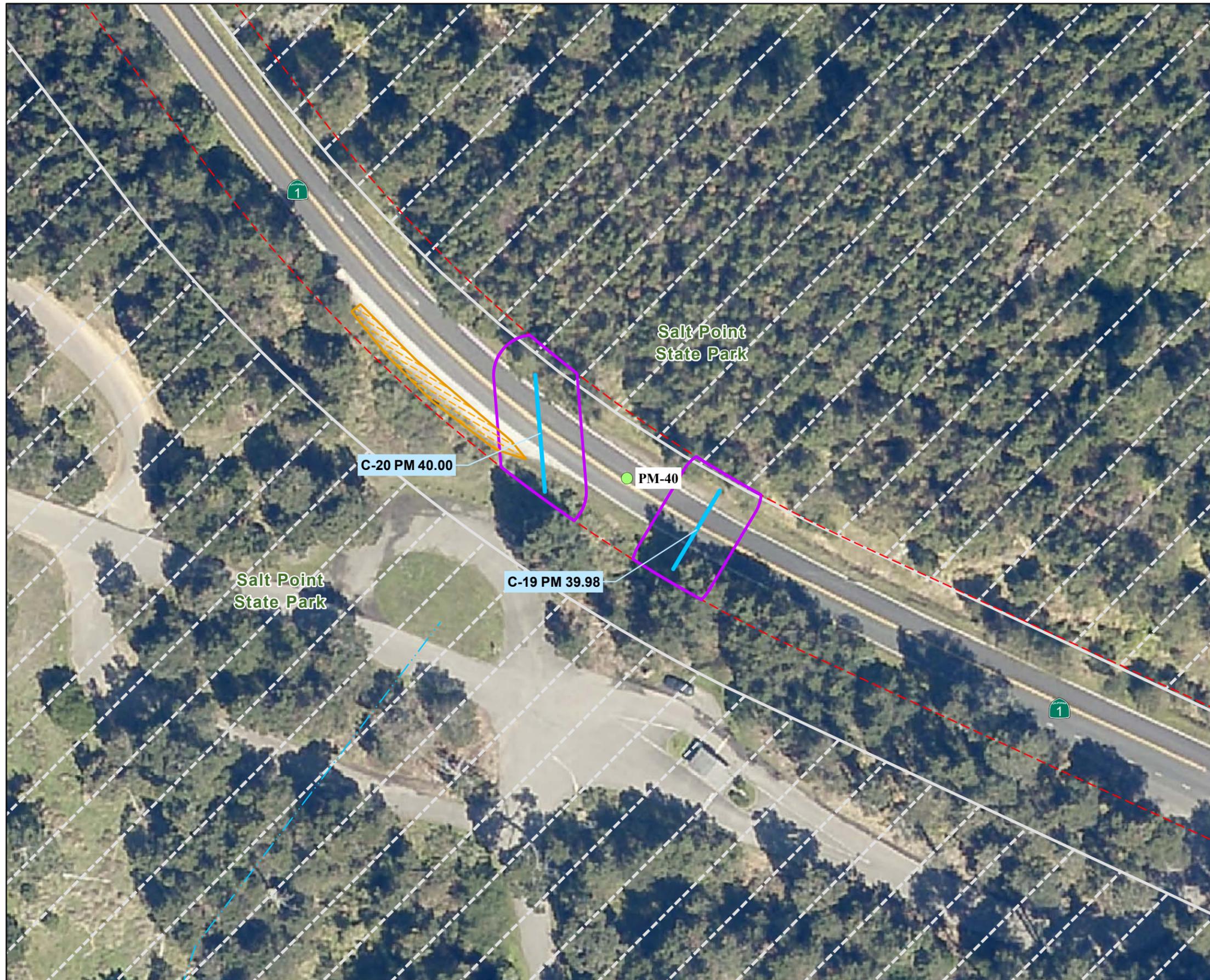


Figure 2-1
Map 17 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert
 - Staging Area (0.088 acre)

Imagery Source:
Sonoma County Spring 2018

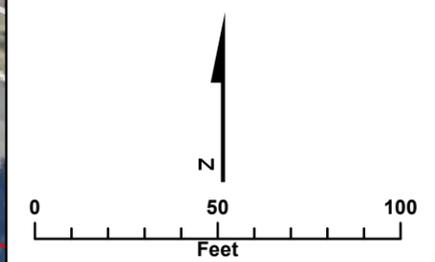
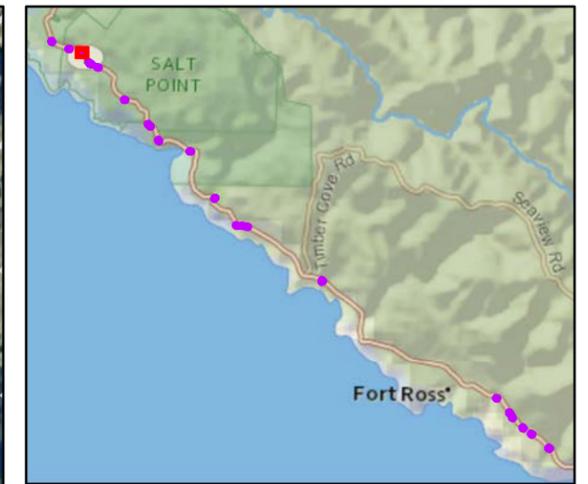
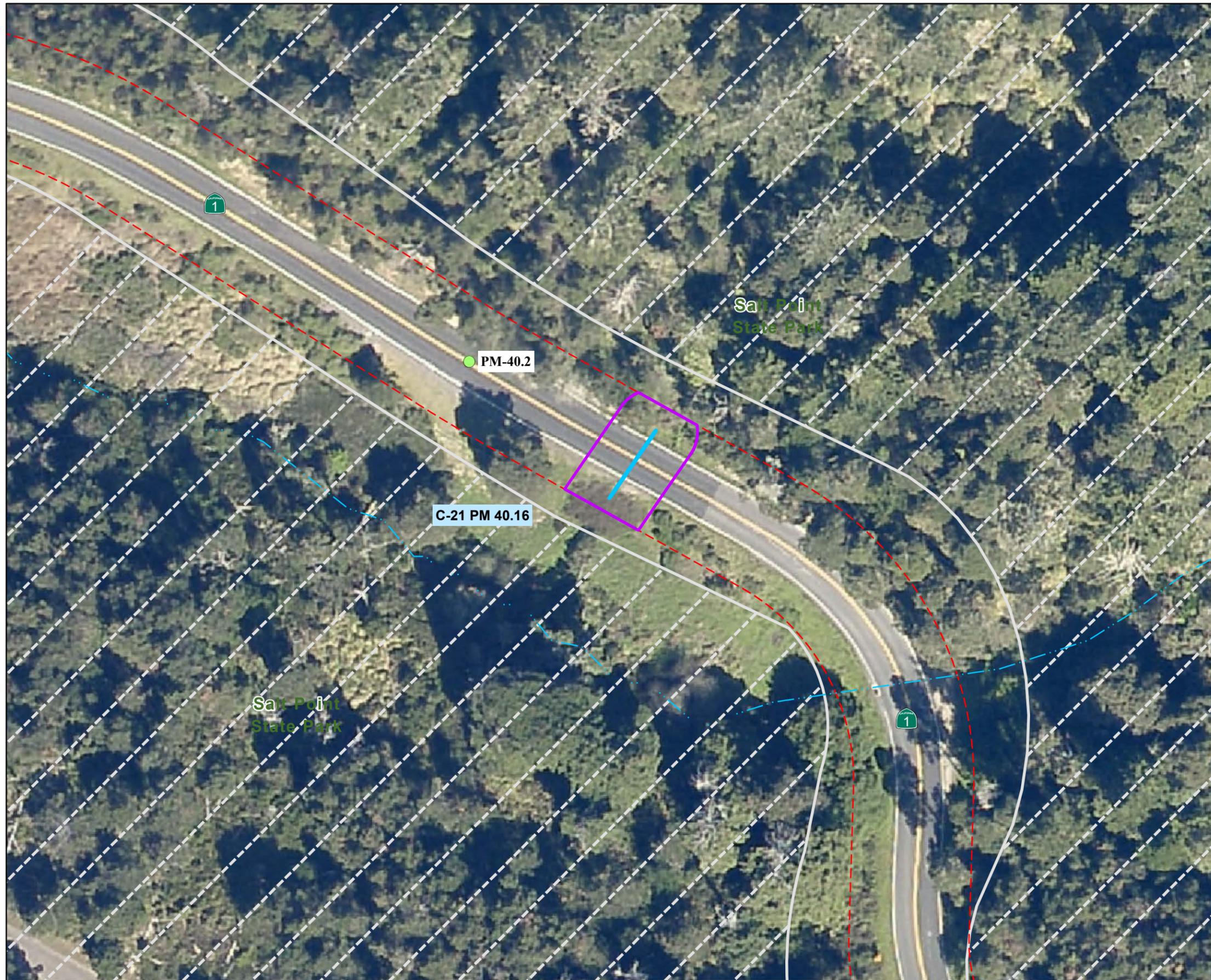


Figure 2-1
Map 18 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert

Imagery Source:
Sonoma County Spring 2018

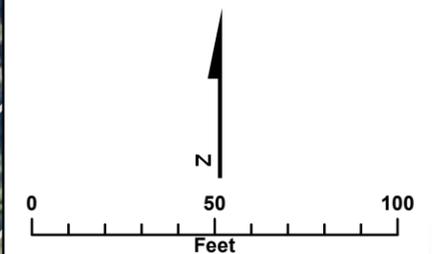
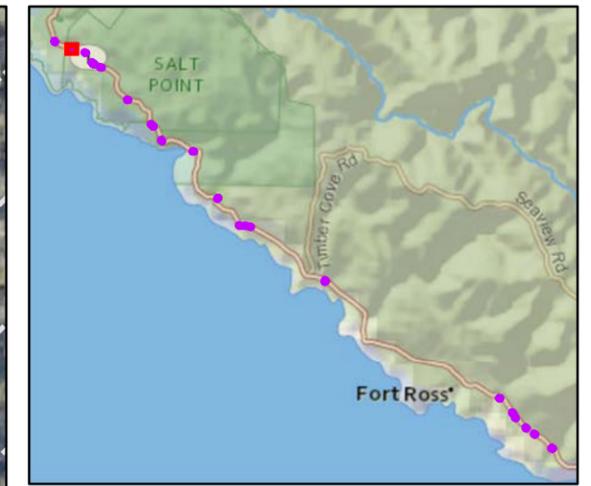
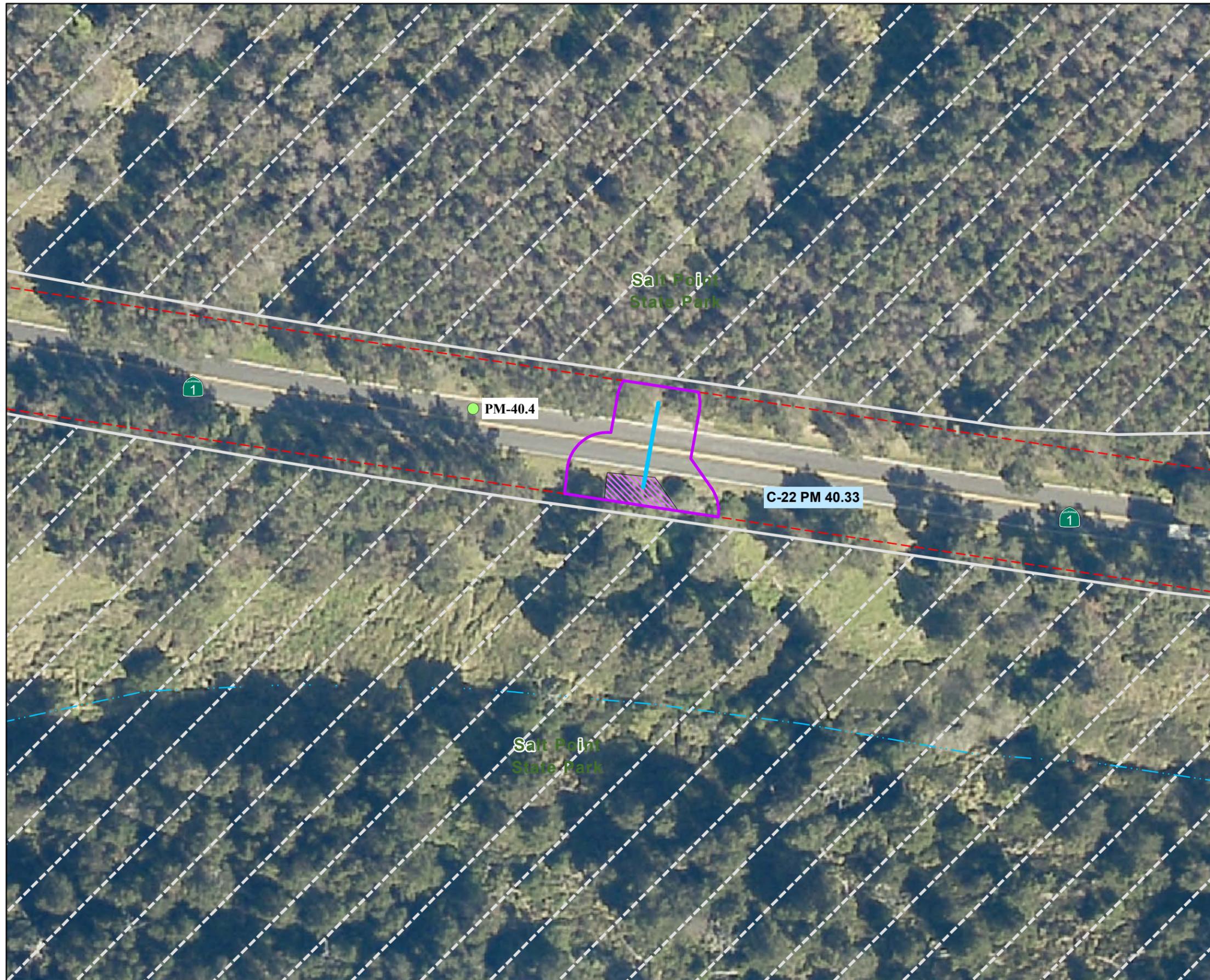


Figure 2-1
Map 19 of 21
Project Design Elements
 Sonoma 1 Culvert Rehabilitation Project
 EA 1K730, SON-1 Post Mile 30.8 to 40.6
 Sonoma County, California



- LEGEND**
- Culvert Work Area / Biological Study Area
 - Caltrans Right of Way
 - State Parks
 - Post Mile
 - ~ Streams
- Project Features**
- Replace Culvert
 - Rock Slope Protection (RSP)(0.036 acre)

Imagery Source:
Sonoma County Spring 2018

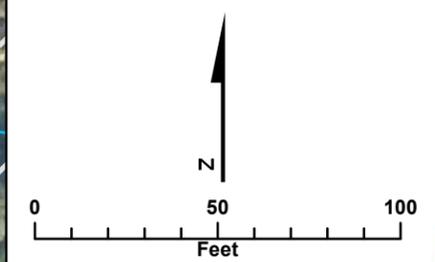
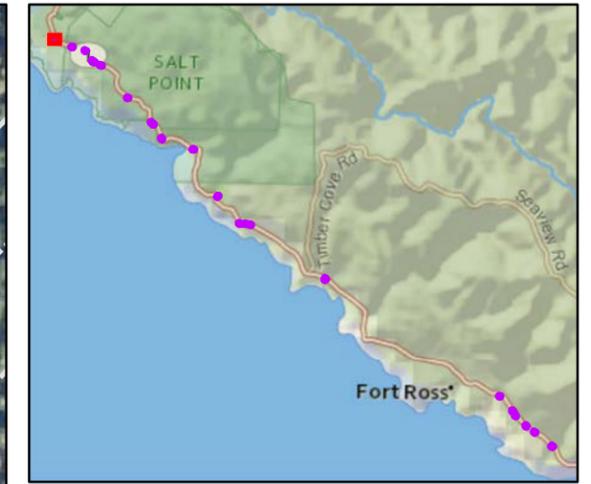
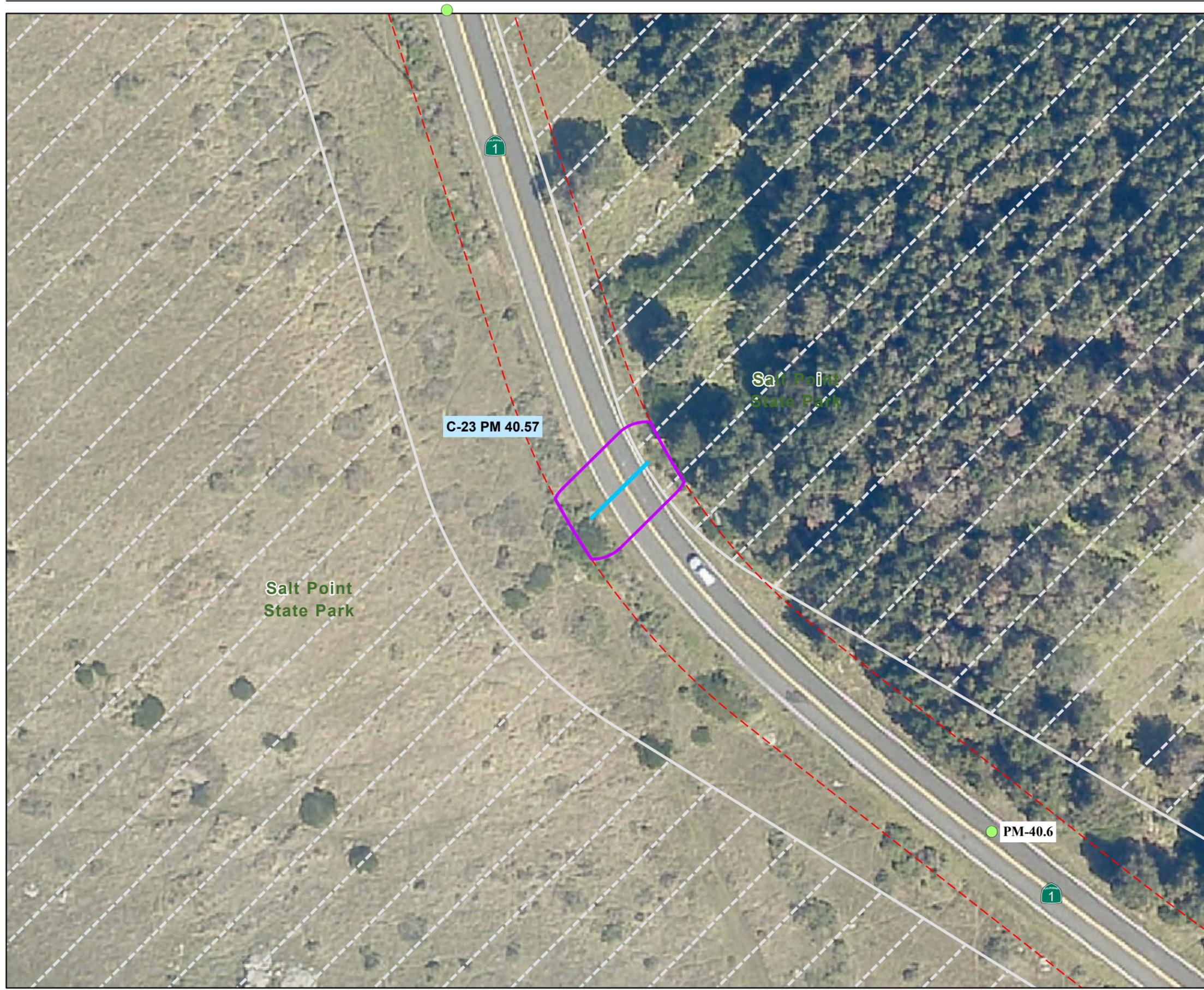


Figure 2-1
Map 20 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California



LEGEND

- Culvert Work Area / Biological Study Area
- Caltrans Right of Way
- State Parks
- Post Mile
- ~ Streams

Project Features

- Replace Culvert

Imagery Source:
Sonoma County Spring 2018

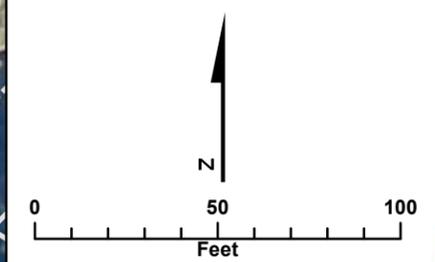


Figure 2-1
Map 21 of 21
Project Design Elements
Sonoma 1 Culvert Rehabilitation Project
EA 1K730, SON-1 Post Mile 30.8 to 40.6
Sonoma County, California

CASE 1: FOR TRAFFIC INDEX (TI) LESS THAN OR EQUAL TO 12

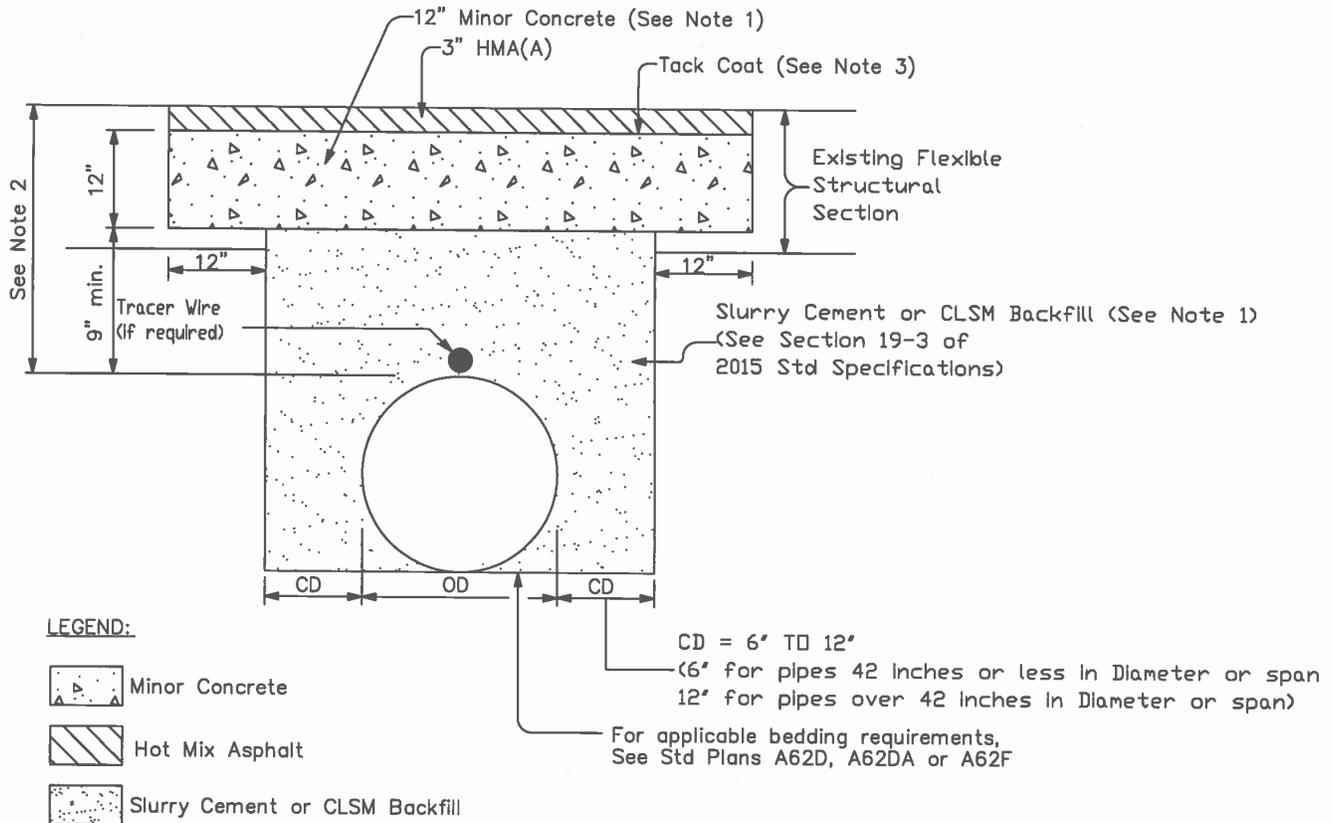
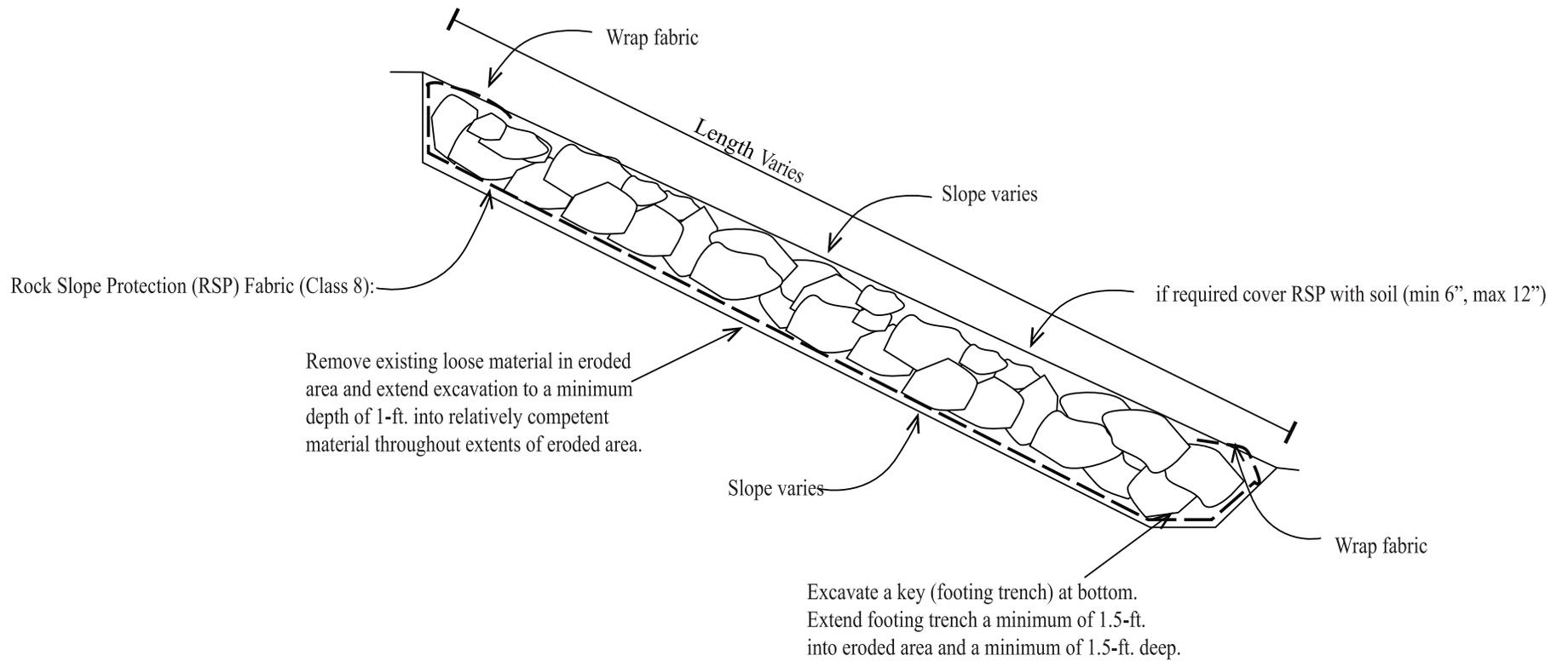


FIGURE 2-2
Typical Culvert Cross-Section
 Sonoma 1 Culvert Rehabilitation Project
 EA 1K730, SON-1 Post Mile 30.8 to 40.6
 Sonoma County, California

Source: Draft Project Report for the Sonoma 1
 Culvert Rehabilitation Project (Caltrans 2019).





Note: Not to scale

Source: District Preliminary Geotechnical Report for Drainage System Restoration (Caltrans 2019).

FIGURE 2-3
Typical Rock Slope Protection Cross-Section
 Sonoma 1 Culvert Rehabilitation Project
 EA 1K730, SON-1 Post Mile 30.8 to 40.6
 Sonoma County, California



Chapter 3 California Environmental Quality Act Evaluation

The following discussions evaluate potential environmental impacts related to the CEQA checklist to comply with State CEQA Guidelines (Title 14 California Code of Regulations, Division 6, Chapter 3, Section 15091). The environmental analysis considers potential impacts of the proposed project, as described in Chapter 2.

A. Environmental Factors Potentially Affected

As part of the scoping and environmental analysis carried out for the proposed project, the following environmental issues were considered, but no impacts were identified: air quality, cultural resources, land use and planning, mineral resources, noise, population and housing, public services, recreation, tribal cultural resources, and utilities and service systems. The environmental factors checked below would be potentially affected by this project. Further analysis of these environmental factors is included in the following sections.

X	Aesthetics	X	Agriculture and Forestry		Air Quality
X	Biological Resources		Cultural Resources	X	Energy
X	Geology/Soils	X	Greenhouse Gas Emissions	X	Hazards and Hazardous Materials
X	Hydrology/Water Quality		Land Use/Planning		Mineral Resources
	Noise		Population/Housing		Public Services
	Recreation	X	Transportation/Traffic		Tribal Cultural Resources
	Utilities/Service Systems	X	Wildfire	X	Mandatory Findings of Significance

B. Determination

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required
Signature:	Date:
Printed Name:	For:

CEQA Environmental Checklist

This checklist (presented at the beginning of each resource section below in the form of a table listing the pertinent questions applicable to the resource and four columns of check boxes where the degree of impact is indicated) 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 indicate that there are no impacts to a particular resource. A “no impact” answer in the last column reflects this determination. The words "significant" and "significance" used throughout the checklist are related to CEQA impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

As noted previously, Project Features, which may include both design elements of this project and standardized measures that are applied to all or most Caltrans projects, such as 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 are considered prior to any significance determinations. A list of this project’s Project Features and Avoidance and Minimization Measures (AMMs) can be reviewed in Appendix B.

Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
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?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				X

The project corridor is largely undeveloped and provides views of forests, grasslands, and dramatic views of the Pacific Ocean. Natural surroundings dominate the view rather than the roadway itself. Development along the project corridor is limited and generally visually unobtrusive, including widely scattered residences, agricultural buildings, state park facilities, private campgrounds, trailer parks, and a few shops and restaurants. The project terminates within scenic Salt Point State Park.

A Visual Impact Assessment (VIA) was completed by the Caltrans Office of Landscape Architecture on April 26, 2019 (Caltrans 2019a). The VIA concluded that the project would not adversely affect any "Designated Scenic Resource" (such as a rock outcropping, tree grouping, or historic property). Project elements would not substantially affect the appearance of the highway corridor and would be visually consistent with the character of the surrounding area.

a, b, c) Less than Significant Impacts

The project corridor occurs along a scenic stretch of SR 1 that is listed as being Eligible for Designation as a State Scenic Highway. Because the project scope is limited to replacing culverts, the project would not substantially affect a scenic vista, damage scenic resources within a state scenic highway, or degrade the existing visual

character or quality of the view. AMMs AES-1 and AES-2 (presented below) would be incorporated into the project design to minimize impacts to visual resources.

Temporary construction impacts to visual resources include vegetation removal and staging of materials and equipment. These impacts would be temporary and would be minimized with the implementation of AMMs AES-3 to AES-5.

Impacts to scenic resources in the project corridor would be less than significant.

d) No Impact

The project would not create any new sources of light or glare. No construction work would occur at night. No impacts would occur.

Avoidance and Minimization Measures

AMM AES-1: Comply with *Final Sonoma State Route 1 Repair Guidelines*.

Project elements will comply with the *Final Sonoma State Route 1 Repair Guidelines* (Caltrans 2019b) when feasible. The Guidelines integrate and balance safety, mobility, and maintenance goals with environmental values consistent with design best suited for the SR 1 corridor.

AMM AES-2: Apply Context Sensitive Solutions. The project design will incorporate concepts of context sensitive solutions. Project elements will incorporate aesthetic treatments and be designed such that they harmonize to the extent possible with the adjacent landscape, e.g., drainage elements will be colored to blend with their surroundings. These and other adaptations will help minimize impacts to the visual character of the area and support visual unity throughout the project corridor.

AMM AES-3: Avoid Unnecessary Removal of Vegetation. During construction, attempts will be made, as feasible, to avoid impacts to all vegetation and in particular existing native trees. A qualified biologist, arborist, or landscape architect will work with the contractor to adjust the approach to construction work to avoid damage or removal of native trees wherever possible.

AMM AES-4: Protect Vegetation Outside the Limits of Construction. Trees and vegetation outside of the clearing and grubbing limits will be protected from construction operations, equipment, and materials storage.

AMM AES-5: Revegetate Disturbed Areas Upon Completion of Construction. Following construction, seeding with locally native plants will enhance the visual

quality and character of the project corridor and help to quickly revegetate any disturbed areas. Areas of RSP will be covered with amended soil and vegetated. Grasses and shrubs removed during construction will be replanted with locally native seed, collected and "amplified" to provide additional quantities. Where tree replanting is appropriate or required, trees will be grown from locally collected stock and planted at an age of approximately 18 to 24 months. All replacement planting, by seed or with propagated locally native plants, will include a 1-year plant establishment period (PEP). A temporary truck-watering irrigation system will be provided as needed based on the type of plant, project timing, and time of year.

AMM AES-6: Treatment of RSP. Voids in the newly installed RSP will be back-filled with, and the RSP will then be covered with, topsoil that is a combination of uniformly blended local soil and fine compost. The RSP will then be seeded with locally native seed. Because some rock used in vegetated RSP may eventually become visible, rock that blends with the native rock and soil of the area will be selected or the rocks will be stained to blend in with native rock and soil.

Agriculture and Forest Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
II. 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 Dept. 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. 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?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, 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))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?			X	
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?				X

The project corridor is located in a rural area along the Sonoma County coast that contains grazing land and forested land. However, the project occurs entirely within Caltrans ROW.

a, b) No Impact

No Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Williamson Act land is located in or adjacent to culvert work areas. There would be no impact.

c) No Impact

Large stretches of the project corridor are forested and the work areas of eight culverts (PMs 31.12, 31.26, 31.51, 31.49, 31.44, 31.76, 35.34, and 31.81) are adjacent to land zoned as timberland production coastal zone (TP CC). However, the project

would occur within Caltrans ROW and thus would not conflict with existing zoning for adjacent areas. There would be no impact.

d) Less than Significant Impact

The project would not result in the conversion of forest land to non-forest use. Any temporary construction impacts to forest vegetation are addressed in the Biological Resources section and would be minimized by implementation of Project Feature BIO-1 and AMMs BIO-1 to BIO-13 (see the Biological Resources section and Appendix B).

e) No Impact

The project would not involve other changes in the existing environment that would result in conversion of forest or agricultural land.

Air Quality

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?				X
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?				X
c) Expose sensitive receptors to substantial pollutant concentrations?				X
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				X

a, b, c, d) No Impact

This culvert rehabilitation project falls under “pavement resurfacing and/or rehabilitation” activities and is therefore exempt from air quality conformity determination under 40 Code of Federal Regulations (CFR) 93.126, Table 2. An air quality study is not required. However, the project would be required to comply with Caltrans Standard Specification 14-9, Air Quality, which requires compliance with air-pollution control rules, regulations, ordinances, and statutes that apply in the project area. Construction air pollutants are expected to be minimal to negligible. Potential impacts to air quality, including violation of air quality standards, criteria pollutants, exposure of sensitive receptors to pollutants, and creation of odors, are not anticipated based on the scope of the proposed project. Project Feature AQ-1 will help ensure that there are no impacts from fugitive dust.

Project Feature

Feature AQ-1: Control Measures for Construction Emissions of Fugitive Dust. Dust control measures will be implemented to minimize airborne dust and soil particles generated from graded areas. For disturbed soil areas, the use of an organic tackifier to control dust emissions will be included in the construction contract. Watering guidelines will be established by the contractor and approved by the Caltrans resident engineer. Any material stockpiles will be watered, sprayed with tackifier, or covered to minimize dust production and wind erosion.

Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES: 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 or U.S. Fish and Wildlife Service, or NOAA Fisheries?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
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?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

Caltrans has prepared a Natural Environment Study (NES) for the project (Caltrans 2019i). The following text summarizes and analyzes the information presented in the NES.

The Biological Study Area (BSA) includes the areas surveyed to identify, evaluate and quantify the natural resources potentially affected by the project, defined as the entire area of direct impacts, including a 20-foot radius around each culvert work area which will potentially be disturbed or used for construction.

The 1.71-acre BSA contains portions of the roadway prism, developed bare ground, potential waters of the U.S., and the following vegetation types: *Baccharis pilularis* alliance, native and non-native perennial coastal grasslands, Western North American Freshwater Marsh Macrogroup, *Pinus muricata* alliance, Eucalyptus semi-natural alliance (some of which contains riparian), and *Pseudotsuga menziesii* alliance.

Areas outside the BSA but adjacent to the project limits were also assessed using literature, aerial images, satellite imagery, and database searches to identify potential wildlife dispersal corridors.

A regional list of special-status wildlife and plant species was compiled by querying databases from the U.S. Fish and Wildlife Service (USFWS) (2019a), National Marine Fisheries Service (NMFS) (2019), California Native Plant Society (CNPS) (2019), California Natural Diversity Database (CNDDDB) (CDFW 2019), and National Wetlands Inventory (USFWS 2019b). Each special-status wildlife and plant species on these regional lists was evaluated to determine its potential to occur within the project BSA. The NES summarizes the special-status plant species and animal species, respectively, with potential to occur within the BSA (Caltrans 2019i). The NES shows the CNDDDB special-status plant and animal species occurrences, respectively, within 5 miles of the BSA.

Various studies were conducted in the preparation of this NES, including:

- Biological reconnaissance-level survey and habitat assessments
- Aquatic resources delineation
- Vegetation characterization and rare plant habitat assessment and tree survey
- Special-status fish habitat assessment and reconnaissance anadromous fish passage assessment
- Site assessment for the California red-legged frog (CRLF) and foothill yellow-legged frog (FYLF)

a) Less than Significant Impact

SPECIAL-STATUS PLANT SPECIES

A vegetation characterization and rare plant habitat assessment survey was conducted in spring 2019 (Caltrans 2019k). The biologists who conducted this study assessed the potential for special-status plant species to occur in the BSA based on the vegetation types present, the degree of disturbance, the results of the database queries, and whether suitable habitat for each species was observed within the BSA. No special-status plants were observed within the BSA during the 2019 rare plant habitat assessment. However, protocol surveys were not conducted and suitable habitat for special-status plant species such as coast morning glory (*Calystegia purpurata* ssp.

saxicola), swamp harebell (*Campanula californica*), California sedge (*Carex californica*), and coast lily (*Lilium maritimum*) was determined to be present in the BSA. Botanical surveys will be performed for the species listed in Table 3-3 in the NES in accordance with special-status plant survey protocols. Special-status plant surveys are expected to be completed in 2020 and/or 2021.

Avoidance and Minimization Measures for Rare Plants

AMM BIO-1: Avoid or Minimize Disturbance to Rare Plants. If special-status plants are identified during the surveys, and impacts to the species are considered substantial in the context of the status of the special-status plant species and the number of populations and individuals known, the following actions may be undertaken:

1. **Avoid Rare Plants.** The project footprint may be adjusted, if practicable, to completely or partially avoid impacting special-status plants species.
2. **Minimize Disturbance to Rare Plants.** If complete or partial avoidance is not practicable, other minimization measures may be implemented to reduce the severity of the impact to the special-status plant species. These actions may include one or a combination of the following: 1) collection of special-status plant seed, bulbs, other propagules, or topsoil prior to construction for use in future onsite restoration or enhancement actions; 2) restoration or enhancement of suitable special-status plant habitat onsite; or 3) restoration or enhancement of suitable special-status plant habitat offsite.

SPECIAL-STATUS WILDLIFE SPECIES

California Red-legged Frog (*Rana draytonii*)

Suitable breeding habitat for the CRLF was not identified within the BSA. However, potentially suitable dispersal and foraging habitat for CRLF was determined to be present within the BSA, consisting of non-breeding aquatic (wetlands and waters), riparian habitat and upland habitat. Impacts to CRLF and their habitat may result from rehabilitation of the culverts and construction of RSP, headwalls, inlets, and graded ditches. Approximately 0.0164 acre of potential CRLF aquatic non-breeding habitat would be impacted during construction (permanent <0.0004 acre, and temporary 0.016 acre). Approximately 0.976 acre of upland habitat would be impacted during vegetation clearing, culvert rehabilitation, and building the RSP, headwalls, inlets, and graded ditches (permanent 0.039 acre, and temporary 0.937 acres).

By implementing Caltrans Project Features (see Appendix B) and the CRLF-specific AMMs listed below, adverse direct and indirect impacts to CRLF would be minimized. The proposed project will have minimal permanent impacts and otherwise short-term adverse impacts to CRLF habitat and could result in loss of small numbers of CRLF, if CRLF are present during construction. By implementing these measures, impacts to CRLF habitat and individuals would be minimized to a level that is considered less than significant.

Avoidance and Minimization Measures for California Red-legged Frog

AMM BIO-2: Proper Use of Erosion Control Devices. To prevent CRLF from becoming entangled or trapped in erosion control materials, plastic monofilament netting (i.e., erosion control matting) or similar material will not be used. Acceptable substitutes would include coconut coir matting or tackifying hydroseeding compounds.

AMM BIO-3: Biological Monitoring. A biological monitor will be present during construction activities where potential impacts to a listed species could occur. Through communication with the Resident Engineer or his/her designee, the biological monitor may stop work if deemed necessary for any reason to protect listed species and will advise the Resident Engineer or designee on how to proceed accordingly.

AMM BIO-4: Preconstruction Surveys for California Red-legged Frog. The biological monitor will conduct preconstruction CRLF surveys. Visual surveys will be conducted immediately before ground-disturbing activities. Suitable non-breeding aquatic and upland habitat within the project footprint, including refugia habitat such as under shrubs, downed logs, small woody debris, burrows, etc., will be inspected. If a CRLF is observed, the individual will be evaluated and relocated in accordance with the observation and handling protocol outlined below. Fossorial mammal burrows will be inspected for signs of frog usage, to the extent practicable. If it is determined that a burrow may be occupied by a CRLF, USFWS will be contacted and work in the vicinity of the burrow stopped.

AMM BIO-5: Protocol for California Red-legged Frog Observation. If CRLF are encountered in the project footprint, work within 50 feet of the animal will cease immediately and the Resident Engineer and approved biological monitor will be notified. Based on the professional judgment of the biological monitor, if project activities can be conducted without harming or injuring the animal(s), they may be left at the location of discovery and monitored by the biological monitor. Project

personnel will be notified of the finding, and at no time will work occur within 50 feet of the animal without a biological monitor present.

Foothill yellow-legged frog (*Rana boylei*)

The FYLF is a state candidate for threatened species that is found in a variety of habitat types. Marginally suitable habitat is present within the project footprint, and therefore FYLF are not expected to be present within the project area during construction. The project is not anticipated to have significant impacts on FYLF. AMMs proposed for CRLF (see above) will further minimize potential impacts to this species.

Northern Spotted Owl (*Strix occidentalis caurina*)

The northern spotted owl (NSO) is federally listed as a threatened species under the federal Endangered Species Act and as threatened in California under the California Endangered Species Act. Multiple culvert work area locations are located in or within 0.25 mile of potentially suitable NSO habitat. The removal of the vegetation within approximately 0.347 acre (temporary) and 0.007 acre (permanent) of forest habitat (*Pinus muricata* and *Pseudotsuga menziesii* alliances) for the graded ditches, RSP, and culvert rehabilitation work would constitute a minor loss of potential habitat for NSO. Due to an assumed high level of baseline disturbance along SR 1, construction activities may not increase the level of disturbance enough to adversely affect nesting NSO. In addition, depending on the landscape, the topography could provide a significant visual, noise, and disturbance barrier between construction and nesting NSO. However, if potentially suitable nesting habitat is within 0.25 mile from construction activities, and the habitat is being used for nesting, then construction could affect nesting NSO. Project Features and species-specific AMMs will be implemented to avoid and minimize adverse impacts on this species. For these reasons, potential impacts to NSO would be less-than-significant.

Avoidance and Minimization Measures for the Northern Spotted Owl

AMM BIO-6: Occupied Northern Spotted Owl Habitat. If NSO surveys (using the USFWS's 2012 survey protocol; USFWS 2014) determine that the work area is occupied, or Caltrans presumes spotted owl occupancy without conducting surveys, Caltrans will adhere to the following measures:

1. **Vegetation Removal or Alteration:**
 - a. No suitable NSO nest trees will be removed during the nesting season (February 1 to September 30).

b. Suitable habitat may be removed or altered outside the nesting season provided “no take” guidelines are adhered to for all known NSO home ranges within 1.3 miles of the work areas in interior forests or within 0.7 mile of the work areas in coastal [redwood] forests (USFWS 2014).

2. Auditory or Visual Disturbance:

a. No proposed activity generating sound levels 20 or more decibels (dB) above ambient sound levels or with maximum sound levels (ambient sound level plus activity-generated sound level) above 90 dB (excluding vehicle back-up alarms) may occur within suitable NSO nesting\roosting habitat during the majority of the nesting season (i.e., February 1 to July 9; USFWS 2014). These above-ambient sound level restrictions will be lifted after July 31; after which the USFWS considers the above-ambient sound levels as having “no effect” on nesting NSO and dependent young.

b. No human activities will occur within a visual line-of-sight of 40 meters (131 feet) or less from any known nest locations within the action area (USFWS 2014).

AMM BIO-7: Unoccupied Northern Spotted Owl Habitat. If NSO surveys (using the USFWS’s 2012 survey protocol) determine that all suitable NSO habitat within 0.7 mile of the work areas in coastal [redwood] forests or within 1.3 miles of the work areas in interior forests is unoccupied, suitable habitat may be removed or altered without seasonal restrictions, provided “no take” guidelines are adhered to. The USFWS considers previously occupied habitat as essentially “occupied” in perpetuity. Therefore, adequate (based on the “no take” guidelines mentioned above) suitable nesting\roosting and foraging habitat must be maintained within all historical NSO territories within the action area.

Marbled Murrelet (Brachyramphus marmoratus)

The marbled murrelet (MAMU) is federally listed as a threatened species and is currently listed as endangered in California under the California Endangered Species Act. Culvert work locations in the northern section of the project (PMs 38.80, 39.30, 39.89, 40.00, 40.16, 40.33, and 40.57) fall within the MAMU Critical Habitat Unit corresponding to the bishop pine forests of Salt Point State Park. However, MAMU have not been observed in this area.

The removal of the vegetation within approximately 0.347 acre (temporary) and 0.007 acre (permanent) of forest habitat (*Pinus muricata* and *Pseudotsuga menziesii* alliances) within the Critical Habitat Unit for the graded ditches, RSP, and culvert rehabilitation work would constitute a minor loss of potential habitat for MAMU. Because vegetation removal would occur along or adjacent to roadway embankment that is subject to regular disturbance from SR 1, the loss of this potential habitat is not likely to significantly affect the local population, if MAMU are present.

Due to an assumed high level of baseline disturbance along SR 1, construction activities may not increase the level of disturbance enough to affect nesting MAMU. In addition, depending on the landscape, the topography could provide a significant visual, noise, and disturbance barrier between construction and nesting MAMU. If potentially suitable nesting habitat is adjacent to construction activities, and the habitat is being used for nesting, then construction could adversely affect nesting MAMU.

Caltrans may remove up to 7 trees located within the work areas for the culverts within MAMU critical habitat. Caltrans biologists will work with Caltrans personnel prior to construction to minimize impacts to trees at these locations.

Project Features and species-specific AMMs will be implemented to avoid and minimize adverse impacts on this species. For these reasons, Caltrans anticipates that the project will not significantly affect MAMU.

Avoidance and Minimization Measures for the Marbled Murrelet

AMM BIO-8: Occupied Marbled Murrelet Habitat. If MAMU surveys (using the USFWS's 2003 survey protocol; USFWS 2014) determine that the work area is occupied, or Caltrans presumes MAMU occupancy without conducting surveys, Caltrans will adhere to the following avoidance and minimization measures:

1. **Vegetation Removal or Alteration:**
 - a. No potential MAMU nest trees will be removed during the nesting season (February 1 to September 30).
 - b. Potential Suitable habitat may be removed or altered outside the nesting season (October 1 to January 31).
 - c. Caltrans must ensure that there are no "adverse effects" to designated MAMU critical habitat within the project footprint. Caltrans must contact the

USFWS to determine whether proposed habitat removal within designated critical habitat would constitute an adverse effect.

2. Auditory or Visual Disturbance:

a. No proposed activity generating sound levels 20 or more dB above ambient sound levels or with maximum sound levels (ambient sound level plus activity-generated sound level) above 90 dB (excluding vehicle back-up alarms) may occur within suitable MAMU nesting habitat during the majority of the MAMU nesting season (i.e., March 24 to August 5; USFWS 2014).

b. Between August 6 (date when most MAMU have fledged in coastal northern California) and September 30 (end of MAMU nesting season), project activities with adjacent suitable nesting habitat that will generate sound levels ≥ 10 dB above ambient sound levels will observe a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset. Prep work that does not generate sound levels above ambient sound levels, including street sweeping and manual removal of pavement markers, can occur during all hours. The need for this daily work window depends on the distance between suitable nesting habitat and the above-ambient sound generating activity following the USFWS's guidelines (USFWS 2014). For example, if above-ambient sound levels generated by proposed activities will become attenuated back down to ambient sound levels prior to reaching suitable nesting habitat, the daily work window would not be necessary.

c. No human activities will occur within visual line-of-sight of 40 meters (131 feet) or less from a nest (USFWS 2014).

AMM BIO-9: Unoccupied Marbled Murrelet Habitat.

a. If protocol surveys determine that all suitable MAMU nesting habitat within the project footprint is considered unoccupied, suitable nesting habitat may be removed or altered without seasonal restrictions.

b. Caltrans must ensure that there are no "adverse effects" to designated MAMU critical habitat within the project footprint. Caltrans must contact the USFWS to determine whether the proposed habitat removal would constitute an adverse effect to designated critical habitat. However, the removal of a few small trees and shrubs would be exempt from this requirement.

Myrtle's Silverspot Butterfly (*Speyeria zerene myrtleae*)

The Myrtle's silverspot butterfly (MSB) is listed as an endangered species under the federal Endangered Species Act. Suitable habitat for *Viola adunca*, the larval host plant for Myrtle's silverspot butterfly, occurs within the BSA.

The project footprint may also contain foraging habitat for adult butterflies. If *Viola adunca* is present within or near the project footprint, culvert rehabilitation work could impact MSB.

By implementing the MSB-specific AMMs listed below, adverse direct and indirect impacts to MSB would be reduced to a level that is less than significant.

Avoidance and Minimization Measures for the Myrtle's Silverspot Butterfly

AMM BIO-10: Pre-construction Survey for *Viola adunca*. A pre-construction survey for *Viola adunca* will be conducted in the early spring (late February/early March), prior to construction, referencing phenology trends observed at Fort Ross or other nearby reference populations. If *Viola adunca* are found in the work area they will be flagged for avoidance. Negative findings for *Viola adunca* within the project footprint would indicate that the footprint does not contain suitable breeding habitat for MSB.

AMM BIO-11: Minimize Impacts to *Viola adunca* and MSB. If *Viola adunca* plants are found they will be flagged and fenced for avoidance. Host plants will be surveyed for evidence of larval feeding or damage. If host plants are considered potentially occupied by MSB then work will occur during the larval period and outside the flight season.

If larval host plants cannot be avoided, then work will occur during the flight season, with a biological monitor present to survey for adult MSB. If MSB are observed in the work area, the biological monitor, through communication with the Resident Engineer or his/her designee, may stop work if deemed necessary for any reason to protect MSB and will advise the Resident Engineer or designee on how to proceed accordingly.

Sonoma Tree Vole (*Arborimus pomus*)

The Sonoma tree vole (STV), a California species of special concern, is considered at moderate risk and a vulnerable species. Culvert work locations that consist of the *Pinus muricata* alliance and *Pseudotsuga menziesii* alliance may provide suitable habitat for the STV. The permanent removal of the vegetation within approximately

0.007 acre of forest habitat (*Pinus muricata* and *Pseudotsuga menziesii* alliances) for the graded ditches, RSP, and culvert rehabilitation work would constitute a minor loss of potential habitat for STV. Ground-disturbing activities and tree removal could destroy STV nests or injure or kill STVs inhabiting nests, if they occur within the project work areas. Sonoma tree voles are nocturnal and might reside within nests during daytime construction activities. The project also could disturb or displace STVs from nearby nests if they occur in proximity to construction activities. By implementing the STV-specific AMM listed below, adverse direct and indirect impacts to STV would be reduced to a level that is less than significant.

Avoidance and Minimization Measures for the Sonoma Tree Vole

AMM BIO-12: Preconstruction Surveys for Sonoma Tree Vole. Before the start of construction, a qualified biologist will conduct a survey of the project work areas and a 30-foot buffer beyond the project footprint boundaries to determine the location of active and inactive STV nests. Any nests detected during the surveys will be recorded and mapped in relation to the construction disturbance footprint. In addition, the biologist will evaluate any signs of current activity. A 30-foot equipment exclusion buffer will be established around active and inactive nests that can be avoided; within such buffers, all vegetation will be retained, and nests will remain undisturbed.

California Giant Salamander (*Dicamptodon ensatus*)

The California giant salamander (CGS) is listed as a California species of special concern. Wetland, waters and forested areas within the BSA may provide suitable habitat for the CGS. Impacts to CGS and their habitat may result from rehabilitation of the culverts, construction of RSP, headwalls, inlets, and graded ditches. By implementing Project Features (see Appendix B) and the CRLF-specific AMMs presented above, Caltrans anticipates that potential adverse direct and indirect impacts to CGS would be reduced to a level that is less than significant.

b) Less than Significant Impact

The project would temporarily impact 0.030 acre of riparian habitat (small portion of the Eucalyptus semi-natural Alliance). The project would permanently impact 0.037 acre of upland habitat (*Baccharis pilularis* Alliance, native and non-native perennial coastal grassland, *Pinus muricata* Alliance, and *Eucalyptus globulus*, semi-natural alliance [riparian]) and temporarily impact 0.788 acres of upland habitat. Impacts to riparian habitat and sensitive natural communities would result from clearing for the access for the culvert rehabilitation, RSP areas, headwalls, inlets, and graded ditches. By implementing the following revegetation measures, impacts to riparian habitat and

sensitive natural communities would be less than significant. The following Project Feature and AMMs have been proposed:

Project Feature

Feature BIO-1: Replant, Reseed, and Restore Disturbed Areas. Caltrans will restore temporarily disturbed areas to the maximum extent practicable. Disturbed areas from construction will be contoured to conform to the surrounding landscape and restored using a combination of compost application and native plantings and hydroseeded mix. Invasive, non-native plants, duff, and excavated material containing invasive plant material will be cleared from the project footprint. Exposed slopes and bare ground will be reseeded with native grasses and shrubs to stabilize and prevent erosion.

Avoidance and Minimization Measures for Trees

AMM BIO-13: Tree and Shrub Planting. Tree and shrub planting are proposed onsite after the project is complete. Trees with a diameter at breast height greater than 4 inches that are removed will be replaced at the following ratios: 3:1 for native trees and 1:1 for non-native trees. Where disturbance includes the removal of trees and woody shrubs, native species will be replanted, based on the local species composition.

c) Less than Significant Impact

An aquatic resources delineation was conducted for the 1.71-acre BSA. The BSA contained approximately 0.054 acre of potential USACE wetlands, 0.016 acre (314 linear feet) of potential non-wetland waters of the U.S., 0.027 acres (730 linear feet) of culverted waters of the U.S., and 0.087 acre of potential CCC wetlands.

Temporary, direct impacts to both wetlands and waters are anticipated to occur.

Approximately 0.095 acre of waters of the U.S. will be temporarily impacted (0.053 acre of wetlands and 0.042 acre of non-wetland waters of the U.S.).

Approximately 0.0028 acre of waters of the U.S. will be permanently impacted (wetlands: 0.0009 acre and other waters: 0.0019 acre); however, it is not anticipated that this permanent impact will cause the conversion of aquatic resources to upland.

Grading, clearing, and grubbing of upland areas could result in indirect temporary impacts to waters of the U.S. from increased erosion and sedimentation. These indirect impacts would be minimized through implementation of the Project Features including BMPs, such as the use of silt fences or fiber rolls. In addition, planting

wetland and riparian species following ground-disturbing activities would reduce potential erosion and sedimentation from the upland areas post-construction.

Temporarily disturbed non-wetland waters will be restored to pre-construction contours to minimize impacts to habitat functions. Temporarily disturbed wetland areas will be revegetated with an appropriate mix of native species.

Specific compensation for permanent impacts will be determined through consultation with agencies during the permitting process (see Table 3-1 in the Land Use and Planning section). Impacts to wetlands would be less than significant.

d) No Impact

A reconnaissance anadromous fish passage assessment was conducted for all culverts in the BSA (Caltrans 2019j). The culverts do not represent a barrier to fish passage and the project would not affect fish passage at any of the culverts. The project would not construct any new barriers to wildlife movement or otherwise interfere with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. There would be no impact.

e) No Impact

This project would not conflict with any local policies or ordinances protecting biological resources; therefore, there would be no impact.

f) No Impact

This project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. There would be no impact.

Cultural Resources

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

Caltrans prepared a memorandum on cultural compliance for the project titled *Completion of Section 106 Compliance for the State Route 1 Culvert Replacement Project in Sonoma County* (Caltrans 2019c).

A Historic Property Survey Report (HPSR) and an Archaeological Survey Report (ASR) were prepared for the project. The studies for this undertaking were carried out in a manner consistent with Caltrans’ regulatory responsibilities under the January 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, 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* (Programmatic Agreement) and the January 2015 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.

As described in the HPSR and ASR, the Area of Potential Effects (APE) for this project was established by the Professionally Qualified Staff architectural historian and archaeologist. The APE includes the resource study areas for cultural resources. The HPSR and ASR contain confidential information, which could not be publicly shared. Based on these reports, Caltrans made a finding of no impact to cultural resources.

Caltrans consulted with the Native American Heritage Commission and local Native American tribes under Assembly Bill 52 in July and August of 2018, with follow-up

calls conducted on August 22, 2018. The Dry Creek Rancheria of Pomo Indians responded with a request that they be contacted should any archaeological materials be discovered during the project. The Federated Indians of Graton Rancheria stated that the project is not within their tribal territory. No other responses were received.

a, b, c) No Impact

The Caltrans Office of Cultural Resource Studies' (OCRS) review consisted of a detailed search of records, maps, plans, and digital files found in Caltrans' Cultural Resources Database, a field investigation conducted on July 12 and August 2, 2018, and consultation with local tribes. The background research and field investigation identified no historic properties/historical resources within the APE.

Based on the above, Caltrans has determined that a Finding of No Historic Properties Affected is appropriate for the proposed project, and that there are no historical resources present for the purposes of CEQA. The above-referenced documentation will be archived in the OCRS files and the Northwest Information Center of the California Historical Resources Information System. Compliance with Section 106 via the Programmatic Agreement and California Public Resources Code (PRC) Section 5024 is complete. The following Project Features will help ensure there is no impact to cultural resources.

Project Features

Feature CULT-1: Stop Work Upon Discovery of Cultural Materials. If cultural materials are discovered during construction, all earth-moving activity within a 60-foot radius will be halted until a Caltrans qualified archaeologist can assess the nature and significance of the find.

Feature CULT-2: Additional Actions if Cultural Materials Contain Human Remains. If Caltrans Professionally Qualified Staff determines that cultural materials contain human remains, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. Caltrans' OCRS will contact the Sonoma County Coroner. Pursuant to PRC Section 5097.98, if the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. The Caltrans OCRS will work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Energy

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VI. ENERGY: 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?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

a) Less than Significant Impact

The project would not result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy. During construction, BMPs would be implemented for energy efficiency of construction equipment. During project operation, energy consumption would be limited to routine maintenance. The impact would be less than significant.

b) No Impact

The project would not conflict with a state or local plan for renewable energy or energy efficiency. There would be no impact.

Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS: 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.				X
ii) Strong seismic ground shaking?				X
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
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?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				X
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?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

Caltrans investigated impacts to geology and soils from the proposed project and prepared the *District Preliminary Geotechnical Report for Drainage System Restoration* technical memorandum (Caltrans 2019d). This section summarizes the findings of this review.

The project site is located within the California Coast Ranges geomorphic province. This province is a northwest-trending band of folded and faulted mountains that roughly parallel the San Andreas fault zone. In general, the Coast Ranges are

comprised on complexly folded Mesozoic and Cenozoic sedimentary, metamorphic, and volcanic rock.

The existing culverts were installed in undocumented fill overlying Holocene alluvium and stream channel deposits. These deposits consist of loose alluvial sand, gravel, and silt.

a(i) No Impact

The San Andreas fault zone is located within approximately 2 miles of the project corridor. Thus, seven of the 23 existing culverts proposed for replacement occur within an Alquist-Priolo Earthquake Fault Zone and are located in an area with potential for surface rupture. However, the project does not directly or indirectly increase the potential for surface rupture or expose the public to increased risk of loss, injury, or death. There would be no impacts.

a(ii) No impact

The entire project corridor lies within 2.5 miles of the San Andreas fault zone. The possibility of strong ground shaking is high at the existing culvert locations. However, the project does not directly or indirectly increase the potential for strong ground shaking or expose the public to increased risk of loss, injury, or death. There would be no impacts.

a(iii) No Impact

The Association of Bay Area Governments has classified the project corridor as having low liquefaction susceptibility (Caltrans 2019d). Therefore, the project would not increase the potential risk of loss, injury, or death due to seismically related liquefaction. There would be no impacts.

a(iv), b, c) Less than Significant Impact

Slopes and embankments below the proposed culvert replacement locations have generally been determined to be stable (Caltrans 2019d). At three culverts (PM 30.81, PM 31.44, and PM 40.33), geotechnical review recommended that RSP be installed to maintain slope stability and prevent erosion. With this project feature (Feature GEO-1, described below), the project would not increase the potential increased risk of loss, injury, or death due to landslides. In addition, the project would not result in a

substantial soil erosion or loss of top soil, or be located on a geologic unit or soil that is unstable. Impacts would be less than significant.

d, e, f) No Impact

Expansive soils are not present in the project corridor (Caltrans 2019d). There are no septic tanks or alternative waste water delivery systems in the culvert work areas. Project work would occur in undocumented fill along the project corridor and does not have the potential to destroy unique paleontological features. Therefore, no impacts would occur.

The following Project Features will help reduce or eliminate project impacts related to geology.

Project Features

Feature GEO-1: Installation of Rock Slope Protection. At PMs 30.81, 31.44, and 40.33, RSP will be installed to prevent erosion below the culverts.

Feature GEO-2: Headwalls and Down Drains. At PMs 30.81, 31.76, and 37.17, headwalls will be installed at either the upstream end (PMs 30.81 and 31.76) or downstream end (PM 37.17) of the culvert to prevent separation of culvert joints and prevent infiltration of water into soil surrounding the culvert. To dissipate energy, new or replacement down drains will be installed at some of the culverts.

Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this project. The analysis included in the climate change section of this document provides the public and decision-makers as much information about the project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the climate change section of the document.			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				

Caltrans investigated potential impacts to greenhouse gas (GHG) emissions from the proposed project and prepared the *Construction Greenhouse Gas Analysis* memorandum (Caltrans 2019e). This section summarizes the findings of this review. Construction-generated GHG includes emissions resulting from material processing, onsite construction equipment, workers commuting to and from the project site, and traffic delays from construction. The emissions would be produced at different levels throughout the project depending on the activities involved at various phases of construction.

The analysis was focused on vehicle-emitted GHGs. Carbon dioxide (CO₂) is the single most important GHG pollutant due to its abundance when compared with other vehicle-emitted GHGs, including methane, nitrous oxide, hydrofluorocarbon, and black carbon. 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 changes in materials and longer pavement life, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Based on project information available, the construction-related GHG emissions were calculated using the Road Construction Emissions Model (RCEM), version 9.0.0, provided by the Sacramento Metropolitan Air Quality Management District. The estimated total amount of CO₂ produced during a 6-month construction timeframe is

126.31 tons. Because construction activities are short-term, the GHG emissions would not result in long-term adverse effects. Frequency and occurrence of GHG emissions will be reduced through Feature GHG-1 below.

Project Feature

Feature GHG-1: Control Measures for Greenhouse Gases. Measures will be determined during the design phase and implemented during construction to 1) ensure regular construction maintenance of vehicle and equipment; 2) limit idling of vehicles and equipment onsite; 3) recycle nonhazardous waste and excess material if practicable; and 4) use solar-powered signal boards, if feasible.

Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				X
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?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
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?				X
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?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

a, b) No Impact

Caltrans Standard Specifications BMPs would be implemented to prevent spills or leaks from construction equipment and from storage of fuels, lubricants, and solvents. All aspects of the project associated with removal, storage, transportation, and disposal of hazardous material would be done in accordance with the appropriate California Health and Safety Code. Handling of hazardous materials would comply with Caltrans Standard Specification 14-11, Hazardous Waste and Contamination, which outlines handling, storing, and disposing of hazardous waste. There are no anticipated impacts.

c) No Impact

There are no schools within a quarter mile of culvert work areas. There would be no impact.

d) No Impact

Screening of environmental regulatory databases (the State Water Resources Control Board's GeoTracker and California Department of Toxic Substances Control's [DTSC's] EnviroStor) revealed no known hazardous materials or hazardous waste sites (Caltrans 2019h). Because the project corridor is rural and largely undeveloped and has a history of low traffic volumes, Caltrans assumes that roadside soils would contain background levels of lead that are well below the levels regulated by the DTSC and soil testing would not be necessary. In addition, the culverts to be replaced are not asbestos cement pipes, an asbestos survey would not be warranted. Compliance with Caltrans Standard Specifications 14-11, Hazardous Waste and Contamination would be required. There would be no impact.

e) No Impact

There are no airports or airstrips in the project vicinity. There would be no impact.

f) Less than Significant Impact

Potential delays to traffic along SR 1 would result from flagger-controlled one-way traffic in effect during culvert replacement activities. A Traffic Management Plan (TMP) (see AMM TRANS-1 in the Transportation and Traffic section) will be developed during the design phase that would identify traffic delays and alternative routes. Emergency response times are not anticipated to change during construction because the TMP would provide priority to emergency vehicles during one-way traffic control. The TMP would provide instructions for response or evacuation in the event of an emergency. In addition, this project would not conflict with any other emergency response or evacuation plan. The impact would be less than significant.

g) Less than Significant Impact

The Timber Cove and Fort Ross Volunteer Fire Departments serve the project corridor. Existing culverts along the project corridor are in designated moderate to high fire hazard severity zones (CAL FIRE 2007). The project does not have permanent features that would expose people or structures to risk of loss, injury, or

death involving wildland fires. AMM TRANS-1 would reduce fire risk to local residents and the traveling public during construction to less than significant.

Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?				X
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;				X
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;				X
(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				X
(iv) impede or redirect flood flows?				X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Caltrans investigated impacts to hydrology and water quality from the proposed project and prepared the Hydraulics Study (Caltrans 2019f) and Water Quality Study (Caltrans 2019g). This section summarizes the findings of that review.

The project is located within the jurisdiction of North Coast Regional Water Quality Control Board (Region 1), which is responsible for implementation and enforcement of state and federal laws and regulations concerning water quality.

The project is within the Mendocino Coast Hydrologic Unit, Gualala River Hydrologic Area, and Gualala Hydrologic Sub-Area 113.85. The project is within the

Salmon Creek-Frontal Pacific Ocean Watershed and Russian Gulch-Frontal Pacific Ocean Subwatershed.

The receiving waterbody in the project area is the Mendocino Coast Hydrologic Unit.

a) Less than Significant Impact

Water quality impacts that may result from this project include increased sediment discharge from approximately 1.90 acres of disturbed soil area and increased runoff from approximately 0.070 acre of net new impervious surface. Installation of concrete headwalls at some culverts could create pH pollution during construction. Impacts may include a change in localized pH and turbidity in receiving waters. In addition, impacts to water quality could result from staging and active construction including the release of fluids, concrete material, construction debris, sediment, and litter. With implementation of construction BMPs (see Features WQ-1 and WQ-2 below), the proposed project would not substantially degrade surface or groundwater quality. In addition, the project would not violate water quality standards or waste discharge requirements. Impacts would be less than significant.

b) No Impact

The proposed project would have no effect to groundwater supplies or groundwater recharge areas in the project vicinity. There would be no impact.

c(i), (ii), (iii), (iv)) No Impact

The proposed project would not substantially alter the existing drainage pattern of the site. With Features WQ-1 and WQ-2, the project would not result in substantial erosion or siltation. The proposed project would not result in an increase of surface runoff, create runoff that would exceed existing storm drain systems, or substantial additional sources of polluted runoff. The project would also not impede or redirect flood flows. There would be no impact.

d) No Impact

The project corridor is not within the 100-year floodplain as defined by Federal Emergency Management Agency Flood Insurance Rates Maps (numbers 06097C0490F, 06097C0470F, 06097C0465F, and 06097C0455F). The proposed project is not in flood hazard, seiche, or tsunami zones. There would be no impact.

e) No Impact

With the implementation of Features WQ-1 and WQ-2, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Project Features

Feature WQ-1: Construction Site BMPs. To prevent or reduce water quality impacts to the project corridor, BMPs will be deployed for sediment control, pH, and material management. BMPs will include measures for soil stabilization, sediment control, wind erosion control, tracking control, non-stormwater management, and drainage inlet protection. These BMPs will include measures such as, but not limited to, temporary concrete washouts, street sweeping, fiber rolls, silt fences, hydraulic mulch, and construction entrances.

Feature WQ-2: Temporary Stream Diversions. Temporary stream diversions will be used when necessary for culvert replacements. Stream diversion will consist of coffer dams and conduit to direct the stream through the existing culverts to the outfall.

Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?				X
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?			X	

a) No Impact

The project consists of culvert replacements at 23 specific locations along a 10 mile stretch of SR 1. Within the project corridor, several scattered coastal communities exist. Due to the nature of the work, the proposed project would not divide any existing established communities within the project area. There would be no impact.

b) Less than Significant Impact

SR 1 within the project limits is used as a primary access road to Sonoma County coastal areas, providing access to public parks, beaches, vista points, visitor-serving facilities and coastal residential developments (Sonoma County 2001).

Surrounding land uses include the approximately 10 miles of coastline of the Sonoma Coast; State Parks such as Salt Point and Historic Fort Ross; and beaches such as Stillwater Cove Regional Park, Gerstle Cove, Ocean Cove, and Timber Cove, located just south of Salt Point. Other land uses include rural residential, some visitor-serving commercial and tourist accommodations such as restaurants, hotels and bed and breakfast establishments. No changes in land use are anticipated for the project area or the Sonoma Coast in the project vicinity.

The highway is part of the Pacific Coast Bicycle Route (Sonoma County 2019). Portions of the California Coastal Trail (CCT) run along SR 1 in the project corridor (California Coastal Conservancy 2019).

Existing SR 1 would remain open during construction, with implementation of temporary one-way traffic control as needed. Lane closures, existing pull-out areas, and an off-site Caltrans maintenance facility located at Fort Ross would be used for

construction parking, staging, and stockpiling of materials. The project, during construction and operation phase, would have no effect on public access, including the CCT, visual and scenic resources, tourism and visitor-serving facilities, agricultural lands, or cultural, historic or paleontological resources.

CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS AND PROGRAMS

State Scenic Highway Program

SR 1 in Sonoma County is eligible, but not designated, as a State Scenic Highway. Policy OSRC-3i of the Sonoma County Open Space and Resource Conservation Element of the Sonoma County General Plan (Sonoma County 2016) states that the County should “consider requesting official State Scenic Highway designations for Highways 1 and 37.” State designation will require the County to submit an application to Caltrans, along with a Scenic Corridor Protection Plan, including adopted ordinances, policies, and related mechanisms to protect the scenic corridor. If Caltrans approves such a plan, the corridor would become a designated State Scenic Highway.

Sonoma County General Plan 2020

The proposed project complies with the stated goals of the Sonoma County General Plan (Sonoma County 2016), including goals for transportation and safety. The proposed project supports the following policies and goals by providing a safe, reliable road for motorized vehicles and multi-modal users:

- Policy OSRC-3i (discussed above)
- Goal OSRC-3: Identify and preserve roadside landscapes that have a high visual quality as they contribute to the living environment of local residents and to the County’s tourism economy
- Objective OSRC-3.1: Designate the scenic corridors on Figures OSRC-5a through OSRC-5i along roadways that cross highly scenic areas, provide visual links to major recreation areas, give access to historic areas, or serve as scenic entranceways to cities
- Policy OSRC-3h states: Design public works projects to minimize tree damage and removal along scenic corridors; where trees must be removed, design replanting programs so as to accommodate ultimate planned highway improvements; require re-vegetation following grading and roadway cuts

Coastal Zone Management Act

The proposed project lies within the California coastal zone and resources within this zone are protected by the Coastal Zone Management Act of 1972 (CZMA). States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the state's management plan.

California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976 (CCA), to protect the coastal zone. The policies established by the CCA include the protection and expansion of public access and recreation; the protection, enhancement, and restoration of environmentally sensitive areas; the protection of agricultural lands; the protection of scenic beauty; and the protection of property and life from coastal hazards. The California Coastal Commission (CCC) is responsible for implementation and oversight under the CCA.

The CCA delegates power to local governments to enact their own local coastal plans (LCPs); in this case, the Sonoma County LCP (Sonoma County 2001). The State-certified LCP is a portion of the Sonoma County General Plan and includes visual resources policies and recommendations under the "Development" section of the CCA. The Sonoma County LCP determines the short- and long-term use of coastal resources in their jurisdiction consistent with the CCA goals.

Under the Sonoma County LCP, the coast is divided by the Russian River into north and south coast sections. The proposed project resides within the Sonoma County North Coast Planning Area. The project area is then located in the "Salt Point" and "Timber Cove/Fort Ross" sub-areas of the Sonoma County LCP (Sonoma County 2001).

The project is primarily within the permitting jurisdiction of Sonoma County, and would require a local coastal permit for construction. However, development permits issued in accordance with the Sonoma County LCP could be appealable to the CCC.

The CCT, within the project corridor, runs to the west and parallel to SR 1, in close proximity to the Pacific shoreline. In some areas, where steep slopes occur along the shoreline, the CCT is coincident with SR 1 (Sonoma County 2001).

The policies of the CCA (PRC Division 20) give the highest priority to the preservation and protection of Prime Agricultural Land and Timber Lands. On lands not needed for the above, the next priority goes to public recreation and visitor serving facilities.

Key provisions of the CCA and the Sonoma County LCP are provided below along with an evaluation of permitting activities of the proposed project (see Tables 3-1 and 3-2).

Table 3-1 Key Provisions of the California Coastal Act

Policy Number	Subject of Policy	Coastal Zone Assessment
Section 30210	Maximum public access and recreational opportunities shall be provided.	The proposed project would improve coastal public access by maintaining the safety and reliability of SR 1.
Section 30211	Development shall not interfere with public access to the sea.	The proposed project would maintain roadway safety and reliability and continue to provide public access to the ocean as described above.
Section 30212	New development projects shall provide for public access to the shoreline and along the coast.	The proposed project would not be considered new development.
Section 30252	Public Access	The proposed project would maintain roadway reliability and public access to the ocean as described above. The CCT would not be affected by the proposed project.
Section 30221	Recreation: Protect suitable oceanfront land for recreational use.	The project would not impact public access to recreation facilities or oceanfront land.
Section 30231	Biological activity; water quality	Biological resources would potentially be temporarily affected by construction of the proposed project; however, all impacts would be minimized, and the affected areas would be restored to pre-existing conditions. Project Features and AMMs are incorporated to minimize environmental effects to biological resources, wetlands and water quality.
Section 30233	Diking, filling, dredging of wetlands	The proposed project has been designed to avoid wetland impacts as much as possible. Potential wetland impacts would be mitigated to a no net loss level during the permitting phase.
Section 30235	Construction altering natural shoreline	The proposed project would not alter the natural shoreline of the Pacific Ocean. By replacing culverts and right-sizing pipes that convey water from creeks and natural runoff, the proposed project would reduce erosion and sedimentation of downstream waters and the Pacific Ocean.

Table 3-1 Key Provisions of the California Coastal Act

Policy Number	Subject of Policy	Coastal Zone Assessment
Section 30240	Environmentally Sensitive Habitat Areas	ESHAs in the project biological study area include wetlands, riparian areas, and potential habitat for California red-legged frog, northern spotted owl, and marbled murrelet. The project is expected to result in small areas of temporary and permanent impacts to ESHAs. Project features and avoidance and minimization measures will be implemented to reduce impacts to ESHAs. Restoration of impacted areas will be accomplished through onsite revegetation. Specific compensation requirements for potential impacts to riparian vegetation, waters of the U.S., waters of the State, and California Coastal Commission wetlands will be determined in coordination with CDFW, USACE, RWQCB, and CCC during the permitting process.
Section 30241-30242	Agricultural land	No Prime Farmland or Williamson Act parcels exist within the project study area. The proposed project would not affect these resources.
Section 30244	Archaeological/paleontological resources	The proposed project would not result in an adverse effect to archaeological and historical resources. The Fort Ross Historic State Park would not be affected by the proposed project. No affects to paleontological resources are anticipated.
Section 30251	Scenic and visual qualities	The proposed project would not result in adverse effects to scenic vistas/resources in the project study area. The proposed project was designed such that scenic and visual qualities of coastal areas would be protected as a resource of public importance. The proposed project would not alter natural landforms.
Section 30254	Public works facilities	With the proposed project, SR 1 would remain a two-lane coastal scenic roadway.
Section 30604	Coastal development permits shall include a finding that the development is in conformity with public access and public recreation policies.	The proposed project would be in conformity with public access and public recreation policies.
Section 30609.5	State lands between the first and public roadway to the ocean	Caltrans would maintain the land devoted to the existing SR 1 highway and its use for public access to the ocean.
Section 30706	Coastal hazards	The purpose of the project is to maintain continued connectivity for SR 1, increase reliability and protect SR 1 from geologic hazards in the form of coastal erosion.

Table 3-2 Key Provisions of the Sonoma County Local Coastal Program

Policy Subject	Coastal Zone Assessment
Shoreline Access	The proposed project would improve coastal public access by increasing roadway safety and reliability by minimizing emergency road closures to SR 1 which would interfere with shoreline access to parks, beaches and oceanfront land.
Recreation and Visitor-Serving Facilities	The proposed project would not interfere with public access to the ocean and the beach. Coastal recreation and visitor-serving facilities would be protected and maintained.
Transportation	The proposed project would improve coastal public access by increasing roadway safety and reliability.
Environmentally Sensitive Habitat Areas (ESHAs)	Potential adverse effects to ESHAs have been reduced to the extent practicable through Project Features and AMMs. The proposed project would avoid ESHAs where practicable, and enhance or replace lost habitat to ensure no net loss.
Agriculture	No Prime Farmland or Williamson Act contracts exist within the project study area. The proposed project would have no effect on these resources.
Public Works	The proposed project would not adversely affect public works in the proposed project study area. Caltrans would submit the project to Sonoma County for review, comment and findings as to its conformity with the LCP during the coastal development permit process.
Coastal Watersheds	The proposed project would be consistent with Sonoma County's LCP since it would improve highway reliability with culvert replacements that would minimize erosion and sedimentation that could harm coastal resources.
Visual and Scenic Resources	The proposed project would not result in adverse effects to scenic vistas/resources. The proposed project was designed such that scenic and visual qualities of coastal areas would be protected as a resource of public importance. The proposed project would not alter natural landforms.
Hazards	The purpose of the project is to maintain continued connectivity for SR 1 and to protect the highway from geologic hazards in the form of coastal erosion.
Archaeology	The proposed project would not result in an adverse effect to archaeological and/or historical resources. The Fort Ross Historic State Park would not be affected by the proposed project. A Finding of No Historic Properties was determined for this project under Section 106.
Air Quality	No air quality impacts are anticipated to result from the proposed project.

Sonoma County State Route 1 Repair Guidelines

Caltrans in coordination with CCC, State Parks, and Sonoma County, prepared the Sonoma County State Route 1 Repair Guidelines (Caltrans 2019b) (Sonoma 1 Guidelines) to promote stewardship and sustainability of state transportation resources through a shared vision with respect to coastal resources within the Coastal

zone. The Sonoma 1 Guidelines are not a policy plan but instead provide a framework to enable more timely repairs that are not only functional but are also consistent with the landscape, uses, and regulatory and land management policies associated with SR 1.

The relevant guidelines to the proposed project are listed in Table 3-3.

Table 3-3 Key Provisions of the Sonoma County State Route 1 Repair Guidelines

Design Guideline	SR 1 Repair Recommendation
Parking, Pullouts, Unpaved Shoulders, and Turnouts	No net loss of parking, pullouts, or turnouts. Non-pavement treatments should be used where feasible. Other roadway uses or development of the area beyond the shoulder should be minimized and fit in with the natural environment. The proposed project would have no effect on existing parking, pullouts, or turnouts.
Drainage Features	Drainage pipes should be hidden from view where feasible. Pipes that cannot be hidden should be colored with earth-tone coating to conceal them. Concrete drainage features should be colored to match adjacent earth tones. Drainage rock used as dissipaters should be colored earth tone to reduce visual impacts. Inlets should be sited outside of where bicyclists are most likely to ride, if feasible, and shall use bicycle-proof grates.
Ditches	Ditches should be designed to blend into the surrounding landscape. Concrete and metal facilities should be treated to match the surrounding terrain. Where appropriate, drainage ditches should be designed in conjunction with the shoulder to reduce the amount of pavement and widening needed, following the guidelines in Chapter 830 of the Highway Design Manual.
Bicycles and Pedestrians	Pedestrians and bicyclists should be accommodated in all projects. Dedicated pedestrian facilities should be incorporated into projects on a case-by-case basis where there is an identified need and in coordination with local stakeholders.

The proposed project would be designed to be consistent with the Sonoma 1 Guidelines. Where the proposed culvert replacements occur coincident with or along the existing CCT, the project would accommodate pedestrian and bicycle users during construction. No permanent impacts to the CCT would occur with the proposed project.

As discussed above, the proposed project would be consistent with the State Scenic Highway Program, Sonoma County General Plan 2020, Sonoma County Local Coastal Program, the Coastal Zone Management Act, and the Sonoma 1 Guidelines. There would be less than significant impacts.

Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES: 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?				X
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?				X

a, b) No Impact

The project does not occur in a known mineral resource zone. Therefore, no impacts on mineral resources would result from the proposed project.

Noise

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIII. NOISE: 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?				X
b) Generation of excessive groundborne vibration or groundborne noise levels?				X
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?				X

a, b) No Impact

The project corridor is along SR 1, a highway that creates relatively low background noise levels. Ambient noise levels may temporarily be increased due to various construction activities. 23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. Caltrans uses this same definition when evaluating state projects without federal funding. The project was determined not to be a Type I project per 23 CFR 772 because the project would not increase highway capacity; therefore, a noise study is not required and noise abatement need not be considered. No noise impacts in excess of standards established in the Sonoma County General Plan, groundborne vibrations, or ambient noise would occur (Sonoma County 2016).

c) No Impact

There are no airports or airstrips within the project vicinity. There would be no impact.

Project Features

Feature NOISE-1: Noise Best Management Practices. The following BMP will be implemented during all phases of construction activities to reduce noise:

- Require construction equipment to conform to Section 14-8.02, Noise Control, of the latest Caltrans Standard Specifications.

Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING: 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)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

a, b) No Impact

The proposed project would not induce population growth because it does not increase the capacity of SR 1, remove barriers to future growth, or increase population or housing growth (or demand for new housing, utilities, or public services). The project would not induce substantial population growth, displace housing, or displace people; therefore, there would be no impact to population and housing.

Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES:				
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?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X

a) No Impact

The proposed project would not result in the substantial alteration of government facilities in the project area, such as fire and police protection, schools, parks or other public facilities, nor trigger the need for new government facilities or alter the demand for public services. A TMP would be prepared (see AMM TRANS-1 in the Transportation and Traffic section). Thus police, fire, and medical services would not be adversely affected by the proposed project. There would be no impact.

Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVI. RECREATION:				
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?				X
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?				X

The project corridor crosses and provides access to Fort Ross State Historic Park, Stillwater Cove Regional Park, Russian Gulch State Beach, and Salt Point State Park. However, project work would be entirely within the Caltrans ROW and would not occur on recreational facility land.

a, b) No Impact

The project would not directly or indirectly increase use of existing recreational facilities such that substantial deterioration of the facilities would occur. In addition, the project would occur entirely on Caltrans ROW and no construction would occur on recreational facility land. It would not require the construction of additional recreational facilities. There would be no impacts.

Transportation and Traffic

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

In the project corridor, SR 1 consists of two 12-foot-wide lanes and 0- to 1-foot shoulders. This project would maintain all existing nonstandard roadway features, including design speed, lane and shoulder width, curve radius, cross slope, super-elevation rate, maximum grade, and sight distance. The project would not permanently alter the circulation system and would have no permanent impact on vehicle miles traveled.

The project could cause short-term localized traffic congestion and delays due to temporary closures of one lane of SR 1. One-way traffic control would consist of flaggers to regulate traffic and portable cones to separate the lane open to traffic from the lane under construction.

a) Less than Significant Impact

The proposed project would not conflict with programs, plans, ordinances or policies regarding the circulation system, public transit, bicycle, or pedestrian facilities including the Circulation and Transit Element of the Sonoma County General Plan (Sonoma County 2016), Sonoma County’s Comprehensive Transportation Plan (Sonoma County Transportation Authority 2016), or Countywide Bicycle and Pedestrian Masterplan (Sonoma County Transportation Authority 2014), nor would it affect the California Coastal Trail (California Coastal Conservancy 2019).

There are limited, but daily, bus services on SR 1 that are operated by Mendocino Transit Authority (No. 95) through the project corridor. In addition, the project

corridor is part of the Pacific Coast Bicycle Route and a portion of it is part of the California Coastal Trail. The project corridor currently contains no bike lanes but Class III lanes are proposed for development (Sonoma County 2019).

As discussed below in AMM TRANS-1, a Transportation Management Plan would be developed with input from the local community during the design phase. The TMP will include one-way traffic controls, flaggers, and construction phasing to reduce impacts to local residents and maintain access to residential driveways along the project corridor and to other destinations along SR 1. As part of the TMP, Mendocino Transit Authority would be notified prior to construction to minimize service disruption. Impacts would be less than significant.

b) Less than Significant Impact

The project would be consistent with CEQA Guidelines Section 15064.3, subdivision b. The project would have no permanent impact on vehicle miles traveled. Under section 15064.3, subdivision b transportation projects that have no impact on vehicle miles traveled should be presumed to cause a less than significant transportation impact.

c) No Impact

The proposed project does not include any design features or construction elements that would substantially increase hazards (e.g., sharp curves or dangerous intersections). There would be no impact.

d) Less than Significant Impact

Under the TMP (see AMM TRANS-1), medical and emergency vehicles would be able to continue to use routes in the local area to serve fire, medical, and law enforcement purposes. Flaggers would give priority to emergency vehicles. The impact would be less than significant.

Avoidance and Minimization Measures

AMM TRANS-1: Develop a Transportation Management Plan. To offset temporary disruptions during construction, a TMP will be developed by Caltrans with input from the local community during the design phase. The TMP will include one-way traffic controls, flaggers, and construction phasing to reduce impacts to local residents and maintain access to destinations along SR 1. The TMP will ensure continued project corridor access for emergency services. Thus, police, fire, and

medical services would not be adversely affected by the proposed project. The TMP will also include coordination with Sonoma County and public notification in the event of an emergency. The TMP will also ensure access to residential driveways that are near construction activities.

Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVIII. 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, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				X
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.				X

a, b) No Impact

In 2018, a Historic Property Survey Report and Archaeological Survey Report were developed to identify historic properties in an APE developed by Caltrans. Tribal consultation was conducted under Assembly Bill 52 with the following tribes: Cloverdale Rancheria, Dry Creek Rancheria, Federated Indians of Graton Rancheria, Lytton Rancheria, Middletown Rancheria, Mishewal Wappo, and the Kashia Band of the Stewarts Point Rancheria. No tribal cultural resources were reported in record searches or in consultation with Native groups and individuals. Based on the above-referenced studies and consultation with local tribes, it was determined that no tribal cultural resources are present within the APE.

Project Features

Feature TRIBE-1: Stop Work Upon Discovery of Cultural Materials. If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified Caltrans archaeologist can assess the significance of the find.

Feature TRIBE-2: Protect Discovered Tribal Cultural Resources with Temporary Fencing. If any tribal cultural resources are found, these resources will be delineated on the ground with temporary fencing. No construction-related activities or staging are permitted within these areas.

Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
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?				X
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?				X
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				X

Utilities along the project corridor include PG&E, Frontier Communications, AT&T, Comcast, and Russian River Utility (water). No utility relocation is anticipated for this project.

Fiber optic cable owned by Frontier Communications extends under the northbound lane of SR 1 from approximately PM 30.9 to PM 40.6. The presence of this cable is noted by signs on the post mile markers starting from the culvert at PM 35.34.

a, b, c) No Impact

The project would not require modification to existing utilities and services. In addition, the project does not require new water supplies or impact existing supplies. The proposed project would not result in increased impervious surfaces and would not exceed wastewater treatment requirements. There would be no impact.

d, e) No Impact

The proposed project would not result in substantial demands for solid waste disposal and would comply with federal, state, and local statutes regarding solid waste. No solid waste would be generated by the project post-construction.

Project Feature

Feature UTIL-1: Notify Utility Owners of Construction Schedule to Protect Buried Utilities. All affected utility companies, including Frontier Communications, will be notified of construction schedules for proposed culvert rehabilitation work so that they can relocate cable or provide special instructions for cable protection.

Wildfire

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XX. WILDFIRE: 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?			X	
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?				X
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?				X
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?			X	

All work areas are located within state responsibility areas, but are not located in lands classified as very high fire severity (CAL FIRE 2007, 2012). However, culvert PM 37.17 is located within 50 feet of the boundary of a very high fire hazard severity zone.

a) Less than Significant Impact

A TMP (see AMM TRANS-1) would be developed during the design phase that would identify traffic diversion/staging and alternative routes. Emergency response times are not anticipated to change during construction because the TMP would provide measures to ensure priority for emergency vehicles during one-way traffic control. The TMP would provide instructions for response and evacuation in the event of an emergency. In addition, this project would not conflict with any other emergency response or evacuation plan. The impact would be less than significant.

b, c) No Impact

The project proposes to replace existing culverts on SR 1, and therefore would not have occupants nor would it require the installation of associated infrastructure that would exacerbate fire risk. There would be no impact.

d) Less than Significant Impact

The slopes below the roadway have been determined to be generally stable (Caltrans 2019d). However, RSP would be installed below three culverts (PM 30.81, PM 31.44, and PM 40.33) to maintain slope stability post-construction. Therefore, the project would not contribute to post-fire slope instability. Impacts would be less than significant.

Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
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)?				X
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

a) Less than Significant Impact

The proposed project would not 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, or substantially reduce the number of or restrict the range of a rare or endangered plant or animal.

The proposed project would have temporary minor impacts on riparian habitat and temporary and permanent minor impacts to some vegetation communities such as native and non-native perennial coastal grassland. The project has the potential to remove 17 trees and has the potential to have direct and indirect temporary impacts to wetlands and waters of the U.S. The proposed project would have minimal permanent impacts and short-term impacts to California red-legged frog habitat and could potentially result in the loss of small numbers of CRLF, if present during construction activities. The proposed project has the potential to remove suitable habitat for the northern spotted owl, marbled murrelet, and Sonoma tree vole; however, it is not anticipated that these species will be present within the BSA based on biological surveys. Potential impacts could occur to the Myrtle's silverspot butterfly and the California giant salamander, which could potentially be present within the BSA, but

with the implementation of Project Features and Avoidance and Minimization Measures, these potential impacts would be avoided or minimized. The project would not eliminate important examples of the major periods of California history or prehistory.

b) No Impact

The proposed project involves the replacement of existing culverts under SR 1 in a rural environment. No other projects are known to be proposed in the project corridor. There would be no cumulative impacts.

c) Less than Significant Impact

Rural residences are scattered along much of the project corridor. Six culvert replacements (PMs 35.34, 36.53, 36.59, 36.67, 38.12, and 38.58) occur in close proximity to rural residences. Due to these residences and the rural nature of the project corridor, no construction would occur at night, access to residential driveways within close proximity to construction activities would be maintained at all times, and noise and air quality BMPs will be implemented to address dust and noise impacts. Therefore, temporary construction-related activities would not result in permanent or significant environmental impacts to human beings.

Chapter 4 Comments and Coordination

To date, agency coordination consists of the following:

- On May 7, 2019, Rachel Cotroneo (CH2M) sent John Cleckler (USFWS) an email on behalf of Caltrans requesting technical assistance for Caltrans EA 1K730, Sonoma 1 Culvert Rehabilitation Project.

Chapter 5 List of Preparers

The primary persons responsible for contributing to, preparing, and reviewing this report are listed in Table 5-1.

Table 5-1 List of Preparers and Reviewers

Organization Name	Role
Caltrans	
Suja Ahmed	Transportation Engineer, Geotechnical Services
Jennifer Blake	Associate Environmental Planner (Archaeologist)
Helen Blackmore	Architectural Historian
Robert Blizzard	Office of Biological Sciences and Permits
Sara Dabilly	Water Quality
Chris Else	Landscape Architecture
Keith Fang	Hazardous Materials
Matthew Gaffney	Engineering Geologist
Stefan Galvez-Abadia	Chief, Office of Environmental Analysis
Kevin Krewson	Branch Chief, Office of Environmental Engineering
Susan Lindsay	Landscape Architecture
Arnica MacCarthy	Branch Chief, Office of Environmental Analysis
John Moore	Branch Chief, Geotechnical Services
Nghia Nguyen	Transportation Engineer, Hydraulics
Joel North	Environmental Engineer, Noise/Air Quality
Muthanna Omran	Project Manager
Kathleen Reilly	Branch Chief, Office of Hydraulic Engineering
Chris Ridsen	Geotechnical Design
Kathryn Rose	Branch Chief, Cultural Resources/Archaeology
Frances Schierenbeck	Acting Branch Chief, Cultural/Built Resources/Architectural History
Chris Wilson	Hazardous Materials
Yanzhi Zhai	Project Engineer, Design
CH2M	
Chris Archer	Geographic Information Systems
Bryan Bell	Editor
Rachel Cotroneo	Biologist

Table 5-1 List of Preparers and Reviewers

Organization Name	Role
Clarice Ericsson	Publishing Technician
Kevin Fisher	Biologist
Lynne Hosley	Project Manager
Scott Lindemann	Biologist
Mia Marek	Biologist
Loretta Meyer	Senior Environmental Planner
Erika Sawyer	Project Manager
Earthview Science	
MariaElena Conserva	Environmental Planner

Chapter 6 Distribution List

The Initial Study with proposed Negative Declaration will be circulated by September 13, 2019, to the following agencies and government officials:

Agencies

U.S. Fish and Wildlife Service

U.S. Army Corps of Engineers

North Coast Regional Water Quality Control Board

California Department of Fish and Wildlife

California Department of Parks and Recreation

California Coastal Commission

Governor's Office of Planning and Research

Sonoma County Clerk

Elected Officials

U.S. Senator Dianne Feinstein

U.S. Senator Kamala D. Harris

California Senator Mike McGuire

Congressman Jared Huffman

Assembly Member Jim Wood

Sonoma County Supervisor Lynda Hopkins

Appendix A 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) 623-3776
TTY 711
www.dot.ca.gov



*Making Conservation
a California Way of Life*

April 2018

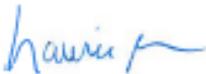
NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."*

Related federal statutes 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, please visit the following web page:
http://www.dot.ca.gov/hq/bep/title_vi_t6_violated.htm.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone (916) 324-8379, TTY 711, email Title.VI@dot.ca.gov, or visit the website www.dot.ca.gov.


LAURIE BERMAN
Director

*"Provide a safe, sustainable, integrated and efficient transportation system
to enhance California's economy and livability."*

Appendix B Summary of Project Features and Avoidance and Minimization Measures

Project Features

Feature BIO-1: Replant, Reseed, and Restore Disturbed Areas. Caltrans will restore temporarily disturbed areas to the maximum extent practicable. Disturbed areas from construction will be contoured to conform to the surrounding landscape and restored using a combination of compost application and native plantings and hydroseeded mix. Invasive, non-native plants, duff, and excavated material containing invasive plant material will be cleared from the project footprint. Exposed slopes and bare ground will be reseeded with native grasses and shrubs to stabilize and prevent erosion.

Feature CULT-1: Stop Work Upon Discovery of Cultural Materials. If cultural materials are discovered during construction, all earth-moving activity within a 60-foot radius will be halted until a Caltrans qualified archaeologist can assess the nature and significance of the find.

Feature CULT-2: Additional Actions if Cultural Materials Contain Human Remains. If Caltrans Professionally Qualified Staff determines that cultural materials contain human remains, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. Caltrans' OCRS will contact the Sonoma County Coroner. Pursuant to PRC Section 5097.98, if the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. The Caltrans OCRS will work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Feature GEO-1: Installation of Rock Slope Protection. At PMs 30.81, 31.44, and 40.33, RSP will be installed to prevent erosion below the culverts.

Feature GEO-2: Headwalls and Down Drains. At PMs 30.81, 31.76, and 37.17, headwalls will be installed at either the upstream end (PMs 30.81 and 31.76) or downstream end (PM 37.17) of the culvert to prevent separation of culvert joints and

prevent infiltration of water into soil surrounding the culvert. To dissipate energy, new or replacement down drains will be installed at some of the culverts.

Feature GHG-1: Control Measures for Greenhouse Gases. Measures will be determined during the design phase and implemented during construction to 1) ensure regular construction maintenance of vehicle and equipment; 2) limit idling of vehicles and equipment onsite; 3) recycle nonhazardous waste and excess material if practicable; and 4) use solar-powered signal boards, if feasible.

Feature WQ-1: Construction Site BMPs. To prevent or reduce water quality impacts to the project corridor, BMPs will be deployed for sediment control, pH, and material management. BMPs will include measures for soil stabilization, sediment control, wind erosion control, tracking control, non-stormwater management, and drainage inlet protection. These BMPs will include measures such as, but not limited to, temporary concrete washouts, street sweeping, fiber rolls, silt fences, hydraulic mulch, and construction entrances.

Feature WQ-2: Temporary Stream Diversions. Temporary stream diversions will be used when necessary for culvert replacements. Stream diversion will consist of coffer dams and conduit to direct the stream through the existing culverts to the outfall.

Feature NOISE-1: Noise Best Management Practices. The following BMP will be implemented during all phases of construction activities to reduce noise:

- Require construction equipment to conform to Section 14-8.02, Noise Control, of the latest Caltrans Standard Specifications.

Feature TRIBE-1: Stop Work Upon Discovery of Cultural Materials. If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified Caltrans archaeologist can assess the significance of the find.

Feature TRIBE-2: Protect Discovered Tribal Cultural Resources with Temporary Fencing. If any tribal cultural resources are found, these resources will be delineated on the ground with temporary fencing. No construction-related activities or staging are permitted within these areas.

Feature UTIL-1: Notify Utility Owners of Construction Schedule to Protect Buried Utilities. All affected utility companies, including Frontier Communications,

will be notified of construction schedules for proposed culvert rehabilitation work so that they can relocate cable or provide special instructions for cable protection.

Avoidance and Minimization Measures

AMM AES-1: Comply with *Final Sonoma State Route 1 Repair Guidelines*.

Project elements will comply with the *Final Sonoma State Route 1 Repair Guidelines* (Caltrans 2019b) when feasible. The Guidelines integrate and balance safety, mobility, and maintenance goals with environmental values consistent with design best suited for the SR 1 corridor.

AMM AES-2: Apply Context Sensitive Solutions. The project design will incorporate concepts of context sensitive solutions. Project elements will incorporate aesthetic treatments and be designed such that they harmonize to the extent possible with the adjacent landscape, e.g., drainage elements will be colored to blend with their surroundings. These and other adaptations will help minimize impacts to the visual character of the area and support visual unity throughout the project corridor.

AMM AES-3: Avoid Unnecessary Removal of Vegetation. During construction, attempts will be made, as feasible, to avoid impacts to all vegetation and in particular existing native trees. A qualified biologist, arborist, or landscape architect will work with the contractor to adjust the approach to construction work to avoid damage or removal of native trees wherever possible.

AMM AES-4: Protect Vegetation Outside the Limits of Construction. Trees and vegetation outside of the clearing and grubbing limits will be protected from construction operations, equipment, and materials storage.

AMM AES-5: Revegetate Disturbed Areas Upon Completion of Construction. Following construction, seeding with locally native plants will enhance the visual quality and character of the project corridor and help to quickly revegetate any disturbed areas. Areas of RSP will be covered with amended soil and vegetated. Grasses and shrubs removed during construction will be replanted with locally native seed, collected and "amplified" to provide additional quantities. Where tree replanting is appropriate or required, trees will be grown from locally collected stock and planted at an age of approximately 18 to 24 months. All replacement planting, by seed or with propagated locally native plants, will include a 1-year plant establishment period (PEP). A temporary truck-watering irrigation system will be provided as needed based on the type of plant, project timing, and time of year.

AMM AES-6: Treatment of RSP. Voids in the newly installed RSP will be back-filled with, and the RSP will then be covered with, topsoil that is a combination of uniformly blended local soil and fine compost. The RSP will then be seeded with locally native seed. Because some rock used in vegetated RSP may eventually become visible, rock that blends with the native rock and soil of the area will be selected or the rocks will be stained to blend in with native rock and soil.

Avoidance and Minimization Measures for Rare Plants

AMM BIO-1: Avoid or Minimize Disturbance to Rare Plants. If special-status plants are identified during the surveys, and impacts to the species are considered substantial in the context of the status of the special-status plant species and the number of populations and individuals known, the following actions may be undertaken:

1. **Avoid Rare Plants.** The project footprint may be adjusted, if practicable, to completely or partially avoid impacting special-status plants species.
2. **Minimize Disturbance to Rare Plants.** If complete or partial avoidance is not practicable, other minimization measures may be implemented to reduce the severity of the impact to the special-status plant species. These actions may include one or a combination of the following: 1) collection of special-status plant seed, bulbs, other propagules, or topsoil prior to construction for use in future onsite restoration or enhancement actions; 2) restoration or enhancement of suitable special-status plant habitat onsite; or 3) restoration or enhancement of suitable special-status plant habitat offsite.

Avoidance and Minimization Measures for California Red-legged Frog

AMM BIO-2: Proper Use of Erosion Control Devices. To prevent CRLF from becoming entangled or trapped in erosion control materials, plastic monofilament netting (i.e., erosion control matting) or similar material will not be used. Acceptable substitutes would include coconut coir matting or tackifying hydroseeding compounds.

AMM BIO-3: Biological Monitoring. A biological monitor will be present during construction activities where potential impacts to a listed species could occur. Through communication with the Resident Engineer or his/her designee, the biological monitor may stop work if deemed necessary for any reason to protect listed species and will advise the Resident Engineer or designee on how to proceed accordingly.

AMM BIO-4: Preconstruction Surveys for California Red-legged Frog. The biological monitor will conduct preconstruction CRLF surveys. Visual surveys will be conducted immediately before ground-disturbing activities. Suitable non-breeding aquatic and upland habitat within the project footprint, including refugia habitat such as under shrubs, downed logs, small woody debris, burrows, etc., will be inspected. If a CRLF is observed, the individual will be evaluated and relocated in accordance with the observation and handling protocol outlined below. Fossorial mammal burrows will be inspected for signs of frog usage, to the extent practicable. If it is determined that a burrow may be occupied by a CRLF, USFWS will be contacted and work in the vicinity of the burrow stopped.

AMM BIO-5: Protocol for California Red-legged Frog Observation. If CRLF are encountered in the project footprint, work within 50 feet of the animal will cease immediately and the Resident Engineer and approved biological monitor will be notified. Based on the professional judgment of the biological monitor, if project activities can be conducted without harming or injuring the animal(s), they may be left at the location of discovery and monitored by the biological monitor. Project personnel will be notified of the finding, and at no time will work occur within 50 feet of the animal without a biological monitor present.

Avoidance and Minimization Measures for the Northern Spotted Owl

AMM BIO-6: Occupied Northern Spotted Owl Habitat. If NSO surveys (using the USFWS's 2012 survey protocol; USFWS 2014) determine that the work area is occupied, or Caltrans presumes spotted owl occupancy without conducting surveys, Caltrans will adhere to the following measures:

1. **Vegetation Removal or Alteration:**
 - a. No suitable NSO nest trees will be removed during the nesting season (February 1 to September 30).
 - b. Suitable habitat may be removed or altered outside the nesting season provided "no take" guidelines are adhered to for all known NSO home ranges within 1.3 miles of the work areas in interior forests or within 0.7 mile of the work areas in coastal [redwood] forests (USFWS 2014).

2. Auditory or Visual Disturbance:

- a. No proposed activity generating sound levels 20 or more decibels (dB) above ambient sound levels or with maximum sound levels (ambient sound level plus activity-generated sound level) above 90 dB (excluding vehicle back-up alarms) may occur within suitable NSO nesting\roosting habitat during the majority of the nesting season (i.e., February 1 to July 9; USFWS 2014). These above-ambient sound level restrictions will be lifted after July 31; after which the USFWS considers the above-ambient sound levels as having “no effect” on nesting NSO and dependent young.
- b. No human activities will occur within a visual line-of-sight of 40 meters (131 feet) or less from any known nest locations within the action area (USFWS 2014).

AMM BIO-7: Unoccupied Northern Spotted Owl Habitat. If NSO surveys (using the USFWS’s 2012 survey protocol) determine that all suitable NSO habitat within 0.7 mile of the work areas in coastal [redwood] forests or within 1.3 miles of the work areas in interior forests is unoccupied, suitable habitat may be removed or altered without seasonal restrictions, provided “no take” guidelines are adhered to. The USFWS considers previously occupied habitat as essentially “occupied” in perpetuity. Therefore, adequate (based on the “no take” guidelines mentioned above) suitable nesting\roosting and foraging habitat must be maintained within all historical NSO territories within the action area.

Avoidance and Minimization Measures for the Marbled Murrelet

AMM BIO-8: Occupied Marbled Murrelet Habitat. If MAMU surveys (using the USFWS’s 2003 survey protocol; USFWS 2014) determine that the work area is occupied, or Caltrans presumes MAMU occupancy without conducting surveys, Caltrans will adhere to the following avoidance and minimization measures:

1. Vegetation Removal or Alteration:

- a. No potential MAMU nest trees will be removed during the nesting season (February 1 to September 30).
- b. Potential Suitable habitat may be removed or altered outside the nesting season (October 1 to January 31).

c. Caltrans must ensure that there are no “adverse effects” to designated MAMU critical habitat within the project footprint. Caltrans must contact the USFWS to determine whether proposed habitat removal within designated critical habitat would constitute an adverse effect.

2. Auditory or Visual Disturbance:

a. No proposed activity generating sound levels 20 or more dB above ambient sound levels or with maximum sound levels (ambient sound level plus activity-generated sound level) above 90 dB (excluding vehicle back-up alarms) may occur within suitable MAMU nesting habitat during the majority of the MAMU nesting season (i.e., March 24 to August 5; USFWS 2014).

b. Between August 6 (date when most MAMU have fledged in coastal northern California) and September 30 (end of MAMU nesting season), project activities with adjacent suitable nesting habitat that will generate sound levels ≥ 10 dB above ambient sound levels will observe a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset. Prep work that does not generate sound levels above ambient sound levels, including street sweeping and manual removal of pavement markers, can occur during all hours. The need for this daily work window depends on the distance between suitable nesting habitat and the above-ambient sound generating activity following the USFWS’s guidelines (USFWS 2014). For example, if above-ambient sound levels generated by proposed activities will become attenuated back down to ambient sound levels prior to reaching suitable nesting habitat, the daily work window would not be necessary.

c. No human activities will occur within visual line-of-sight of 40 meters (131 feet) or less from a nest (USFWS 2014).

AMM BIO-9: Unoccupied Marbled Murrelet Habitat.

a. If protocol surveys determine that all suitable MAMU nesting habitat within the project footprint is considered unoccupied, suitable nesting habitat may be removed or altered without seasonal restrictions.

b. Caltrans must ensure that there are no “adverse effects” to designated MAMU critical habitat within the project footprint. Caltrans must contact the USFWS to determine whether the proposed habitat removal would constitute

an adverse effect to designated critical habitat. However, the removal of a few small trees and shrubs would be exempt from this requirement.

Avoidance and Minimization Measures for the Myrtle's Silverspot Butterfly

AMM BIO-10: Pre-construction Survey for *Viola adunca*. A pre-construction survey for *Viola adunca* will be conducted in the early spring (late February/early March), prior to construction, referencing phenology trends observed at Fort Ross or other nearby reference populations. If *Viola adunca* are found in the work area they will be flagged for avoidance. Negative findings for *Viola adunca* within the project footprint would indicate that the footprint does not contain suitable breeding habitat for MSB.

AMM BIO-11: Minimize Impacts to *Viola adunca* and MSB. If *Viola adunca* plants are found they will be flagged and fenced for avoidance. Host plants will be surveyed for evidence of larval feeding or damage. If host plants are considered potentially occupied by MSB then work will occur during the larval period and outside the flight season.

If larval host plants cannot be avoided, then work will occur during the flight season, with a biological monitor present to survey for adult MSB. If MSB are observed in the work area, the biological monitor, through communication with the Resident Engineer or his/her designee, may stop work if deemed necessary for any reason to protect MSB and will advise the Resident Engineer or designee on how to proceed accordingly.

Avoidance and Minimization Measures for the Sonoma Tree Vole

AMM BIO-12: Preconstruction Surveys for Sonoma Tree Vole. Before the start of construction, a qualified biologist will conduct a survey of the project work areas and a 30-foot buffer beyond the project footprint boundaries to determine the location of active and inactive STV nests. Any nests detected during the surveys will be recorded and mapped in relation to the construction disturbance footprint. In addition, the biologist will evaluate any signs of current activity. A 30-foot equipment exclusion buffer will be established around active and inactive nests that can be avoided; within such buffers, all vegetation will be retained, and nests will remain undisturbed.

Avoidance and Minimization Measures for Trees

AMM BIO-13: Tree and Shrub Planting. Tree and shrub planting are proposed onsite after the project is complete. Trees with a diameter at breast height greater than 4 inches that are removed will be replaced at the following ratios: 3:1 for native trees

and 1:1 for non-native trees. Where disturbance includes the removal of trees and woody shrubs, native species will be replanted, based on the local species composition.

AMM TRANS-1: Develop a Transportation Management Plan. To offset temporary disruptions during construction, a TMP will be developed by Caltrans with input from the local community during the design phase. The TMP will include one-way traffic controls, flaggers, and construction phasing to reduce impacts to local residents and maintain access to destinations along SR 1. The TMP will ensure continued project corridor access for emergency services. Thus, police, fire, and medical services would not be adversely affected by the proposed project. The TMP will also include coordination with Sonoma County and public notification in the event of an emergency. The TMP will also ensure access to residential driveways that are near construction activities.

Appendix C List of Abbreviations

AES	aesthetics
AMM	avoidance and minimization measure
APE	area of potential effects
AQ	air quality
ASR	Archaeological Survey Report
BIO	biology
BMP	best management practice
CA	California
Caltrans	California Department of Transportation
CCA	California Coastal Act
CCC	California Coastal Commission
CCT	California Coastal Trail
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO ₂	carbon dioxide
CULT	cultural
CZMA	Coastal Zone Management Act
EA	Expense Authorization
EIR	environmental impact report
GHG	greenhouse gas

HPSR	Historic Property Survey Report
LCP	Local Coastal Plan
MBGR	metal beam guard rail
OCRS	Office of Cultural Resource Studies
PM	post mile
PRC	Public Resources Code
ROW	right of way
RSP	rock slope protection
SR	State Route
TMP	Traffic Management Plan
TRANS	transportation and traffic
TRIBE	Tribal cultural resources
TTY	text telephone
VIA	Visual Impact Assessment
WQ	water quality

Appendix D List of Technical Studies and References

CAL FIRE. 2007. Sonoma County Fire Hazard Severity Zones in SRA. Available online at: http://frap.fire.ca.gov/webdata/maps/sonoma/fhszs_map.49.pdf.

_____. 2012. Sonoma County State Responsibility Areas for Fire Protection. Fire and Resource Assessment Program. California Department of Forestry and Fire Protection. http://frap.fire.ca.gov/data/frapgismaps/sra11_2/sramap.49.pdf

California Coastal Conservancy. 2019. California Coastal Trail. <https://scc.ca.gov/projects/california-coastal-trail/>

California Department of Fish and Wildlife (CDFW). 2019. California Natural Diversity Database (CNDDDB). RareFind 5. Wildlife and Habitat Data Analysis Branch. Sacramento, California. Available online at: <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>. Accessed on March 2, 2019.

California Department of Transportation (Caltrans). 2017. *Construction Site Best Management Practices (BMP) Manual*. CTSW-RT-17-314.18.1. May. Division of Environmental Analysis, Stormwater Program.

_____. 2019a. *Scenic Resource Evaluation and Visual Impact Assessment*. Technical Memorandum. File 04-SON-1. EA 04-1K730. District 4, Office of Landscape Architecture. Oakland, CA. April 26.

_____. 2019b. *Final Sonoma State Route 1 Repair Guidelines*. Caltrans Department of Transportation District 4. March.

_____. 2019c. *Completion of Section 106 Compliance for the State Route 1 Culvert Replacement Project in Sonoma County*. Technical Memorandum. File 04-SON-1. EA 04-1K730. District 4 Office of Cultural Resources Studies. Oakland, CA. March 20.

_____. 2019d. *District Preliminary Geotechnical Report for Drainage System Restoration*. Technical Memorandum. File 04-SON-1. EA 04-1K730. District 4 Office of Geotechnical Design – West. Oakland, CA. March 15.

- _____. 2019e. *Construction Greenhouse Gas (GHG) Emissions Analysis*. Technical Memorandum. File 04-SON-1. EA 04-1K730. Office of Environmental Engineering. Oakland, CA. March 28.
- _____. 2019f. *Hydraulics Study*. Technical Memorandum. File 04-SON-1. EA 04-1K730. Office of Hydraulics. Oakland, CA. May 9.
- _____. 2019g. *Water Quality Study*. Technical Memorandum. File 04-SON-1. EA 04-1K730. District 4 Office of Water Quality. Stormwater Coordination Branch. Oakland, CA. May 9.
- _____. 2019h. *Comments from Hazardous Waste Branch*. Reviewed by Chris Wilson and Keith Fang. Oakland, CA. Received July 9, 2018.
- _____. 2019i. *Sonoma 1 Culvert Rehabilitation Project Draft Natural Environment Study*. May.
- _____. 2019j. *Fish Passage Assessment For Sonoma 1 Culvert Rehabilitation Project (1K730)*. Memorandum from Robert Blizzard, Branch Chief North Counties, to Robert Stanley/CDFW. May 30.
- _____. 2019k. *Draft Vegetation Characterization and Rare Plant Habitat Assessment, Sonoma 1 Culvert Rehabilitation Project*. May.
- California Native Plant Society (CNPS). 2019. *Inventory of Rare and Endangered Plants (Online Edition, v7-08d)*. California Native Plant Society. Sacramento, CA. Accessed January 31, 2017. Available online at <http://www.cnps.org/inventory>.
- National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). 2019. *Species List - Intersection of USGS Topographic Quadrangles with NOAA Fisheries ESU/DPS, Critical Habitat, Species Distribution, and Essential Fish Habitat*. March 16, 2019.
- Sonoma County. 2001. *Local Coastal Plan*. Adopted 1981. Amended 2001.
- _____. 2016. *General Plan 2020*. Adopted September 23, 2008. Amended August 2, 2016. <https://sonomacounty.ca.gov/PRMD/Long-Range-Plans/General-Plan/>

Sonoma County. 2019. Local Coastal Plan. Road and Bikeway Classification. Bike Permit and Resource Management Department. Available online at: https://sonomacounty.ca.gov/_templates_portal/PageWideBanner.aspx?id=2147541400

Sonoma County Transportation Authority. 2014. *Countywide Bicycle and Pedestrian Masterplan*. Adopted May 2008. Updated 2014. https://scta.ca.gov/wp-content/uploads/2016/07/BikePedPlanUpdate2014_final.pdf

_____. 2016. *Moving Forward 2040 – Sonoma County’s Comprehensive Transportation Plan*. September. https://scta.ca.gov/wp-content/uploads/2016/09/CTP16_090616.pdf

U.S. Fish and Wildlife Service (USFWS). 2014. *Programmatic informal consultation for the California Department of Transportation’s Routine Maintenance and Repair Activities, and Small Projects Program for Districts 1 and 2*. Programmatic Letter of Concurrence (PLOC) between Caltrans and U.S. Fish and Wildlife Service. AFWO-12B0001-12I0001. Available online at: http://www.dot.ca.gov/ser/downloads/MOUs/arcata_fws_concurltr.pdf. Pgs. 1-22.

_____. 2019a. Information for Planning and Consultation (IPaC) System. Available online at: <https://ecos.fws.gov/ipac/>. Accessed March 2, 2019.

_____. 2019b. National Wetlands Inventory Map. Available online at: <http://www.fws.gov/wetlands/Data/Mapper.html>.