Olema Creek Tributary Culvert Replacement Project

Draft Section 4(f) De Minimis Determination and Section 6(f) Assessment

Caltrans District 04
Marin County, California

State Route 1

MRN-1/PM 24.67

EA 4S780/0400020145

April 2016

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List of Abbreviations

AMM	avoidance and minimization measure
BMP	best management practice
Caltrans	California Department of Transportation
CE	Categorical Exclusion
CFR	Code of Federal Regulations
FHWA	Federal Highway Administration
GGNRA	Golden Gate National Recreation Area
LWCF	Land and Water Conservation Fund
MGS	Midwest Guardrail System
NMFS	National Marine Fisheries Service
NPS	National Park Service
NRHP	National Register of Historic Places
PM	Post Mile
SHPO	State Historic Preservation Office
SR	State Route
TCE	temporary construction easement
U.S.C.	United States Code

Chapter 1 Introduction

This Section 4(f) Evaluation and Section 6(f) Assessment document has been prepared in tandem with the Categorical Exclusion (CE) for the California Department of Transportation's (Caltrans) Olema Creek Tributary Culvert Replacement Project (the project). The project area lies within the Coastal Range that borders California's coastline north of San Francisco in Marin County. The site is in an area referred to as the Olema Valley within which the Golden Gate National Recreational Area (GGNRA) lies east of State Route (SR) 1. The terrain consists of undulating grassy hillsides with ravines of mixed conifers, deciduous trees, and coastal oak trees. SR 1 at Post Mile (PM) 24.67 (see Figure 1-1) traverses an Olema Creek tributary which flows from east to west through two undersized culverts placed in an embankment that supports the roadway; this project proposes to replace the undersized culverts.

This document provides documentation necessary to support determinations required to comply with the provision of 23 United States Code (U.S.C.) 138 and 49 U.S.C. 303, hereafter referred to as Section 4(f).

This documentation has been prepared in accordance with legislation originally established under Section 4(f) of the United States Department of Transportation Act of 1966 (now codified under 23 U.S.C. 138 and 49 U.S.C. 303). Additional guidance was obtained from the Federal Highway Administration's *FHWA Technical Advisory T6640.8A* (FHWA 1987) and the revised *FHWA Section 4(f) Policy Paper* (FHWA 2012). Section 4(f) protects the following basic types of properties: publicly owned park and recreation areas that are open to the general public, publicly owned wildlife and waterfowl refuges, and public or privately owned historic sites.[1] In order to qualify as a park, recreation area, or refuge under the statute, a property must meet all of the following criteria:

- It must be publicly owned
- It must be open to the public
- Its major purpose must be for park, recreation, or refuge activities
- It must be significant as a park, recreation area or refuge

[1] The term historic sites includes prehistoric and historic districts, sites, buildings, structures or objects listed in, or eligible for, the National Register of Historic Places. This may also include places of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

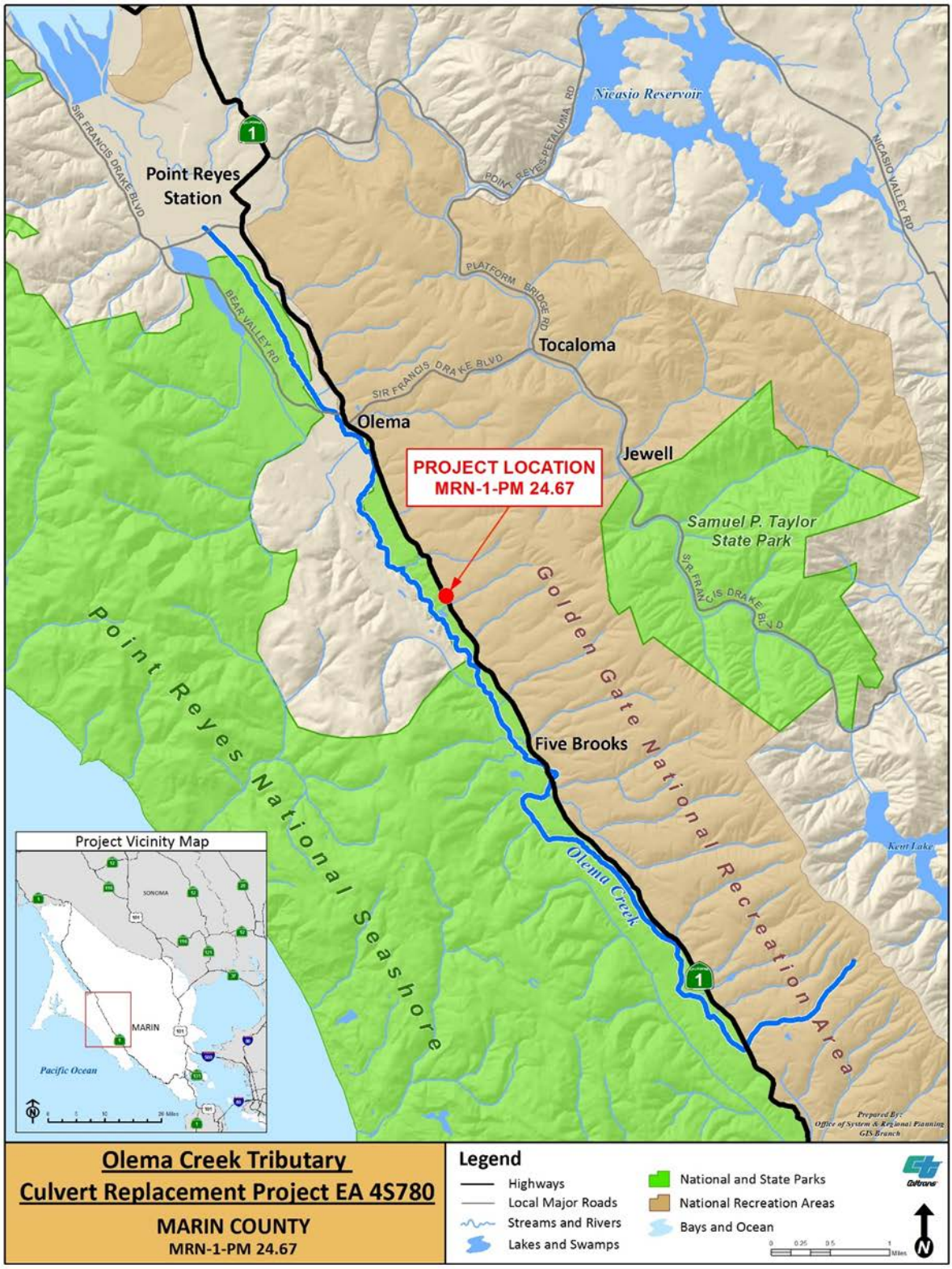

Figure 1-1 Olema Creek Tributary Culvert Replacement Vicinity Map

The Section 4(f) requirements apply to historic resources (buildings, statues, transportation facilities, historic sites, and archaeological sites) that are eligible for or listed on the National Register of Historic Places (NRHP). Section 4(f) applies to archeological sites that are both listed in and eligible for listing in the NRHP and that warrant preservation in place, but not to those that are chiefly important because of what can be learned by data recovery. In order to qualify as a historic site under the statute, a property must be of national, state or local significance and must be listed or eligible for listing in the NRHP.

The evaluation presented in this document does the following:

- Defines how a Section 4(f) use is determined
- Identifies Section 4(f) resources along SR 1 for the Olema Creek Tributary Culvert Replacement Project
- Discusses how the project would use Section 4(f) resources
- Lists Section 4(f) resources that would qualify for a *de minimis* finding
- Identifies mitigation measures to minimize unavoidable use of Section 4(f) properties

In addition to the protection provided by Section 4(f), Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 stipulates that any land or facility planned, developed, or improved with LWCF funds cannot be converted to uses other than parks, recreation, or open space unless land of at least equal fair market value and reasonably equivalent usefulness is provided. Converting any portion of these lands into other uses must follow Code of Federal Regulations (CFR) Title 36, Section 59.3 of the LWCF Program. Any time a transportation project would cause such a conversion, regardless of funding sources, such replacement land at equal value must be provided.

The GGNRA is a vast array of multiple lands, some of which have been acquired or improved with LWCFs. The parcels where this project is located was not planned,

acquired, nor improved with LWCF funding[2] and therefore there is no use of Section 6(f) resources from this project. Section 6(f) is not discussed further in this document.

1.1 Section 4(f) Overview

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S.C. 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that "the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- there is no prudent and feasible alternative to using that land; and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

Section 4(f) further requires consultation with the U.S. Department of the Interior and, as appropriate, the involved offices of the U.S. Department of Agriculture and the U.S. Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer (SHPO) is also needed.

1.1.1 Section 4(f) Use Definitions

To determine whether Section 4(f) applies to the proposed project alternatives, Section 4(f) properties must be assessed to determine whether a use of the property is anticipated. The "use" of a protected Section 4(f) property, as defined in 23 CFR 774.17, occurs when any of the conditions discussed in the following subsections are met.

[2] LWCF, including $4.1 million in Fiscal Year (FY)2011, $5 million in FY2010 and $4 million in FY2009, was leveraged with funding from private donations to protect lands south of Olema Valley.(http://www.lwcfcoalition.org/california.html, March 25, 2016)

PERMANENT/DIRECT USE

A permanent use of a Section 4(f) resource occurs when property is permanently incorporated into a proposed transportation facility. Permanent use may occur as a result of partial or full acquisition or a permanent easement that allows permanent access onto the property for maintenance or other transportation-related purposes.

CONSTRUCTIVE USE

A constructive use of a Section 4(f) resource occurs when a transportation project does not permanently incorporate land from the resource, but the project's proximity results in impacts so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished.

TEMPORARY OCCUPANCY

A temporary use of a Section 4(f) resource results when Section 4(f) property is required for project construction-related activities, the property is not permanently incorporated into a transportation facility, and the activity is considered adverse by the agency with jurisdiction in terms of the preservation purpose of Section 4(f).

Temporary impacts to a Section 4(f) property *may* trigger the application of Section 4(f); 23 CFR 774.13(d) defines the following five temporary occupation exception criteria that must be met to determine that a temporary occupancy does *not* rise to the level of use for the purposes of Section 4(f):

- Duration is temporary (i.e., the occupancy is shorter than the time needed for construction of the project and there is no change in ownership of the property).
- Scope of work is minor (i.e., the nature and magnitude of the changes to the Section 4(f) properties are minimal).
- There are no anticipated permanent adverse physical impacts or permanent interference with the protected activities, features, or attributes of the property.
- The property is restored to the same or better condition that existed prior to the project.
- There is documented agreement from the appropriate federal, state, or local officials having jurisdiction over the property regarding the previously listed conditions.

DE MINIMIS IMPACT DETERMINATIONS

When impacts to a Section 4(f) property are minor, as agreed to by the agency with jurisdiction over that property, Section 4(f) regulations can be satisfied through a *de minimis* determination.

De minimis impact is defined in 23 CFR 774.17 as follows:

- "For historic sites, *de minimis* impact means that the [Federal Highway] Administration has determined, in accordance with 36 CFR part 800, that no historic property is affected by the project or that the project would have "no adverse effect" on the historic property in question."

- "For parks, recreational areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f)."

According to the FHWA Section 4(f) Policy Paper (FHWA 2012), the officials with jurisdiction must concur in writing with a *de minimis* determination. For recreational or refuges properties, concurrence from the officials having jurisdiction over the properties is required. For historic sites, concurrence from the SHPO is required consistent with 36 CFR 800.

Chapter 2 Description of the Proposed Project

2.1 Purpose and Need

The purpose of the Olema Creek Tributary Culvert Replacement Project is to remove and upgrade an undersized and failing drainage system while re-establishing the balanced hydrologic regimen that existed before the construction of the roadway embankment, and to restore the creek's function as a salmonid foraging stream.

Additionally, this project would conform with California Senate Bill 857 which requires that projects programmed after January 1, 2006, include remediation in the project design to remove any existing fish barrier; and new projects will not create new barriers to fish.

This project is needed because over the course of the years, the culverts have cracked and failed resulting in ponding and sediment deposition upstream of the culvert, and the roadway profile, directly above the culverts, settled as much as 7 inches. This is because the existing culverts are corroded, cracked, failing, and undersized; therefore, they create conditions that pose a risk of eroding the embankment on the upstream side (eastside) and from within. The upstream side of the culverts has a cracked concrete headwall (see Figure 2-1). At the culvert outfall, due to scour, there is also a 4-foot drop that has become a barrier to fish passage on this historical salmonid stream (see Figure 2-2).

Figure 2-1 Upstream View (east side of SR 1) of Culvert with Failing Headwall

Figure 2-2 Downstream View (west side of SR 1) of Culvert with Ponding Feature

2.2 Project Alternatives

2.2.1 No Build Alternative

State and federal regulations require the evaluation of a No-Build Alternative in an environmental assessment. In addition to being a viable alternative, the No-Build Alternative provides a baseline against which to measure and compare the effects of Build alternative(s). This baseline helps decision makers assess what would happen to the environment in the future if nothing was done to address the identified problem.

The No-Build Alternative related to the SR 1 Olema Creek Tributary Culvert Replacement Project would retain the existing conditions. In the No-Build Alternative, the culverts may fail, which may continue to compromise the tributary flows and create ponding upstream of the roadway, which, during a flood event, could result in overtopping the roadway resulting in a safety hazard. Additionally, fish passage would continue to be impeded.

2.2.2 Proposed Project Alternative

Caltrans proposes the Olema Creek Tributary Culvert Replacement Project to replace a failing double culvert on SR 1 in rural Marin County, California, at PM 24.67, which is approximately 1.8 miles south of the town of Olema (see vicinity map in Figure 1-1 and SR 1 photos in Figures 2-1 and 2-2). The project involves removing two undersized 24-inch-diameter culverts that currently convey the flows from an unnamed tributary of Olema Creek, and constructing a 44-foot-long, natural bottom culvert (cast-in-place, reinforced concrete box) that is approximately 30 feet wide on its interior and 36 feet wide on its exterior. The culvert would require soil nail wingwalls in each quadrant extending perpendicularly from the culvert opening until it meets the 2:1 embankment slope where the wingwalls would meet the existing ground.

The culvert would support a roadway with two 12-foot-wide lanes and two 4-foot-wide shoulders, meeting the requirements of the Caltrans Highway Design Manual (Table 302.1 and Section 307.2, for rural roadways). Midwest Guardrail System (MGS) would be installed at the roadway edge of shoulder at a distance of 16 feet from centerline, and parapet walls would be installed at 6 feet beyond the shoulder to contain the fill material and shoulder backing at the ends of the culvert and wing walls. The project would remove the existing embankment, culverts, and headwall.

Construction (including vehicle access and construction equipment staging) would be maintained within the roadway and right-of-way, with the exception of an

approximately 0.22-acre temporary construction easement on GGNRA lands to access and remove the embankment and culverts, followed by contouring and replanting the slopes for a more natural drainage channel.

Chapter 3 List and Description of Section 4(f) Resources

3.1 Park/Recreation Resources

Adjacent to the east side of the project area lies GGNRA lands. The GGNRA is a U.S. National Recreation Area protecting over 80,000 acres of ecologically and historically significant landscapes surrounding the San Francisco Bay Area, but also made up of a collection of areas from San Mateo County to northern Marin County. Most of it was formerly owned by the United States Army, but a number of sites have been donated or acquired through various federal appropriations. Adjacent to the project site is the Olema Valley District of the GGNRA. The Olema Valley District portion of the GGNRA is a 10-mile stretch between Tomales Bay and Bolinas Lagoon. It is administered by the Point Reyes National Seashore branch of the National Park Service (NPS). Under the terms of a current administrative agreement, the superintendent of NPS at Point Reyes, who has management authority over the Point Reyes National Seashore, also has operational authority over the Olema Valley portion of GGNRA north of the Bolinas-Fairfax Road. As long as this agreement is in effect, the NPS headquarters in Bear Valley will continue to be the center of operations for Olema Valley as well as the seashore and as such, the Olema Valley of the GGNRA is managed by the Point Reyes National Seashore Management Plan. (NPS, 1980). The NPS has the identified the following objectives for managing the natural resources at Point Reyes National Seashore and the Olema Valley:

"To identify, protect, and perpetuate the diversity of existing ecosystems which are found at Point Reyes National Seashore and are representative of the California seacoast.

To protect marine mammals, threatened and endangered species, and other sensitive natural resources found within the seashore.

To enhance knowledge and expertise of ecosystem management through research and experimental programs relating to wildlife, prescribed burning techniques, exotic plant and animal reduction, regulation and control of resource use, and pollution control."

The Olema Valley District is important for the geologic forces that have shaped the landscape, the native habitats supporting an array of sensitive species, and its

historical value dating back to Native American habitation and Mexican rancheros. The Olema Valley, within the center of which runs Olema Creek, is largely shaped by the San Andreas Fault. The portion of Olema valley affected is within the Natural Landscape Management Zone of the Point Reyes National Seashore Management plan. It states that, "In this zone, natural resources and processes will remain as undisturbed as possible, given a relatively high level of natural-park uses (hiking, primitive camping, etc.). Management activities will be directed primarily at protecting wildlife and vegetation from misuse and overuse and at maintaining a variety of landscape settings conducive to recreation (open grasslands as well as forests)." There are very few trails within the Olema Valley District, and no camping sites. This portion of the GGNRA is managed for grazing, biological diversity, and wildlife and open space viewing from the roadway.

The biological study area (BSA) is known to support protected wildlife, including federally listed species, migratory birds, and state species of special concern. Federally listed animal species that either will be, or have the potential to be, impacted by the project include the California red-legged frog (*Rana draytonii*), northern spotted owl (*Strix occidentalis caurina*), California fairy shrimp (*Syncaris pacifica*), migratory birds, and Central California Coast steelhead (*Oncorhynchus mykiss*).[3] Several species of bats are likely to inhabit the BSA for this project, whether for foraging, day- or night-roosting, or rearing of young. Each of the bat species occurring in the region could potentially forage in the vicinity of this project, though various species favor differing habitats and strata within habitats for foraging (Lacki et al. 2007, Johnson et al. 2007). Special-status bats with a potential to occur in the project vicinity include the western red bat (*Lasurius blossevillii*), Townsend's big-eared bat (*Corynorhinus townsendii*), and pallid bat (*Antrozous pallidus*) (Heady and Frick 2007). Each of these species is a State species of special concern, and the Townsend's big-eared bat is also a candidate species for listing under the California Endangered Species Act.

While recreational attributes are not abundant in this district of the GGNRA, because the GGNRA lands remain open to the public, it qualifies for protection under Section 4(f).

[3] Email exchange with the National Marine Fisheries Service on January 22, 2015 concludes that California coastal Coho salmon (*Oncorhynchus kisutch*) is not present within the unnamed tributary, and is only potentially present within the Olema Creek and only on high flow rain years.

3.2 Cultural Resources

The project site lies within the Olema Valley Ranch Historic District, which is eligible for the NRHP. The 13,472-acre Olema Valley/Lagunitas Loop Ranches Historic District consists of 19 ranches, primarily dairy, within Point Reyes National Seashore, which is managed by the NPS. The district was determined eligible for listing in the NRHP on May 20, 2008. There are no other cultural, historic or archaeological resources that qualify for the NRHP. SR 1 is a contributing resource of the Olema Valley Historic District (Caltrans, 2016c).

Chapter 4 Impacts on Section 4(f) Properties

4.1 Park/Recreation Resources

This section reviews the project impacts for use of a Section 4(f) resource in terms of permanently or temporarily using a portion of the park property or causing a "constructive use," whereby noise, lowering visual quality during construction or operation would substantially impair the protected activities, features, or attributes that qualify the property for protection under Section 4(f).

No additional right-of-way is needed for this proposed project, and therefore the project would not entail a permanent use of GGNRA lands. However, a temporary construction easement (TCE) would be required for an area measuring approximately 0.22 acre (see Figure 4-1: Project Plan View), located on the northbound (east) side of SR 1, immediately outside of the SR 1 right-of-way and located on GGNRA lands. The TCE is primarily required to access the underside of the culvert for removal of the embankment material and the existing culverts, but a small area would only be disturbed during regrading to match existing topography.

The TCE would be used to build a temporary access road, up to 15 feet wide, from the roadway down to the bottom of the embankment in order to excavate the embankment, remove the existing culverts, and construct the reinforced concrete, natural bottom box culvert. The access road is designed to avoid removing two mature coast live oak trees. Gravel may be added to this access road to improve traction. The temporary access road would be removed and restored to match existing topography following project construction. The access road within the TCE would be used as a ramp to allow access to excavators, loaders, and dump trucks for excavation. The excavated material would be loaded onto trucks from the northeast side of the TCE to haul the material away. Topsoil would be preserved to use when restoring disturbed areas after construction.

Where necessary, vegetation within the project limits would be cleared by hand. (The project limits refers to the project footprint, which includes all areas within state right-of-way that would be used for project construction, staging, and access, as well as TCE areas directly impacted by construction activities):approximately 37 to 58 trees of varying age and trunk diameter would be removed, the majority of which are within the Caltrans right-of-way and outside of GGNRA lands. The project will

minimize tree removal by trimming in lieu of removal wherever possible. The removal of some trees in the GGNRA land covered by the TCE is necessary to create a clear path for construction equipment, haul trucks, and contour grading to restore the channel around the unnamed tributary.

Grading, clearing, and grubbing for construction within the Caltrans right-of-way and the TCE could result in indirect impacts from increased erosion and sedimentation that would adversely impact the unnamed tributary and, potentially, Olema Creek downstream. During construction, erosion of non-native material into the tributary will be prevented using Best Management Practices (BMPs) which are listed in detail in Chapter 5, Avoidance and Minimization Measures.

During construction, vegetation removal and excavation would impact both terrestrial and aquatic habitat. A Biological Assessment was prepared for this project (Caltrans, 2016b) which is under review by both the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. Following installation of the new culvert, the upland areas will be re-contoured to match the re-established riparian corridor and affected upland habitat will be revegetated. Riparian habitat will be created by excavating the embankment, daylighting the channel for 80 feet, and contouring and revegetating the newly exposed banks. In addition to the BMPs listed above, a variety of avoidance and minimization measures (AMMs) and mitigation measures (see Chapter 6) will be implemented to minimize impacts to special-status species and protect the surrounding environment from project-related impacts.

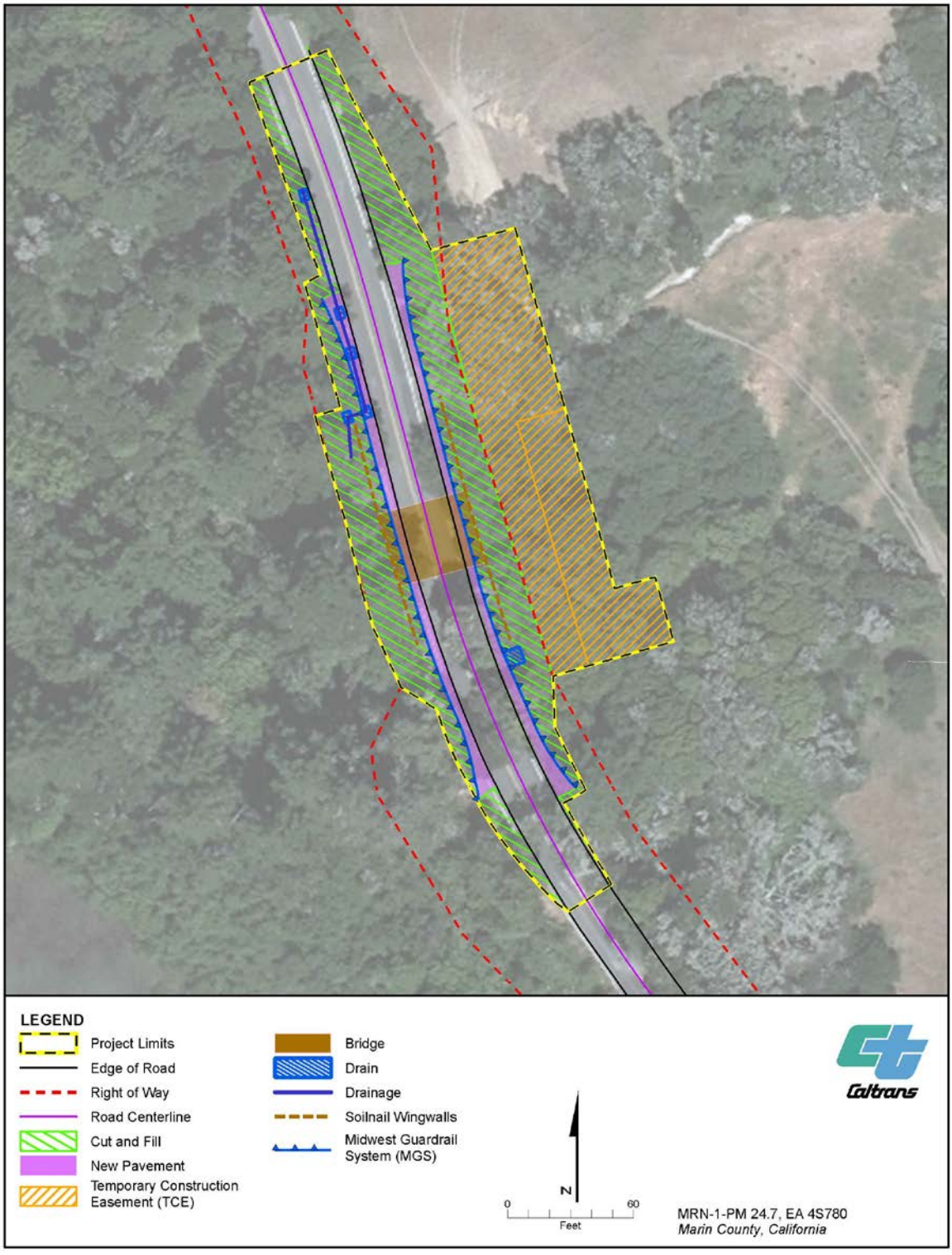

Figure 4-1 Project Plan View

Following construction of the culvert, the side slopes from the flow line within the culvert would be graded and contoured to match existing terrain on either side of the culvert. The temporary access road would be removed and disturbed areas would be restored with preserved topsoil. Replanting and hydroseeding would occur immediately following final contour grading using locally sourced plant material. There would be a minimum three-year plant establishment period; this would entail routine watering and occasional plant replacement if necessary. These measures are elaborated in Chapter 5, Avoidance and Minimization Measures.

It is anticipated that TCE area on GGNRA lands would be needed for approximately 120 days.

Although the restored vegetation in the project footprint would not reach full maturity for a number of years following project completion, the ultimate result of this project would be that the visual quality of the area would not be degraded, no recreational resources would be compromised, and fish passage would be restored. Therefore the project results on the Section 4(f) park resources would not be adverse.

4.2 Cultural Resources

This section reviews the potential for the project to result in a temporary, constructive, or permanent use of Section 4(f) historic resources as defined in Section 1.1.1.

A 180 linear foot portion of SR 1 would be under construction for a period of approximately 120 days. Construction would be phased, beginning with auger borings for the reinforced concrete box culvert-wall abutment. This would occur through the existing roadway in one lane at a time, requiring one-lane traffic flow through the project area for approximately 2 weeks (1 week on each lane of SR 1), but avoiding weekend periods. A temporary managed signal system would be installed approximately 1,500 feet from either side of the project limits. Once abutments are poured and cured, a temporary bridge surface would be installed on one lane at a time. Once complete, the bridge would allow excavation to occur under the roadway with uninterrupted traffic flow. Excavation would occur from the temporary access road on the east side of the roadway, with material loaded directly into the truck haulers to be removed without requiring stockpiling. Once the excavation is complete, the culvert, lid and wingwalls would be installed. Finally, new road base material and asphalt concrete would be placed above the culvert before regrading and revegetation would occur.

The construction would not result in realignment of SR 1 that would change this use of this resource, nor would it change the visual quality, and therefore no permanent, or constructive use would result. The culvert would improve the roadway cross section to two 12-foot-wide lanes and two 4-foot-wide shoulders. The shoulders would facilitate safe bicycle travel through this area. MGS would be installed at the roadway edge of shoulder at a distance of 16 feet from centerline.

Following project completion and vegetation re-establishment the use and function of the SR 1 roadway would return to its prior, if not improved, condition, and the surroundings would not be adversely affected. No additional right-of-way is required aside from the TCEs discussed above. During construction, the Olema Valley Historic District would experience a temporary use, but while SR 1 is a contributing resource of the Olema Valley Historic District, the project effects are intended to improve SR 1, resulting in no adverse effect on Section 4(f) historic resources.[4]

4.3 Summary of Section 4(f) *de minimis* Findings

Caltrans is in ongoing consultation with NPS on the temporary use of GGNRA lands. Because the project results in a net benefit in creating and enhancing valuable habitat and disturbed area will be restored to achieve equal ecological value, Caltrans has made a preliminary determination that the temporary use of GGNRA lands for the TCE would qualify for a determination of *de minimis* use and therefore would not require further avoidance analysis.

Section 4(f) requires coordination with SHPO prior to making determinations on the "use" of historic sites. Caltrans coordinates with SHPO through the Section 106 consultation process using concurrence with Section 106 findings as the basis for Caltrans' subsequent Section 4(f) determinations. Based on a signed agreement between Caltrans and the SHPO (Caltrans, 2014), Caltrans may make a *de minimis* determination for minor use of a historic resource with the written concurrence of the SHPO on a finding of "no historic properties affected" or "no adverse effect". Caltrans, in consultation with SHPO, anticipated concurrence with a "no adverse effect" on the Olema Valley Historic District would result from the project due to the

[4] From the FHWA Section 4(f)Policy paper: "The Section 4(f) statute imposes conditions on the use of land from historic sites for highway projects but makes no mention of bridges, highways, or other types of facilities such as railroad stations or terminal buildings, which may be historic and are already serving as transportation facilities. The FHWA's interpretation is that the Congress clearly did not intend to restrict the rehabilitation or repair of historic transportation facilities. The FHWA therefore established a regulatory provision that Section 4(f) approval is required only when a historic bridge, highway, railroad, or other transportation facility is adversely affected by the proposed project; e.g. the historic integrity (for which the facility was determined eligible for the NR) is adversely affected by the proposed project (see 23 CFR 774.13(a))."

nature and extent of the project. Therefore, Caltrans has determined that the temporary use of SR 1 and adjacent lands inside the Olema Valley Historic District would qualify as *de minimis* determination and therefore would not require further avoidance analysis. Therefore, Caltrans has made a preliminary *de minimis* determination on the Olema Valley Historic District for this project.

Chapter 5 Avoidance and Minimization Measures to Park/Recreation Resources

The NPS values the preservation of biological resources in the Olema Valley portion of the GGNRA as integral to the role and purpose of the GGNRA lands. AMMs and mitigation measures have been incorporated into the proposed project to reduce project effects on the GGNRA lands, such as ecosystem restoration and including measures to protect hydrology, water quality and biological resources. Table 6-1 lists measures included in the Biological Assessment provided to the USFWS and the NMFS for consideration in developing a Biological Opinion.

Table 5-1 Avoidance and Minimization Measures and Mitigation Measures

Protected or Regulated Resource	Proposed Avoidance and Minimization Measures and Mitigation Measures
Hydrology and water quality	1. All runoff from new and reworked pavement will be treated with biofiltration strips and/or bioretention swales. 2. Soil erosion will be minimized since construction is proposed during typically-dry weather, summer months. Sediment from construction will be minimized by the use of Caltrans' construction best management practices for stormwater, including a system of silt fences that will be used to keep sediment out of the creek during slope grading in the temporary construction easement (TCE) area. Temporary erosion control measures may also include bonded fiber matrix, and hydro-seeding with native seed mixture. 3. To avoid impacting unnamed tributary during construction, a creek diversion will be installed consisting of two coffer dams in the TCE and a conduit conveying the creek through the existing double culvert to the outfall on the west side. The choices of coffer dam materials are a gravel bag berm, a sheet piling wall, or an AquaDam (a large balloon filled with water). 4. During soil hauling, street sweeping at construction entrances to limit soil being transported to roadway drainage systems.
General Avoidance and Minimization Measures	1. As a first order of work, the project footprint will be delineated with temporary, high-visibility wildlife exclusion fencing to prevent the encroachment of construction personnel and equipment into sensitive areas during construction activities and to prevent the inadvertent encroachment of the California red-legged from (CRLF) into the project footprint. The fencing will be removed only when all construction equipment is removed from the job site. 2. High-visibility, environmentally sensitive area fencing or markers may be used elsewhere within the project limits to protect certain trees and plants, if possible, and will identified later in the design phase of the project. 3. Vegetation will be cleared only where necessary; grubbing will be minimized to the greatest extent practicable. Efforts will be taken to

Table 5-1 Avoidance and Minimization Measures and Mitigation Measures

Protected or Regulated Resource	Proposed Avoidance and Minimization Measures and Mitigation Measures
	minimize impacts to well-established vegetation, particularly within the riparian habitat where feasible. 4. Any vegetation that is within the cut-and-fill line or is growing in locations where permanent structures will be placed or on the embankment to be excavated, will be cleared. In all other areas where vegetation will be cleared, it will be cut above soil level to allow vegetative reproduction following construction. 5. This project will be in compliance with the MBTA and will avoid impacts to the extent feasible during the February 1 to August 31 nesting season. If work must occur during the nesting season, the following measures will be taken: • No more than 3 days prior to construction or any vegetation clearing, the project area will be surveyed to identify migratory and non-game birds, and their nests. • Should any active nests be found, no nests would be removed or relocated. Appropriate no-work buffers will be applied, including a 50-foot buffer for any nesting passerine birds and a 300-foot buffer for nesting raptors. • Any nesting migratory birds or nongame birds near the project footprint will be regularly monitored for signs of disturbance; work will be avoided in such areas until all birds have fledged. 6. Onsite construction will be constrained to occur during the driest time of year, when the creek is anticipated to have its lowest flows, starting on July 10 and ending on October 15. This practice is mainly to protect the CRLF, NSO, CFS, and CCS, as this window avoids the time period when these species are most active or are thought to be potentially present. Work in the creek will be limited to when the creek is dry or mostly dry, as much as practicable. 7. The Douglas-fir (Pseudotsuga meniesii) on the embankment will be cleared using a truck-mounted crane operated from the roadway and hand tools and may be placed in the channel per consultation with a fluvial geomorphologist, provided to the National Park Service (NPS) or removed from the construction site; no construction vehicles will be permitted below the ordinary high water mark downstream of the culvert outlet or in the creek's surface waters. Protective measures will be implemented to prevent excavation material from falling into the creek. 8. Grubbing will be limited to the embankment that will be excavated or within the cut/fill line. Vegetation removal will be done by hand. 9. All construction personnel will attend an environmental education program delivered by a U.S. Fish and Wildlife Service (USFWS)-approved biologist prior to working on the project site. The program will include an explanation of how to best avoid the incidental direct impact of listed species. The field meeting will include topics on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of project maps showing areas where avoidance and minimization measures are to be implemented. The program will include an explanation of applicable federal and state laws protecting endangered species as well as the

Table 5-1 Avoidance and Minimization Measures and Mitigation Measures

Protected or Regulated Resource	Proposed Avoidance and Minimization Measures and Mitigation Measures
	importance of compliance with Caltrans and various resource agency conditions. 10. Project-related vehicle traffic will be restricted to established roads and construction areas. Project vehicles will observe a 15-mile-per-hour speed limit while in the project limits, except on the current highway. 11. Dust control measures will be implemented. These will consist of regular truck watering of construction access areas and disturbed soil areas, including the use of organic soil stabilizers, if required, to minimize airborne dust and soil particles generated from graded areas. Regular truck watering will be a requirement of the construction contract. In addition, for disturbed soil areas, the use of an organic tackifier to control dust emissions blowing off of the right-of-way or out of the construction area during construction will be included in the construction contract. Watering guidelines will be established to avoid any excessive run-off that may flow into contiguous areas. Any material stockpiles will be watered, sprayed with tackifier, or covered to minimize dust production and wind erosion. Dust control will be addressed during the environmental education session. 12. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once daily from the project footprint. 13. Dedicated fueling and refueling practices will be designated as part of the approved Storm Water Pollution Prevention Plan (SWPPP). Dedicated fueling areas will be protected from storm water run-on and will be located at least 50 feet from downslope drainage facilities and water courses. Fueling must be performed on level-grade areas. Onsite fueling will only be used when and where it is impractical to send vehicles and equipment off-site for fueling. When fueling must occur onsite, the contractor will designate an area to be used subject to the approval of the Resident Engineer (RE) representing Caltrans. Drip pans or absorbent pads will be used during onsite vehicle and equipment fueling. 14. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 ft from any downstream riparian habitat, aquatic habitat, culvert, or drainage feature. 15. Any and all non-hazardous dredge/fill material produced as a result of removing the existing embankment and constructing the new abutments will either be reused and fully contained within the project limits or will be properly disposed of offsite. 16. All areas that are temporarily affected during construction will be revegetated with an assemblage of native species as appropriate. 17. To reduce the spread of invasive, nonnative plant species and to minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This Order is provided to prevent the introduction of invasive species and to provide for their control to minimize the economic, ecological, and human health effects. In the event that noxious weeds are disturbed or removed during construction-related activities, the contractor will be required to contain the plant material associated with these noxious weeds and dispose of them in a manner that will not promote the spread of the species. The

Table 5-1 Avoidance and Minimization Measures and Mitigation Measures

Protected or Regulated Resource	Proposed Avoidance and Minimization Measures and Mitigation Measures
	contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the areas within the project footprint should be covered to the extent practicable with heavy black plastic solarization material until the end of the project. 18. At the request of NPS, topsoil from the area will be stored and re-applied within the project limits following construction to the extent possible, and any supplemental topsoil material will be obtained through permit from nearby resources within GGNRA or park lands as appropriate and available to reduce to introduction of new species and enhance the possibility of maintaining the same native species. 19. All disturbed areas outside the state right-of-way will be restored to meet in-kind ecological habitat values. This includes contouring disturbed areas to conform to the surrounding landscape and restored by a combination of compost application, re-vegetation with native plants, and hydroseeding with an appropriate native seed mix, watering and monitoring re-establishment of plants throughout a minimum 3-year plant re-establishment period.
California red-legged frog (CRLF), California freshwater shrimp (CFS), and western pond turtle (WPT)	1. A USFWS-approved biologist will be onsite to monitor all construction activities that could reasonably result in the direct impact of CRLF, CFS, or WPT (e.g., work within the creek bed, grubbing). The biologist will conduct a pre-construction survey for CRLF, CFS and WPT ahead of any ground disturbing activities. The qualifications of the biologist(s) will be presented to the USFWS for review and written approval prior to ground-breaking at the job site. 2. The approved biologist will have the authority to halt work through coordination with the resident engineer in the event that a CRLF, CFS, NSO or WPT is discovered within the project footprint. The resident engineer will ensure construction activities remain suspended in any construction area where the qualified biologist has determined that a potential direct impact of CRLF, CFS, or NSO could occur. Work will resume once the animal leaves the site voluntarily, is removed by the biologist(s) to a release site using USFWS-approved handling techniques, or is determined to not be being harassed by construction activities. If direct impact occurs, the biologist(s) will notify the USFWS contact by telephone and email within 1 working day. 3. Nighttime work will be avoided to the maximum extent practicable. Should nighttime work need to be conducted, all lighting will be directed downward and toward the active construction work area. 4. If pumping is used for dewatering, intakes will be completely screened with wire mesh no larger than 0.2 inch to prevent animals from entering the pump. 5. If necessary, rodenticides and herbicides will be used in the project footprint in such a manner as to prevent primary or secondary poisoning of the CRLF, CFS, NSO, or WPT and the depletion of vegetation upon which they depend. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, and California Department of Food and Agriculture, and other appropriate state and federal regulations.

Table 5-1 Avoidance and Minimization Measures and Mitigation Measures

Protected or Regulated Resource	Proposed Avoidance and Minimization Measures and Mitigation Measures
	6. To prevent the inadvertent entrapment of the animals, all excavated, steep-walled holes or trenches more than 1-ft deep will be covered at the close of each working day by plywood or similar materials. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks shall be installed. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. If, at any time, a trapped listed animal is discovered, the biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape, or the USFWS will be contacted by telephone for guidance. The USFWS will be notified of the incident by telephone and email within 1 working day. 7. Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds. 8. No pets or firearms, except those used by law enforcement personnel, will be permitted into the action area. 9. If requested, before, during, or upon completion of groundbreaking and construction activities, Caltrans will allow access by USFWS personnel into the project footprint to inspect the project and its activities. Caltrans requests that all agency representatives contact the resident engineer prior to accessing the work site and review and sign the Safe Work Code of Practices, prior to accessing the work site for the first time. **Reporting** 10. Injured CRLF, CFS or WPT will be cared for by a USFWS-approved biologist or a licensed veterinarian, if necessary. Dead individuals of any special-status animal will be preserved according to standard museum techniques and held in a secure location. The USFWS will be notified within one working day of the discovery of a death or an injury to CRLF/CFS/WPT resulting from project-related activities or if a CRLF/CFS/WPT is observed at the project site. Notification will include the date, time, and location of the incident or of the finding of a dead or injured animal clearly indicated on a United States Geological Survey (USGS) 7.5-minute quadrangle and other maps at a finer scale, as requested by the USFWS, and any other pertinent information. 11. Caltrans will submit post-construction compliance reports prepared by the biologist to the USFWS within 60 calendar days following completion of project activities or within 60 calendar days of any break in construction activity lasting more than 60 calendar days. This report will detail (1) dates that relevant project activities occurred; (2) pertinent information concerning the success of the project in implementing avoidance and minimization measures for listed species; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the CRLF, CFS, or WPT, if any; (5) occurrences of incidental direct impact of any listed species; (6) documentation of employee environmental education; and (7) other pertinent information.
Northern spotted owl (NSO)	1. Tree removal will be restricted to the non-nesting season for NSO. 2. No more than 3 days prior to construction or any vegetation clearing, a USFWS approved Biological Monitor will survey the project area for NSO and their nests, regardless of the time of year. 3. If nesting NSO are observed, or if NSO individuals are observed, specific measures developed as part of Section 7 consultation will be

Table 5-1 Avoidance and Minimization Measures and Mitigation Measures

Protected or Regulated Resource	Proposed Avoidance and Minimization Measures and Mitigation Measures
	implemented, including the implementation of no-work buffers around any active nests. 4. Construction activities that cannot be completed during the non-nesting season and will be restricted to late nesting season.
Migratory birds	1. In compliance with the MBTA, Caltrans will avoid direct impact of active nests. To the extent feasible, tree and vegetation removal activities will be restricted to the non-nesting season (September 1 – February 1). No more than three days prior to any construction activities, regardless of time of year, a Caltrans biologist will conduct pre-construction nest surveys. If active nests are found, the biologist will work with CDFW to establish appropriate no-work buffers. 2. Nest exclusionary devices may also be implemented prior to the nesting season to avoid impacting nesting birds. These may include sprinklers or high pressure hoses to remove non-raptor nests or installing devices in non-active nests (e.g., buoys) to exclude active use of the nest during the construction season. 3. Preconstruction and construction nest surveys will be conducted within the BSA for all bird species and, if special-status species are detected, Caltrans will consult with CDFW or USFWS as appropriate. Surveys will include at least one survey conducted one full breeding season prior to the beginning of construction. If bird nests are found, they will be avoided/buffered to the extent suggested by a qualified biologist to avoid direct impact of an active bird nest.
Salmonids	1. If necessary, a fish relocation plan will be implemented to remove protected steelhead (*Oncorhynchus mykiss*) away from the project site consistent with the National Marine Fisheries Service (NMFS) Programmatic Biological Opinion (Caltrans 2015a; Appendix F of the Natural Environmental Study). This plan will be submitted to CDFW and NMFS for approval prior to project implementation. 2. A qualified biologist will conduct a preconstruction visual survey (i.e., bank observations). If listed species are observed during the surveys, and it is determined that they could be injured or killed by construction activities, a qualified project biologist will identify appropriate methods for avoiding direct impact, including exclusion where possible, and, if necessary, relocation of individuals that could be affected. 3. Construction is scheduled during the summer and fall, when the creek will be dry to mostly dry, beginning on July 1 and ending on October 15. Conducting work within the proposed in-water work window will minimize the likelihood of potential mortality. 4. BMPs will be implemented to avoid or minimize impacts on fish and wildlife species and their associated habitat, including Caltrans standard maintenance and construction site BMPs, listed in this table under "General Avoidance and Minimization Measures" as well as additional measures developed specifically for project actions to be identified in the NMFS Programmatic Biological Opinion. Per technical assistance with NMFS (October 15, 2015), Caltrans is anticipating using the Programmatic Biological Opinion (PBO) for consultation for CCS for this project.

Table 5-1 Avoidance and Minimization Measures and Mitigation Measures

Protected or Regulated Resource	Proposed Avoidance and Minimization Measures and Mitigation Measures
Pallid bat, Townsend's big-eared bat, and western red bat	Because of the cryptic (i.e., difficult to observe) nature of day-roosting by bats, any suspect trees (such as large snags or cavity trees) should be removed using the two-phase system of removing limbs from the tree on the afternoon of the first day and stumping the tree on the following day. This technique allows any bats that may be using the trees to leave of their own volition; they are then unlikely to day-roost in or near any trees from which the limbs were removed. In addition to this, it is recommended to the maximum extent practicable, that no work occur at dawn or dusk, when bats are most active. No bats will be handled as part of this project.
Invasive species	Caltrans will implement a non-standard special provision to require the cleaning and decontamination of vehicles and equipment brought into the construction area.

Source: *Natural Environment Study for the Olema Culvert Replacement Project* (Caltrans, 2016)

Chapter 6 Coordination

The U.S. Department of the Interior will be provided an opportunity to review this Draft Section 4(f) document in accordance with the implementing regulations found in 23 CFR 774. Coordination with the officials with jurisdiction over the relevant Section 4(f) properties is proceeding during the Section 4(f) process and the associated National Environmental Protection Agency and Section 106 processes.

Table 7-1 below summarizes the coordination conducted by Caltrans with the NPS, Tribes, local governments, and history preservation groups regarding park and recreational resources. Caltrans has met with and corresponded with these entities at key milestones to gather local knowledge; review project development and existing conditions; and discuss design objectives, options on drainage, transportation considerations, and avoidance of open space resources.

Caltrans District 4 Office of Cultural Resources Section 106 studies (Caltrans, 2016c) were conducted by Caltrans Professionally Qualified Staff and carried out in a manner consistent with Caltrans 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, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal Aid Highway Program in California*. Through the Section 106 process, the State Historic Preservation Office is anticipated to concur with a No Adverse Effect on historic and archaeological resources.

Caltrans will continue coordinate with the NPS, as the agency with jurisdiction of the GGNRA lands regarding the preliminary *de minimis* determination made in this document and throughout advanced project design.

The Section 4(f) Evaluation will be publicized and made available for a 30-day public comment period.

Table 6-1 Project Coordination

Date of Coordination	Agency/ Group Name	Type and Intent of Coordination	Outcome/ Results
October 1, 2013	Ya-Ka-Ama	Contacted by phone.	No response received.
April 15, 2013	Native American Heritage Commission (NAHC)	Letter requesting a review of their Sacred Lands file to determine if there were known cultural resource sites within or near the APE of the proposed project.	NAHC responded on May 7, 2013. No Native American cultural resources were reported from the sacred lands file records search. A NAHC list of interested Native American groups and individuals was provided.
September 17, 2013	Greg Sarris of the Federated Indians of Graton Rancheria and the Ya-Ka-Ama	Letter to consult on project and resources present.	On Sept 25, 2013, Nick Tipon, Federal Indians of Graton Rancheria requested bridge and culvert excavation plans and copies of the cultural studies. He also stated a previously unrecorded site has been identified in the vicinity of the current project.
March 12, 2014	NPS	Letter to gather input on project and resources present.	Email, on April 16, 2014 with concerns regarding SR 1 being a contributing element to the setting of the Olema Valley/Lagunitas Loop Ranches Historic District and asked Caltrans to treat it as such for the purposes of this project.
March 12, 2014	Marin Historic Museum and Jack Mason Museum of West Marin History	Letter requesting interest in the project and whether presence of known cultural resources present.	No response received.
April 8, 2014	NPS	Email, requesting concurrence on the finding of No Adverse Effect regarding potential impacts to the Truttman Ranch part of the Olema Valley/Lagunitas Loop Ranches historic district.	August 5, 2014 NPS agreed with finding via email.
April and May 7, 2014	Nick Tipon, Federal Indians of Graton Rancheria	Notified of geotechnical testing.	Tipon requested a written summary of findings which were provided to him.

Table 6-1 Project Coordination

Date of Coordination	Agency/ Group Name	Type and Intent of Coordination	Outcome/ Results
February 12, 2015	NPS (Pt Reyes National Seashore)	Held meeting to review project plans and are of impact.	Raised issues of cattle crossing, revegetation plan, and requested to be kept informed of biological surveys and results.
August 27, 2015	NPS	Memorandum to provide project update to determine whether TCE area would qualify as Section 4f resource	Telephone call in September from Wendy Poinsot confirmed GGNRA lands as recreational resources that qualify for Section 4f protection.
October 22, 2015	NPS	Held a field trip and project status review.	NPS expressed concern over detour lane impacts on topography and mature trees.
February 4, 2016	NPS	Held meeting to review project changes and updates on impacts on biological resources.	NPS confirmed that they would process a Categorical Exclusion on this project based upon Caltrans studies once submitted.
March 26, 2016	NPS	Email to consult on changes to the proposed project, requiring .14 of an acre TCE within historic district.	March 26, 2015 responded with no concerns regarding the changes.
March 30, 2016	SHPO	Provided Cultural Reports for concurrence review on determinations of effect.	Awaiting response.

Chapter 7 References

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